Private and Confidential

MAGNESIUM REFRACTORIES LTD.

The Timmins Magnesite Project

Robert A. Elliott, P. Eng.
May, 1992

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

(All funds are in Canadian dollars unless otherwise stated.)

EXHIBITS

I. EXECUTIVE SUMMARY

1. THE PROJECT

Magnesium Refractories Ltd. ("Magnesium Refractories" or "the Company") is planning the development of a major mine and processing facility at Timmins, Ontario, Canada to provide needed **materials for the refractories and pollution abatement industries in North America.**

The project is based on a proven ore **reserves life of 55 years,** producing a quality Magnesite ore from a low cost open pit. After crushing and flotation, the Magnesite concentrate is calcined and processed to generate the expected following Magnesia and related products:

Dead Burned 98% content Magnesia	- 50,000 tonnes per year
Caustic Calcined 98% content Magnesia	- 15,000 tonnes per year
Anhydrous Ferric Chloride	- 8,000 tonnes per year

Talc in the amount of 70,000 tonnes per year will also be recovered during flotation.

The basic technology for the project is well established because the Timmins ore has been thoroughly evaluated by pilot plant testing. Magnesium Refractories has developed a new process technology for removal of trace iron and other impurities from the calcined Magnesia. The result is a Magnesia product of unusually high purity for premium markets.

The world industrial demand for higher purity Magnesias has obliged suppliers to turn away from the traditional low cost natural mined magnesite sources and develop high cost, synthetic, brine based Magnesias. The Company's new purification technology provides the means for the natural Timmins product to exceed the purity of the premium, synthetic Magnesias. In fact, **Timmins will produce the world's highest purity industrial Magnesia.**

The dead burned 98% content Magnesia product will be absorbed by the manufacturers of basic refractory brick and specialty products for the steel making, base metal refining, cement and glass making industries.

The caustic calcined Magnesia will service environmental and industrial applications particularly in the field of acid neutralization, waste water and sewage treatment, flue gas desulphurization and environmentally friendly pulp and paper processing.

The ferric chloride by-product from the Company's new magnesia purification technology is a specialized, highly reactive chemical. It is used broadly in industry in the treatment of water supplies, sewage and industrial waste. It is important for phosphate reduction in municipal waste water, as a catalyst in many organic reactions, in solvents, in photo engraving, in dying and in paint pigments.

2. THE PROJECT ECONOMICS

The estimated project capital cost is $61.8 Million. The Timmins facility is expected to generate Net Revenue of $30 million per year and an Operating Profit of $19 million annually. The after tax return over a 25 year operating life is summarized as follows:

Financing Scenario	Equity Payout (Years)	Discounted Cash Flow Return on Equity (%)	Return of Investment (X)	Cum. Net Cash Flow ($ millions)
100% Equity	4.0	20.1	5.5	273
30% Equity 70% Debt	3.2	32.0	5.3	260

At January 1, 1993, the present value of future after tax net cash flow, discounted at 12%, is $39 million.

3. PROJECT REQUIREMENTS

Development of a prototype magnesia purification plant to provide 30 tonnes of premium product for refractory brick testing is a project requirement. This work, together with the preparation of a final feasibility study by independent engineers represents a capital cost of $2.5 million. The Company will fund this work with a capital contribution of $1.25 million to be provided by the governments of Ontario and Canada.

Upon completion of the final feasibility study, an additional equity requirement of $17.7 million with project financing of $42 million will allow the Timmins facility to be constructed by late 1995.

4. TIMING

The Company's objective is to complete the feasibility study by September 30, 1993.

If availability of the final feasibility study in September, 1993 coincides with a commitment for the project financing, half of the project's equity funds will be required in each of 1993/94 and 1995.

USES OF MAGNESITE AND ITS DERIVATIVES

[redacted]

[redacted]
- [redacted]

[redacted]
Δ
- [redacted] ✓ — [redacted] — [redacted]
- [redacted] ✓ — [redacted] — [redacted]
- [redacted] ✓ — [redacted] — [redacted]

CAUSTIC CALCINED MAGNESIA (700° - 1000°C) ✓

MAGNESIA CEMENTS	BUILDING PRODUCTS	LIGHT WEIGHT FIRE PROOF INSULATING BOARDS SOREL CEMENT FLOORING ADHESIVES LOW COST STRUCTURAL CONCRETE AND CEMENT LOW COST HOUSING PANELS BRICKS & SANDWICH BOARDS FIRE PROOF WEATHER RESISTANT COATINGS ROAD CONSTRUCTION STABILISER PAINTS
SYNTHETIC CHEMICALLY PURIFIED MAGNESIA ⊃	MAGNESIUM METAL FEEDSTOCK GENERAL MAGNESIUM CHEMICAL MANUFACTURING PHARMACEUTICALS CERAMICS, CERAMIC DOPING ULTRA-HIGH PURITY MAGNESIA ULTRA HIGH PURITY ELECTROFUSED MAGNESIA (HPO) ELECTRICAL GRADE	ULTRAVIOLET SENSORS HI-TECH CERAMICS UHF / MICROWAVE INSULATORS SEMI-CONDUCTOR SUBSTRATES SODIUM VAPOUR RESISTENT COMPONENTS VACUUM DEPOSITION OPTICAL COATINGS
METALLURGICAL FLUX		
DUCTILE ZIRCONIA CERAMIC DOPING		
PLASTIC FILLER		
PESTICIDE CARRIER		
DESIGNER CERAMICS	PROPANTS	
FOUNDRY SAND		
AGRICULTURE	ANIMAL FEEDSTOCKS ✓ FERTILISERS ✓	GRANULAR FERTILISERS SLOW RELEASE FERTILISERS (MAGAMP) CROP DUSTING
FOUNDRY MOULD RELEASE		
PHARMACEUTICALS e.g. ANTACIDS, MILK OF MAGNESIA		
COSMETICS	LIPSTICKS PERFUME AND POWDER BASE	
GENERAL MAGNESIUM CHEMICAL MANUFACTURING		
RUBBER ADDITIVE FOR VULCANISING		
PLASTIC STABILISERS		
PULP AND PAPER MANUFACTURING ✓ "MAGNEFITE PROCESS"		
ENVIRONMENTAL	WATER TREATMENT ✓ FLUE-GAS DESULPHURISATION ✓	EFFLUENT NEUTRALISATION HEAVY METAL PRECIPITATION LIGNOSULPHATE REMOVAL
COATINGS		
ABSORBANT		
DESSICANT TABLE SALT etc.		
FLAME RETARDENT INORGANIC FOAM		
AUTOMOTIVE LUBRICANTS SLUDGE DISPERSAL ACID NEUTRALISATION AND OIL ADDITIVE		
BOILER FUEL ADDITIVE CORROSION AND SLAG CONTROL		
ABRASIVE GRINDING WHEELS CEMENT BINDERS		
HYDROMETALLURGICAL CATALYST SUPPORT / ABSORBANT		

MAGNESIUM METAL

	METAL MATRICES	
FILLER FOR COMPOSITES	CERAMICS	
	REFRACTORIES	
PHARMACEUTICALS	LOW INERTIAL APPLICATIONS	
LIGHT STRUCTURES	TOOLS, VEHICLE CHASSIS, SHIPPING, DRILLING RIGS, HOUSING APPLIANCES	
HIGH POROSITY FILTERS		
ALUMINIUM ALLOYS	AUTOMOTIVE COMPONENTS PORTABLE EQUIPMENT ALUMINIUM CANS	
CAST ALLOYS	SPACE APPLICATIONS AIRCRAFT COMPONENTS SACRIFICIAL ANODES	
WROUGHT ALLOYS	LIGHTWEIGHT SHEET LIGHTWEIGHT TUBING	
PYROTECHNICS		
METAL PRODUCTION	TITANIUM METAL PRODUCTION FROM RUTILE	TITANIUM MELTING AND MANUFACTURING FACILITIES
	ZIRCONIUM METAL PRODUCTION FROM ZIRCON	
DESULPHURISATION OF IRON AND STEEL	POTENTIAL FOR THORIUM, POTASSIUM AND URANIUM METAL PRODUCTION	
	INORGANIC CHEMICALS	
NODULAR CAST IRON PRODUCTION	ORGANOMETALLIC COMPOUNDS	
	ANALYTICAL REAGENTS	
CHEMICAL PRODUCTION	ELECTROCHEMICAL BATTERIES	
	INTRA-CITY BUSES	
ENERGY STORAGE	HIGH PURITY HYDROGEN	
THERMITE COMPOUNDS	MILITARY APPLICATIONS	
DESSICANT FOR METHANOL	PLEASURE VEHICLES	
Mg SLURRY FOR ENERGY RELEASE TERTIARY OIL PRODUCTION		

Source: Fluor Daniel Australia Limited,
Stanford Research Institute (S.R.I.)

II. THE COMPANY AND THE TIMMINS PROPERTY

1. MAGNESIUM REFRACTORIES LTD.

1.1 The Company

Magnesium Refractories Ltd. is a private Ontario corporation formed in July, 1989 specifically to own and manage the development of the Timmins Magnesite Project. The Company is owned by its management, as follows:

Shareholders		Interest Held
Gary J. Last, P.Eng.	President, Director	30%
James A. Bates, P.Eng.	Vice-President, Director	30%
A. Douglas McCallum, LLB	Secretary, General Counsel and Director	30%
Robert A. Elliott, P.Eng.	Consultant	5%
Lorne Duncan, P.Eng.	Consultant	5%

The Company acquired the Timmins Claims in 1989 from Pamour Inc. ("Pamour") (now Royal Oak Resources Ltd.). The Company has maintained the Claims in good standing.

A related asset is the reserve data and reports and the processing technology developed by Pamour's predecessor in the Claims, Canadian Magnesite Mines Ltd. ("CMML"). This asset was also purchased in 1989.

A significant asset of Magnesium Refractories is the patent on the technology for removal of iron oxides from caustic calcined magnesia developed in 1990 and 1991. The Company expects that this technology is applicable to other natural high iron magnesites internationally.

1.2 The Principals

Gary J. Last, President and Director

Mr. Last is a Chemical Engineer with 37 years experience in the natural resources industries.

After 28 years of executive and technical experience in the North American oil industry Mr. Last became Chief Executive Officer and a shareholder of Barrick Resources in 1982. He guided that company's growth during its formative years, building the company as a profitable gold miner and producer through the acquisition of producing properties. Following the successful financing of the Camflo ($100 million) and Mercur ($40 million) acquisitions, Mr. Last left American Barrick in 1986 to pursue independent mining investments.

Prior to joining American Barrick, Mr. Last was employed by two major oil companies for 18 years and was a petroleum consultant for ten years. He began the development of his acquisition expertise with the $24 million Sabre Petroleums purchase in 1976. The Sabre transaction was notable as the first petroleum company acquisition exclusively financed by Canadian pension funds using high yielding first mortgage bonds. Sabre was actively managed and developed by Mr. Last and was sold in 1979 with a significant gain for bondholders and shareholders.

Mr. Last and Victor Kloepfer in 1972 formed the consulting firm that today continues in business in Calgary as Coles, Gilbert Associates Ltd. The company currently employs a staff of eighty persons and services a worldwide clientele in the oil and gas sector.

Last's major responsibility as Vice President, Production with Aquitaine Company of Canada was the management of the drilling, development and operation of the Rainbow oil fields of remote northern Canada and the Ram River natural gas and sulphur producing field in central Alberta. Ram River today is Alberta's most environmentally advanced and largest sulphur producer.

James A. Bates, Vice-President and Director

Mr. Bates graduated with a degree in Mining Engineering from Queen's University in 1949.

During the period 1949 to 1966 he was involved directly in various phases of mine operations, both open pit and underground. The work involved capital and operating cost evaluation of various mining operations coast to coast in Canada, mine development, and the complete operation of mines.

Subsequently he spent seventeen years as a principal with the consulting firm of Watts, Griffis and McOuat. The consulting responsibilities involved geological, metallurgical and mining studies on all types of mining projects in many countries of the world.

Through the efforts of Mr. Bates, Treasure Valley Resources ("CTVX"), a junior Canadian mining company, formed a company in Brazil in 1983. Mr. Bates moved to Brazil as the company's Technical Vice-President and led the development of their gold deposits in that country. CTVX currently has two major gold operations in production with an operating profit of about US $37 million per year. CTVX recently acquired a gold property in Chile, originally recommended to them by Mr. Bates. CTVX sold a 50% interest in the Chilean project to Placer Dome at a profit of US $33 million and Placer Dome is financing the property to production at an estimated cost of US $300 million.

While still with Watts, Griffis and McOuat, during the period 1964 through 1980, Jim Bates was Vice-President of CMML and was responsible for all research and pilot plant studies, as well as market development for the Timmins magnesia and talc products, now owned by Magnesium Refractories. In 1964, two thousand tons of ore were mined from the Timmins deposit and trucked to the pilot plant at North Bay, where flotation pilot plant work was completed under his direction. A multiple hearth roaster was installed and the flotation concentrate was roasted to produce a caustic calcine. A Komarek briquetting press was installed to briquette the calcined product, which was then dead burned using the facilities of several refractory companies and the Mines Branch in Ottawa. Subsequently, Mr. Bates conducted a research program with the Mines Branch in Ottawa to optimize the physical and chemical quality of the dead burned periclase. While the physical qualities of the product were excellent, the iron content was not acceptable to the premium market. A series of research programs followed in an attempt to remove the iron economically. This work continued into the late 1970's but was not successful.

During the forty two years Mr. Bates has been involved in the mining industry he has acquired extensive background in varied mine projects in many countries of the world. This experience has given him an ability to expertly evaluate and manage all types of mining projects through all phases of development, financing, construction and operation.

Robert Elliott, Consultant

Mr. Elliott is a Queens University graduate in Metallurgical Engineering. His experience includes mill operations in Africa and Canada; senior scientific roles in the Mines Branch of the Government of Canada and at the Ontario Research Foundation, and 30 years of varied consulting metallurgical assignments with Hatch Associates in Toronto and as an independent consultant.

While employed with Hatch Associates, Mr. Elliott was actively involved in all of the magnesite project pilot studies for CMML.

Lorne R. Duncan, Consultant

Mr. Duncan obtained a Bachelor of Science degree at the University of Manitoba, an engineering degree at the University of Minnesota and conducted post graduate studies at Oxford University.

Mr. Duncan's twenty five years of experience with Canadian Refractories Ltd. in engineering, operating and executive roles paralleled that company's post war growth as a major producer and supplier of refractory material.

With Harbison-Walker's acquisition of Canadian Refractories in 1971, Mr. Duncan joined that company's International Division, initially to be responsible for materials management for 16 Harbison-Walker plants worldwide.

Following four years in materials management as the company's Director of Technical and Manufacturing Services, Mr. Duncan was appointed Vice-President of Harbison-Walker International. He was then responsible for the Licensee, Affiliate and Subsidiary operations of 14 Refractory Plants and three Magnesia Plants for Harbison-Walker. In this role Mr. Duncan also supplied technical and engineering support for the following operations:

Magnesite Plants	Refractory Plants
Harbison-Walker, Ludington, Michigan (brine)	Chile
Northwest Magnesite, Washington	Australia
Nepal Orind, Nepal	Peru
Fiefield, Australia	Mexico
Penoles, Mexico	Spain
Flir, Mexico	Brazil
Fimisco, Greece	West Germany
Billiton, Netherlands	
Magnhrom, Yugoslavia	
Magnesita, Brazil	

Mr. Duncan is a recognized world expert in all aspects of magnesite and magnesia refractories production and use.

A. Douglas McCallum, Secretary, General Counsel and Director

Mr. McCallum graduated from the University of Western Ontario with a Bachelor Arts degree and from Queen's University with a LL.B. He was admitted to the Ontario Bar in 1972. In private legal practice he specialized in corporate, tax and mining law. He is now a private investor. Mr. McCallum provides legal and corporate support to the Magnesium Refractories group.

2. THE PROPERTY

2.1 Location

The magnesite-talc deposit is situated in the south central portion of the Porcupine Mining Division and is located approximately seven miles southeast of Timmins, Ontario. The property consists of 18 unpatented and 17 patented mining claims, comprising approximately 700 acres (Exhibit 1).

2.2 Background

The claims were staked for gold in 1910. During the period 1945-46, Porcupine Southgate drilled 29 holes with a footage of 26,603 feet, and did geological mapping at a scale of 1"=500'. This exploration program was done in search of gold and was terminated as significant gold bearing zones were not discovered.

In 1959, Dr. A.T. Griffis staked the claims as a magnesite-talc deposit and in 1962 a public company, CMML was formed to develop the property. In 1962, CMML drilled eight diamond drill holes to a depth of 400 feet composing 3,969 feet. During the 1960's and 1970's CMML completed thorough metallurgical testing and market evaluation, including extensive pilot plant testing and research, to produce a quality dead burned Magnesia or magnesium oxide. CMML was successful in all respects except in their attempts to reduce the iron impurities in the Magnesia product.

In 1983, the claims which had been allowed to lapse were restaked by Pamour. Pamour drilled an additional six shallow holes and repeated much of the metallurgical testing that was done by CMML. Pamour also did extensive research on the development of a process to produce magnesium metal from the magnesite concentrate.

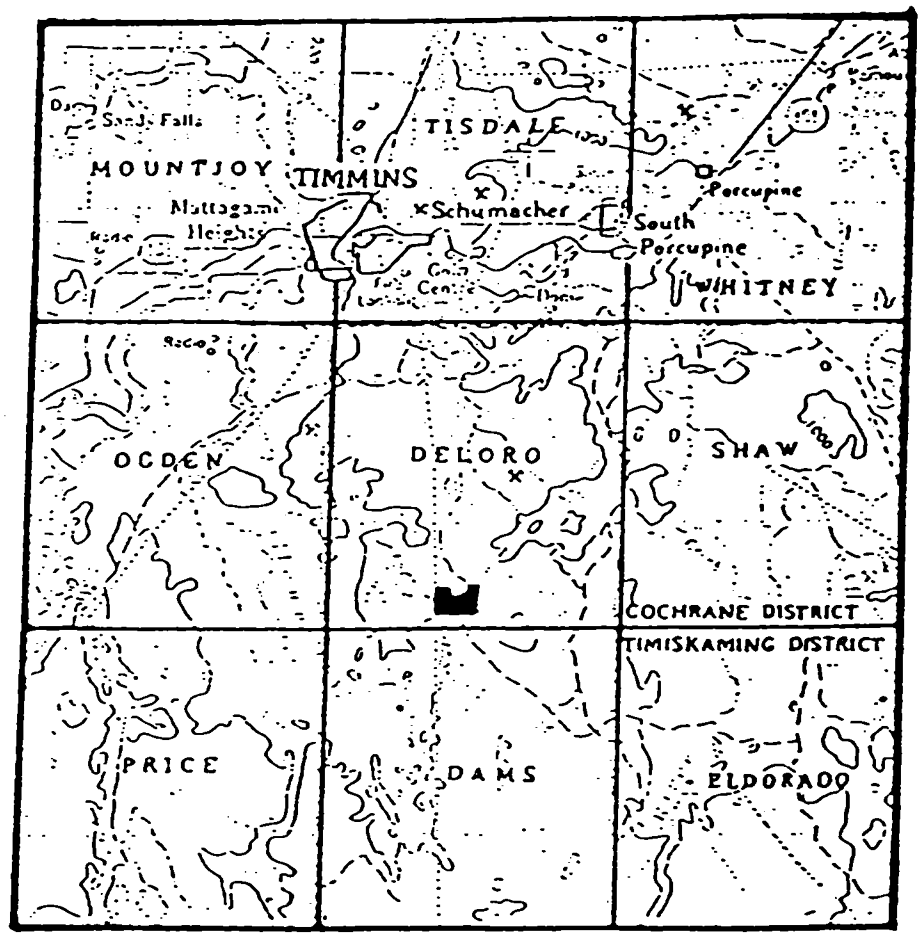
In 1989, Magnesium Refractories purchased the property from Pamour, reserving to Pamour a royalty equal to two percent of the value of the product when it leaves the mine property.

Magnesium Refractories has completed metallurgical research and extensive market studies, with the objective of producing and marketing a high quality magnesia. These efforts have been successful and, using the Company's new proprietary process, a low cost high purity magnesium oxide can now be produced from the Timmins magnesite.

Expenditures on the project to date have been substantial.

Work done by CMML, including diamond drilling, bench scale and pilot plant testing and related research involved expenditures of approximately $4 million in 1991 dollars. An additional $750,000 was spent by Pamour under Noranda's auspices on subsequent research and pilot plant work.

LOCATION MAP



SCALE: ONE INCH TO FOUR MILES

■ : MAGNESITE DEPOSIT

Since 1989 Magnesium Refractories has spent over $1 million on engineering, market research and optimization of product quality, including development of the new iron removal process (patents pending).

In total, approximately $6.0 million has been spent by various entities on confirmation of ore reserves, market evaluation, process development and feasibility studies.

Magnesium Refractories has acquired all of the technical and financial data developed by CMML and Pamour and therefore has the full benefit of the expenditures and development done by previous owners of the property.

The work has been further supported by Industry, Science and Technology Canada under $527,000 of FedNor funding of research and development work. FedNor has funded 50% of all eligible expenditures since January 4, 1990. Repayment of the FedNor funds is to be derived from 1/2 of 1% of annual net sales from the Project for a period of 7 years or until the contribution is repaid in full, whichever comes first.

2.3 Geology

The rocks of the area are Precambrian and are Archeozoic in age. Large masses of ultramafic igneous intrusives are found in the southeast section of the district. These ultramafic intrusives consist largely of serpentinized peridotites. Intense carbonization of country rock is especially prominent in areas of widespread faulting.

The deposit is almost certainly an alteration of serpentinite which is itself an alteration of a dunite. There is evidence that the carbonate was originally a breunnerite (magnesium iron carbonate) and that part or all of the iron has separated from the carbonate as hematite, during a later stage of metamorphism. Stringers of high purity magnesite and quartz, varying in width from a few inches to several feet, occur throughout the deposit.

The Magnesite deposit consists of two steeply dipping, connected lenses which are partially separated by a diabase dyke. The main western lens is wedged between metamorphosed basic volcanics and has a strike length of at least 2,800 feet. The eastern lens is less exposed at surface and is bounded mainly by serpentinite and has been traced for at least 3,500 feet along strike. The deposit is more than 1,800 meters long and up to 300 meters in width (Exhibit 2).

Mineral distribution within the deposit is summarized in the following table:

MAGNESITE DEPOSIT

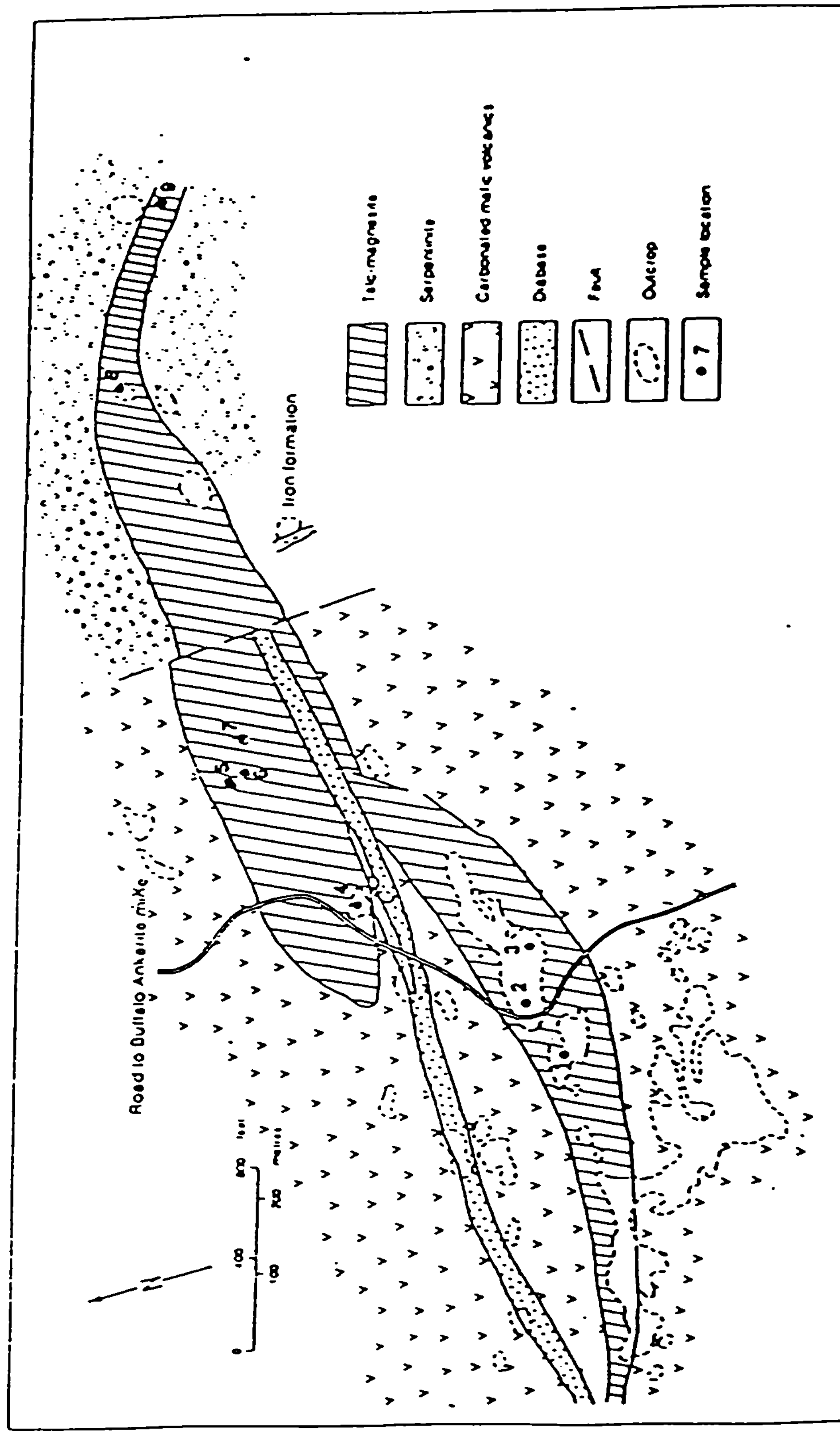


Figure 26—Geological sketch map of Canadian Magnesite Company Limited talc-magnesite deposit, south Deloro Township (modified after Griffis 1972).

	Main Carbonate % Content	East Zone % Content
Magnesite	52	72
Talc	29	9
Quartz	17	17
Iron Oxides	3	2

The magnesite is very low in calcium and has iron in the crystal lattice. The talc is a high purity, platey, non-fibrous talc with a high brightness factor.

2.4 Reserves

Drilling by CMML in 1962 and subsequent drilling by Pamour in the 1980's has outlined a proven reserve of 20,000,000 tonnes of ore with a 52% magnesite and 28% talc content. A total indicated reserve of 90-100 million tonnes is estimated to a depth of 800 feet. The Company's Pre-Feasibility Study provides considerable reserve detail.

Based on currently estimated mining rates and based exclusively on proven reserves of ore the initial Timmins operation is expected to have a life of 55 years. The operation is expected to at least triple the volume of magnesia output by the year 2000. In such event, and with indicated reserves anticipated to be eventually proven, the reserve life would be in excess of 80 years.

Flotation pilot plant work on the magnesite ore confirms that a 6% iron, low calcium, low silica, magnesite concentrate can be produced. The iron in the crystal lattice is then removed using a fluosolids chlorine roast to produce an extremely high grade magnesia, which can be sold as caustic calcine or can be dead burned to produce a high density magnesia clinker for the refractory industry.

A typical analysis of this high purity magnesia is as follows:

	Percentage Content
Magnesia	98.3
Silicon Dioxide	0.8
Calcium Oxide	0.1
Iron Oxide	0.4
Other	0.4
Bulk Density	3.45 grams per cubic centimeter

The talc is a high purity product with the following characteristics:

	Percentage Content
Silicon Dioxide	59.8
Magnesium Oxide	31.9
Iron Oxide	0.44
Aluminum Oxide	0.77
Lime	0.005
Nickel	0.8
Chrome	0.025
Lead	<0.002
Cobalt	0.01
Arsenic	1.6 parts per million

It is a platey talc, fibre free, and has a brightness of 89.

III. PROCESS AND PRODUCT PLAN

1. DESCRIPTION OF PROCESS

Refer to Exhibit 3 for the process and product plan.

1.1 Mining of Magnesite Ore

The mining plan contemplated in the Pre-Feasibility Study is an open pit operation for the life of the reserves. The initial ore source will be from pit development south of the diabase dyke. The ore is exposed at surface.

Since selective mining is not a requirement, the expected annual mine production of 360,000 tonnes will be contracted to an independent mining contractor for blasting, hauling and crushing during the fall and winter months of each year. The mining contract would include the haulage of crushed material to the mill stockpile site.

1.2 Milling Process

During the pilot plant process development the run of mine magnesite ore was reduced to minus 1/2 inch using standard primary and secondary crushing equipment. This material was then fed to a ball mill grinding circuit where flotation feed was produced at a grind of 65% minus 200 mesh. The flotation process was fully developed using this material sizing.

The ore appears to be very amenable to autogenous grinding and for purposes of capital cost estimating it was assumed that a 42 inch by 48 inch jaw crusher would be used to crush the ore to a minus 6 inch particle size, producing feed to an autogenous grinding mill. Autogenous grinding tests will be conducted to permit accurate sizing of the final grinding equipment to achieve the 65% minus 200 mesh specification.

1.3 Calcination

Calcining of the magnesite concentrate to generate the Magnesia product will be done in a multiple hearth roaster. This equipment is used throughout the industry and pilot plant testing has confirmed that the Timmins ore calcines to a caustic calcine in a multiple hearth roaster at temperatures of 1550° to 1600°F. The multiple hearth furnace, with low gas velocities, creates a minimum of dust, for recovery through electrostatic or bag filters.

1.4 Chlorine Roast

The calciner product is conveyed as feed to the fluosolids roaster where contact with controlled volumes of chlorine gas occurs under special operating conditions. The chlorine treatment

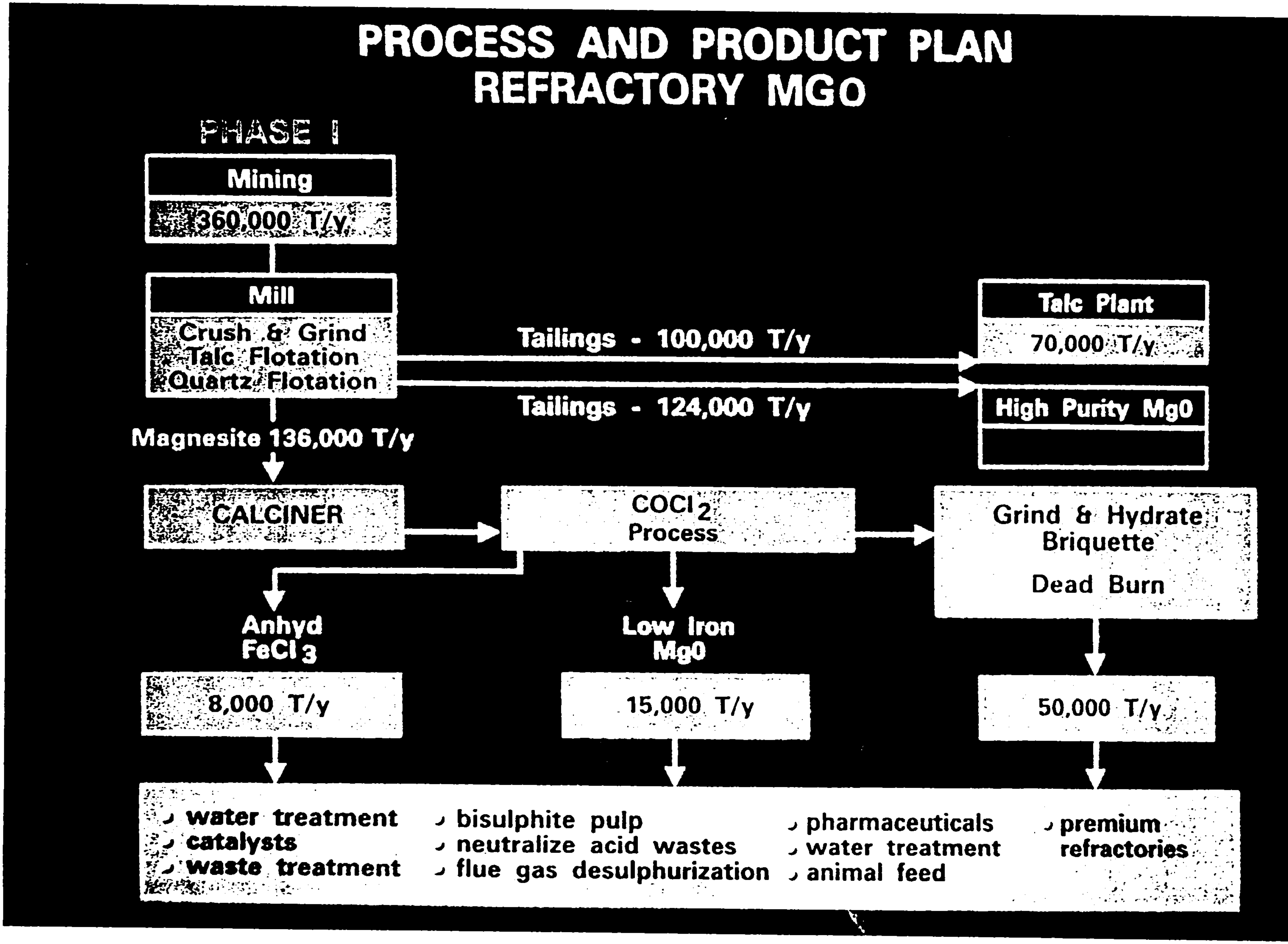

PROCESS AND PRODUCT PLAN
REFRACTORY MGO
PHASE I
Mining
360,000 T/y
Mill
Crush & Grind
Talc Flotation
Quartz Flotation
Tailings - 100,000 T/y
Tailings - 124,000 T/y
Talc Plant
70,000 T/y
High Purity Mg0
Magnesite 136,000 T/y
CALCINER
COCl 2
Process
Grind & Hydrate
Briquette
Dead Burn
Anhyd
FeCl 3
Low Iron
Mg0
8,000 T/y
15,000 T/y
50,000 T/y
water treatment
catalysts
waste treatment
bisulphite pulp
neutralize acid wastes
flue gas desulphurization
pharmaceuticals
water treatment
animal feed
premium
refractories

EXHIBIT 3

results in a significant reduction of the iron oxide contained in the crystal lattice of the magnesia.

Specifically, the 6% iron oxide content of the Magnesia can be conveniently reduced to 0.4% although an iron oxide content as low as 0.1% is economically feasible with the process.

The reaction is exothermic and the only reaction products are anhydrous ferric chloride and carbon dioxide. The ferric chloride is recovered and sold as a valuable by-product of the operation.

1.5 Dead Burning

The magnesia calcine is then conveyed to the section of the plant that prepares the Magnesia for refractories use. The calcine, after a proprietary preparation step, is high pressure briquetted into almond shapes approximately 1 1/2 inches long X 1/2 inches deep. The briquettes are conveyed to the top of a single 10 foot X 35 foot shaft kiln to produce a high density dead burned periclase product. The Timmins kiln hot zone operates at 2000^{o}C and produces a magnesia of 3.45 grams per cubic centimeter density.

The briquet product from the kiln is screened for fines removal and shipped to producers of finished refractory materials.

2. DESCRIPTION OF PLANT PRODUCTS AND THEIR APPLICATIONS

2.1 Caustic Calcined Magnesia

Caustic calcined Magnesia has extensive uses in environmental and industrial applications particularly in the fields of acid neutralization, waste water and sewage treatment, flue gas desulphurization and pulp and paper processing. They are among the most powerful, yet environmentally friendly alkali agents. To date, it has only been the cost of these agents, which has restricted them from more universal usage.

The major shift in world-wide sentiment towards solving environmental problems, particularly over the past few years, has focused both government and industry attention on the political merits in advocating and acting upon "green" policies.

Recently enacted legislation in the United States and the United Kingdom will have enormous impact on those economies. For example, the United States Commerce Department estimates current expenditures to meet clean air requirements now reach US$32 billion per annum and the new Clean-Air Act will raise US pollution control costs to some 2.3% of GNP.

Many materials can be used for environmental control purposes (in acid neutralization, waste-water treatment, flue-gas desulphurization, etc.) with the most commonly used alkalis being lime, caustic soda, soda ash, magnesia and its derivatives.

Caustic soda and soda ash are also "traditional" alkalis and, whether sourced from natural or synthetic operations, are also widely available but are now becoming relatively expensive.

Magnesia, although used selectively for many years, has suffered from an apparent high cost on a per tonne basis. Recently the significant advantages of Magnesia on both a technical and total control cost basis have been recognized. While the alkali cost is higher per tonne, significantly less material is required. Moreover, filtration is faster and sludge volume is reduced so that disposal cost is lower.

The Timmins Magnesite deposit presents an opportunity for the low cost production of high-grade reactive Magnesia from a natural resource instead of relying on synthetic, high-cost Magnesia produced from seawater or brine.

2.2 Dead Burned Magnesia

The Timmins operation will be the only producer of 90%+ quality, dead burned Magnesia in Canada. This material is used primarily in the following high temperature refractory applications:

Products	End Uses
Magnesia bricks	- Basic Oxygen Furnaces
Chrome magnesia bricks	- Copper Furnaces, Glass, Cement Kilns
Carbon magnesia bricks	- BOF and Electric Arc Furnaces, Ladles
Gunning mixes	- Open Hearth and Electric Arc Furnaces
Castable refractories	- Furnaces, Ladles, Ovens

The world's best refractory grade, dead burned periclase magnesias are detailed in Exhibit 4. These materials, with low iron and a density greater than 3.40 grams per cubic centimeter, will be at the forefront of growing use as demand for increasing quality continues through the 1990's. There is no cost effective substitute material for Magnesia in high temperature, severe service applications in basic oxygen steel making,electric arc furnaces, base metal converters and cement kilns.

EXHIBIT 4

PREMIUM DEAD BURNED MAGNESIAS

Comparison of Chemical & Physical Data

	Magnesia	Calcium Oxide	Silicon Dioxide	Iron Oxide	Barium Oxide	Other	Density grams per cubic centimeter
Brine Sourced							
Billiton - Holland	98.5	0.65	0.15	0.50	0.010	0.19	3.45
Premier - Ireland	97.5	1.90	0.20	0.20	0.015	0.18	3.44
Harbison - USA	96.6	2.30	0.70	0.20	0.02	0.18	3.42
Mine Sourced							
Fimisco - Greece	97.0	1.85	0.50	0.60	0.01	0.04	3.42
Kumas - Turkey	96.6	1.50	1.25	0.35	0.01	0.29	3.40
Baymag - Canada	96.0	2.20	0.60	0.80	--	0.40	3.50*
Magnesium Refractories - Canada	98.3	0.10	0.80	0.40	0.010	0.39	3.45

* electrofused

The high bulk density of the Magnesia is critical in these severe applications because resistance to expansion and contraction is crucial to the economic operating life of the refractory brick lining.

Maximum theoretical density of the periclase form of Magnesia is 3.85 grams per cubic centimeter. Dead burning of most premium Magnesias at 1800 to 2000°C in shaft kilns generates densities in the 3.40 to 3.43 range in the best circumstances. Only electric fusion temperatures approaching 3000°C will provide periclase densities exceeding 3.50 grams per cubic centimeter.

The Magnesium Refractories product from Timmins should be compared particularly with that of Harbison (USA) and Baymag (Canada) in Exhibit 4 for the following two reasons:

1. Harbison is typical of the source for all high quality product users in the eastern USA (both caustic and dead burned Magnesia). This product is sourced from brine in central Michigan.

2. Baymag is the new supplier in North America, making large gains in market access worldwide (producing caustic magnesia and electrofused magnesia instead of dead burned product). Baymag's ore is sourced in British Columbia and processed near Calgary, Alberta.

Baymag's product is very similar to Harbison's, with calcium oxide content of over 2.0% and silica content below 1.0%. Baymag's natural product has an iron oxide content of 0.8% or four times that of the brine based material. Overall, the Timmins product is superior since its iron content can be below 0.2% and the calcium oxide impurity is 0.1%.

Baymag, since production of its first calcined material in 1982 and fused magnesia in 1984 has experienced continuous growth. By the end of 1991 Baymag expects to produce 150,000 tonnes per year of calcined magnesia and fuse 28,000 tonnes per year of that material. They are now the world's largest producer of fused Magnesia. Considering freight costs, Baymag's principal markets for its caustic calcine are in the western USA and Canada. The fused product is shipped worldwide.

Fused Magnesia is generally prepared from high purity calcined Magnesia in small electric arc furnace batches. Electrical and other handling costs are high. The material sells for approximately CDN$900 per tonne and is in limited market demand for specialty applications. This market will see continued growth. By contrast, the Timmins dead burned Magnesia at CDN$400 per tonne will enter a much broader range of markets with an already established demand for a premium refractory material. This market is also growing.

2.3 Ferric Chloride

Ferric Chloride is a versatile and somewhat unusual chemical. In liquid forms, its high floc-forming power has given widespread application as an efficient coagulant in the treatment of potable water supplies, sewage, and industrial waste. It is widely used for phosphate reduction in municipal waste-water treatment. Ferric Chloride has been used for many years as a sludge conditioning agent prior to sludge de-watering operations. In its anhydrous form Ferric Chloride has proven to be an excellent catalyst for a variety of organic reactions, including condensation, polymerization, chlorination, and asphalt blowing. Its usefulness with a wide range of solvents and its difference in solubility from one medium to another are valuable properties in these applications. Ferric Chloride is also used extensively as an etchant in photo-engraving, in forming the iron salts employed as mordants in dyeing, in making paint pigments and in a wide variety of special products and applications.

The proprietary process developed by Magnesium Refractories for the removal of iron and other metallic impurities from the calcine results in the production of Ferric Chloride as a valuable by-product of the process. This chlorination unit will be a profit center in the Timmins project. In the Timmins economic analysis this material is forecasted to sell at CDN$770.00 per tonne ($0.35 per pound) whereas the fluid bed chlorinator's operating cost is $220.00 per tonne. The present wholesale price of Ferric Chloride (anhydrous) is $0.50 per pound and pricing at the retail level is typically over $1.00 per pound.

Ferric Chloride is normally manufactured from iron scrap using a process that is hazardous and environmentally objectionable. The by-product material from Timmins will access the market as a dependably sourced, high purity product with a "green" background.

2.4 Talc

The first stage Timmins plant has the potential to supply 100,000 tonnes per year of talc tailings to a talc processing facility. The Timmins project does not include capital for such a facility but assumes the tailings are processed by a specialist Talc operator.

Based on extensive discussions with two major European talc producers Magnesium Refractories expects that a 70,000 tonnes per year talc operation is feasible. The Talc products will likely be contracted directly to the pulp and paper industry for pitch control and fine paper finishing.

3. MAGNESIUM REFRACTORIES' UNIQUE TECHNOLOGY

The Timmins Project relies on conventional and well established technologies for the production of its 65,000 tonnes per year of caustic calcined magnesia. Moreover, the Timmins magnesite ore has been extensively pilot tested through the froth flotation stage and the multiple hearth calcination step.

The briquetting and dead burning steps have also been evaluated at the pilot scale. The shaft kiln technology to be employed is in active use worldwide.

The most profitable market for the Timmins Project is that which requires the lowest iron oxide content in the Magnesia products. Having chosen that market, the Company has directed all efforts to that end.

Magnesium Refractories has successfully developed a new, proprietary technology for the removal of iron and other impurities from calcined magnesia. The process involves the chlorination of the magnesia in a conventional fluosolids roaster at temperatures that maintain the reactive, "soft burned" nature of the Magnesia.

Simplified, the reaction is:

$$Fe_2O_3 + 3CO + 3Cl_2 \text{ ----> } 2FeCl_3 + 3CO_2$$

The process has been operated extensively with Timmins magnesia calcine in a bench scale pilot reactor. The iron oxide content of the calcine is reduced from 6.0% to 0.4% using this technology. Iron content to less than 0.1% is economically feasible.

US Patents have been applied for and are pending. World patents will follow during the next 10 months.

The significance of this new iron removal technology is described below:

1. A low capital cost method of upgrading impure natural Magnesias, previously unavailable to the world's magnesite industry.

2. A profit center. The by-product, anhydrous Ferric Chloride, has strong and growing markets in pollution abatement, as a catalyst, and in many industrial applications.

3. Provides removal of iron impurities while maintaining the caustic calcine's highly reactive state so its pollution abatement effectiveness is not hindered.

4. Will allow the Timmins facility to be the first magnesia producer in the world to custom tailor a dead burned product with a range of iron, calcium and silica contents to:

   i. replace competing magnesia product, now in use by refractory producers, with the Company's material having an identical analysis; and,

   ii. provide new specialty analyses as the market requires; and,

   iii. provide the highest purity in the industry at the lowest price.

5. Magnesium Refractories has access to the worldwide patent rights for the technology and intends to participate in joint ventures with the owners of high iron magnesite resources wishing to compete in the only growth area of the world Magnesia business - the high purity markets.

4. ENVIRONMENTAL IMPACT OF THE PROJECT

The mine and surface facilities are to be developed at the ore deposit 12 km south of Timmins and directly east of Gold (or Shaw) Lake. There are no other apparent environmental anomalies of significance in the area.

The mine will be an open pit operation as the entire magnesite ore deposit is at or near surface. Conventional drilling and blasting will be followed by truck haul to the mill stockpile.

Mill tailings of talc, silica, hematite and magnesia will be pH neutral and chemically stable and total about 225,000 tonnes per year ("tpy").

Air emissions will be:

a) Carbon dioxide from the calcining of 136,000 tpy of $MgCO_3$ to 65,000 tpy of MgO
b) Products from the combustion of 2 million cubic feet per day of natural gas.

Potential particulate emissions from calcination and chlorination will be controlled by positive dust collection systems.

The project is a manufacturer of chemically stable refractory materials and pollution abatement products.

IV. MAGNESIA INDUSTRY

Magnesia or magnesium oxide is a commodity actively traded throughout the world. It is a key component of high temperature refractory materials essential to the manufacture of steel, base metals, cement and glass (see Exhibit 5).

The world's Magnesia is sourced from natural, mined Magnesite or from brines obtained from seawater or underground wells.

In world trade, the Magnesia from natural Magnesites in 1989 was about 8 million tonnes, of which 2.7 million tonnes was sourced in Western bloc countries. The Magnesia sourced from seawater and brines is largely in the western world and amounted to an additional 2.2 million tonnes in 1989.

1. NATURAL MAGNESIA INDUSTRY

1.1 Producers

The natural mined magnesites have traditionally been the source of magnesia for the world's refractory and caustic applications. The mining operations have largely been in western Europe, eastern Europe and Asia. Greece, Austria, Yugoslavia, Czechoslovakia, USSR, China and North Korea are the major producing countries. Refer to Exhibit 6 for additional information in this regard. With the notable exception of the material from Greece the natural magnesite based magnesias are high in impurities, particularly iron, calcium and silica.

In the Americas the high quality magnesia produced by Magnesita in Brazil and Baymag in Western Canada are relatively recent developments in a long established world trade.

1.2 Principal Consumers

The world's refractory brick industry is the largest consumer of dead burned magnesia. Historically, open hearth steel making was the largest consumer. However, with the shift to basic oxygen steel making over the last several decades, the higher impurity levels of the natural magnesias have reduced their use to the lower wear level applications in steel making. Large uses of these materials take place in the refining or manufacture of base metals, cement, and glass.

In fact, in any high temperature process used by industry world-wide there will be thousands of shapes with thousands of different chemical formulations involving natural magnesias.

Metals & Minerals Annual Review — 1990

Magnesite and Magnesia

By Brian Coope

1989 was another good year for the world's magnesite and magnesia industry. Once again the higher-quality end of the market — for both refractory and non-refractory applications — tended to fare best but everyone enjoyed a share of the action, even if prices remained low in the agricultural sector.

In the refractory sector, demand for sintered (or dead-burned) magnesia remained strong throughout the year in response to high operating levels by the world's steel industry. New and developing steelmaking procedures also boosted demand for high-quality magnesia-based refractories at the expense of other refractory types. In particular, mag-carbon bricks, based on high-grade sintered magnesia and graphite, are now used widely in both primary steelmaking — in basic oxygen furnaces and electric arcs — and in secondary steelmaking, whereby refining processes now carried out in the ladle require high-performance refractories. Magnesia producers have been active in recent years improving the quality of their products to meet ever more stringent requirements of refractory manufacturers. Emphasis is placed on improving bulk density and crystal size of the periclase product.

Magnesia-based refractories are also used widely by the cement industry and in particular mag-spinel bricks containing magnesia and alumina are growing in importance, notably at the expense of bricks containing chromite.

The non-refractory applications of magnesia concern the lightly burned reactive product known as caustic magnesia. The agricultural sector is a major consumer of products containing 80-85% MgO notably for animal feedstuffs and special fertilizers. Competition has been fierce in this sector, particularly in Western Europe, - prices have generally remained at low l Other caustic magnesia uses requiring hi ity products include construction (wh sia cements are used in flooring cor manufacture of fused magnesia (v tant electrical insulation and refractory applications) and nal uses (in chemicals, ph rubber and adhesives).

There is current use of magnesi environmental ment, flue additive is mo mo c ... vit. ... magnesium ... and brines ... or dolomite ... route). This year ... production in Canada ... and a process involving ... electrolysis (see below).

Production

World production of raw magnesite is in the region of 19 Mt, of which the greater share comes from the Eastern Bloc countries of the U.S.S.R., China, Korea (D.P.R.) and Czechoslovakia. Western World producers account for about 5·5 Mt/y of raw magnesite from which about 2 Mt/y of dead-burned magnesia and 700,000 t/y of caustic-calcined magnesia are produced. The principal producing countries are Austria, Greece, Turkey, Spain, Brazil, Yugoslavia, India and Canada.

A large tonnage of magnesia — both dead-burned and caustic-calcined — is also obtained from seawater and brines. The accompanying table presents the main producers with nameplate capacities. In fact realistic capacities are much lower than the figures suggested, particularly in the U.S., Japan and Italy and the size of the Soviet plant is also thought to be much exaggerated. Thus the more realistic figure is probably around 1·8 Mt/y and it is estimated that world production actually ran very close to this figure in 1988 and 1989.

A number of important developments have taken place during the past year and virtually all the main producers have been developing methods to improve the quality of their products. This may mean adapting the process (particularly in seawater/brine magnesia plants) to increase the crystal size of top quality dead-burned magnesia or, in certain cases, rebuilding the plant.

The most obvious example of plant rebuilding is in Ireland where Premier Periclase is in the process of installing new pressurized shaft kilns at its Drogenda plant to replace the existing rotary kilns. Installation will be completed in mid-1990, after which a period of commissioning will ensue (whilst existing customers will continue to be served from existing facilities). The ability to produce large crystal MgO is the main aim of the investment.

In the Americas the largest natural magnesite producer, Magnesita SA of Brazil, is also planning to install a new pressurized shaft kiln to produce 40,000 t/y of new MgO grade suitable for

NATURAL MAGNESITE
('000 tonnes, crude $MgCO_3$)

Country	Production 1987	1988
Australia	54	55
Austria	947	1,122
Brazil	650	680
Canada	150	200
China*	3,400	3,400
Czechoslovakia*	2,500	2,500
Greece	842	930
India	420	460
Korea (D.P.R)*	2,500	2,500
Nepal	38	45
Poland	22	24
South Africa	75	74
Spain	396	473
Turkey	1,190	1,011
U.S.*	100	100
U.S.S.R.*	5,000	5,000
Yugoslavia	403	383
Zimbabwe	29	30
World Total	18,716	18,987

NB: Figures are mainly derived from the British Geological Survey's 'World Mineral Production 1984-88'. Estimates are denoted by asterisk

ever, its significance in world terms will increase considerably over the next few years as the commercial development of the Queensland magnesite deposits becomes a reality. Queensland Magnesia (QMag) is the company set up by Queensland Metals Corporation, Pancontinental Mining and Radex of Austria to develop the refractory project based on the Kunwarara deposit, north of Rockhampton. Construction of a plant to produce 150,000 t/y of dead-burned magnesia and 25,000 t/y of fused magnesia is now underway with engineering, procurement and construction management handled by Davy McKee.

Commissioning of the initial plant is scheduled for mid-1991 with first shipments in September 1991. An initial production rate of 67,000 t/y of dead-burned magnesia and 12,000 t/y of fused magnesia is expected to build up towards full capacity by 1995. Queensland Metals is planning to develop non-refractory applications for magnesia in conjunction with other partners

1.3 Marketing and Pricing

Pricing for the natural Magnesia industry worldwide is essentially commodity based with the material moving from the production sources to local markets.

With products analyzing in excess of 90% Magnesia the prices can be significantly higher, hence transport to markets further removed from the mine is possible. The limited number of first grade natural magnesias (Greece, Turkey, Brazil, Canada) command top prices, comparable to the brine based or artificial magnesias.

The demand for top quality low iron, high density natural magnesias is particularly strong in Europe and Japan and historically prices of this material have been higher in those countries relative to North America.

2. BRINE BASED MAGNESIA INDUSTRY

2.1 Producers

The demand for superior quality magnesias in basic oxygen furnaces for steel making sponsored the development of the western world's brine and seawater based Magnesia industry. Although natural magnesias were readily available there was no technology available to chemically remove the iron and other trace impurities. Lacking this technology the world turned to the expensive brine based methodology. Refer to Exhibit 7 for a description of producers.

Currently there is 2.2 million tonnes of annual synthetic Magnesia capacity in Europe, the Americas and Japan. This is largely premium product containing 96% to 98% Magnesia with low iron and a balanced lime/silica ratio.

2.2 Principal Consumers

The refractory companies serving the many high temperature requirements of the steelmaking industry are the main consumers of the brine based product.

The use of quality Magnesia results in longer life and operating performance for bricks in certain high temperature applications in cement manufacture, nickle and copper refining and glass making.

2.3 Marketing and Pricing

The markets for the high purity, brine based magnesias are much more related to dead burned density and periclase crystal size as well as level of trace iron and other impurities.

Presently 65% of this magnesia goes into steel making. As such, the price of synthetic Magnesias reflects overall activity in the steel and related industries such as the auto industry. However, with the continuing advance of refractory technology for other applications the percentage of the high purity magnesia in these other uses is also growing.

3. TIMMINS MAGNESIA MARKETS

The Timmins Magnesias, both caustic calcined and dead burned, are sourced from natural magnesite but will have the character of the best brine based materials. Hence they combine the low cost and ready availability of natural material but will have the lowest impurities analysis in the world.

This will be the result of the chemical technology for the removal of iron (that has historically eluded the world's natural magnesia producers) having now been developed and patented by Magnesium Refractories. As a result, natural Magnesia producers, with this technology, will be able to compete with the brine based operations. Moreover, the new technology can be applied at low capital cost and will generate a valuable by-product for the world's pollution abatement industries.

Exhibit 4 compares the analysis for typical premium dead burned magnesias. The quality of the Timmins product is evident. In the economic analysis of the Project it is assumed that the FOB Timmins price is identical to the FOB Michigan plant price for the Harbison brine based product. The Harbison material is 96.6% Magnesia with a 3.42 grams per cubic centimeter density. The Timmins product is 98.3% Magnesia with a higher density, thereby insuring access to the market for this premium, dead burned Magnesia.

World magnesia producers from natural magnesite

	Production Capacity (tpa) Dead Burned	Caustic Calcined
EEC producers		
Fimisco, Greece	350,000	
Grecian Magnesite, Greece	120,000	100,000
Magnomin, Greece	30,000	30,000
Magnesitas Navarras, Spain	70,000	60,000
Magnesitas de Rubian, Spain		75,000
Other Western European and Asia Minor		
Veitscher Magnesit, Austria	300,000	
Radex, Austria	180,000	75,000
Magindag, Austria		45,000
Magnohrom, Yoguslavia	200,000	40,000
Kumas, Turkey	144,000	
MAS, Turkey	60,000	
Comag, Turkey		40,000
Konya Krom Magnesit, Turkey	40,000	
Eastern Europe		
Slovenska Mag, Czechoslovakia	700,000	
Satka Magnesite, USSR	2,100,000	
The Americas		
Baymag, Canada		100,000
Dresser, Canada	60,000	
CE-Basic, USA	30,000	70,000
Magnesita, Brazil	315,000	
IBAR, Brazil	25,000	20,000
Asia		
Dalmia Magnesite, India	72,000	
Tamil Nadu Magnesite, India	7,000	
Burn Standard, India	20,000	
Almora Magnesite, India	30,000	
Liaoning Magnesite, China	700,000	300,000
Korean Magnesite, North Korea	1,200,000	
Australia		
Causmag, Australia	15,000	10,000
Queensland, Australia	150,000	25,000
Africa		
Verref, S. Africa	20,000	15,000
Chamotte Holdings, S. Africa		3,600
World Total	6,973,000	1,043,600

World magnesia producers from seawater and brines

	Production Capacity (tpa) Dead Burned	Caustic Calcined
EEC producers		
Steetley, UK	150,000	50,000
Premier, Ireland	100,000	
Billiton, Netherlands	100,000	
Sardamag, Italy	100,000	20,000
Cogema, Italy	65,000	
Salina du Midi, France		30,000
Other Europe and Mediterranean		
Norsk Hydro, Norway		25,000
Dead Sea Periclase, Israel	60,000	10,000
Sivash Magnesia, USSR	80,000	20,000
The Americas		
Martin Marietta, USA	250,000	50,000
Harbison-Walker, USA	200,000	
National Refractories, USA	120,000	10,000
CE-Basic, USA		50,000
Morton Chemical, USA		10,000
Quimica del Rey, Mexico	90,000	10,000
Quimica del Mar, Mexico	60,000	10,000
Asia		
Ube Chemical, Japan	400,000	50,000
Shin Nihon, Japan	100,000	20,000
Asahi Glass, Japan	20,000	10,000
Sam Hwa Chemical, South Korea	50,000	
World Total	1,945,000	375,000

V. PROJECT ECONOMICS

1. ASSUMPTIONS

1.1 Marketing and Pricing Strategy

Caustic Calcine

Sales of 15,000 tonnes per year of caustic calcined 98% Magnesia for use in the pulp industry; Norsk Hydro at Becancour, Quebec; in stack gas pollution abatement; and animal feed, are projected.

Pulp mill markets in Ontario, Quebec and northeastern USA now use 10,000 tonnes per year of Magnesia. Certain of this material coming from Alberta and Michigan can be replaced by Ontario sourced product because of lower transport cost and higher quality. Estimated initial sales to this market are 5,000 tonnes per year.

The Norsk Hydro magnesium metal plant at Becancour Quebec has a pH control application for magnesia of up to 10,000 tonnes per year. This market is now largely served by Alberta product and will be a solid market for Timmins magnesia because of its quality and transportation competitiveness . Estimated initial sales for this use are 4,000 tonnes per year.

The use of Magnesia in stack gas pollution abatement has the largest growth potential over the long term. The initial sales of Timmins magnesia will be an estimated 3,000 annual tonnes to begin the buildup of user knowledge in one or more coal based electrical generating locations in the north eastern USA.

Animal feed sales can be a highly profitable outlet for Magnesia as experienced by National Refractories in California and Baymag in Alberta. An initial sales plan for 3,000 tonnes per year is basic to a strong building program for animal feed sales for eastern Canada and the USA.

While variations in pricing will exist within the markets aforementioned the average price of 98% content Calcined Magnesia product FOB Timmins is forecasted at CDN$235 per tonne or US$185 per short ton. This price was established in consultation with U.S. agents active in the Magnesia trade in North America and confirmed with user companies.

Where quality is a prime factor in the chemistry of the application of Magnesia the Timmins product will be priced to compete, but sold on its merits. Volume discounts will not be a factor in the initial program for Magnesia sales.

In new applications (stack gas pollution abatement) the sales effort will be heavily supported by the Company's abatement research program. A Company team of professional and technical sales people will be responsible for marketing all products. The abatement research program will be a part of the marketing organization.

Dead Burned Magnesia

The market in North America and internationally for the very high purity dead burned magnesia is specific to product analysis (low iron, balanced lime/silica ratios) and density (over 3.4 grams per cubic centimeter) and periclase crystal size (typically 80 microns and larger).

Given the superior qualities of the Timmins product, the Company's anticipated production of 50,000 tonnes per year is expected to be fully absorbed by refractory companies.

The Timmins product will be established in the market place using the material from the prototype plant in numerous refractory applications (primarily bricks for high wear areas in steelmaking, base metal refining and cement kilns). The 1991/92 development of 30 tonnes of this prototype product has been encouraged by the several US refractory companies and agents that are working with Magnesium Refractories.

One such refractory producer uses 30,000 tonnes per year of high quality (96% and 98%) magnesia and has agreed to test the Company's product as replacement for their use. Another U.S. refractory producer has indicated similar interest for 10,000 tonnes per year of the dead burned product. Expected sales under contract of this material to US based users will consume over half of the plant's output. The remainder will be handled through arrangements with sales agents.

The Timmins operation is in close proximity to the US industrial market and, with a higher product quality, should have no difficulty carving its own market niche in the refractories industry. The Project's economics are based on current prices for 98% content material, being CDN$400.00 per metric tonne or US$315.00 per short ton, FOB plant. This price was established in consultation with agents actively handling the material in the USA and confirmed by the user companies aforementioned.

Technical sales will begin with the refractory companies' first use of the Company's prototype product. The technical sales team will be built and mobilized during the plant construction phase to insure strong market penetration. The research and development group will be guided by marketing requirements.

Ferric Chloride

Retail markets for this material delivered in sealed, inert 500 pound drums are upwards of CDN$1.00 per pound. The wholesale market is active at $0.50 per pound. The Timmins pricing is conservatively estimated at $0.35 per pound to reflect the cost of handling and packaging and the reality of the entry of a new producer of 8,000 tonnes per year into a diverse market place.

Markets for the product are very broad and varied. The marketing strategy will involve the use of the existing chemical distributor network in North America and Europe. The technical sales team will include one person particularly skilled in the product that will co-ordinate marketing activities with the distributor network.

1.2 Capital Costs

The estimated capital investment for the development of the Timmins mining, concentrating and product manufacturing operation is $55.7 million (see Exhibit 8).

In the Pre-Feasibility Study for the Timmins property, this cost estimate was prepared independently by Robert Elliott P.Eng. who has personal, direct experience with the development of the Timmins recovery technology. The work was done in consultation with Hatch Associates, engineering consultants. For verification purposes, a second capital cost analysis was prepared by Charles Gabor, formerly the Chief Engineer for Harbison Walker's engineering division in Pittsburgh. The Gabor work actually developed a cost estimate 15% lower than the Elliott work.

Considering start-up costs, building of inventory and interest capitalized during start-up, the total estimated capital required for the project is $61.8 million.

2. CASH FLOW FORECASTS

Refer to Exhibit 9 for detailed cash flow forecasts.

2.1 Revenue

Operations are scheduled for start-up in September, 1995 with product being delivered to inventory during the break in of plant equipment. With full scale operation commencing by January, 1996, the forecast assumes that 50% of 1996 production will be sold with the balance going into inventory. Thereafter, all product is assumed to be sold annually as follows:

EXHIBIT 8

Timmins Project
Capital Cost Schedule

	1992/93	1994	1995	Total
		($000'S)		
Preproduction & Site Preparation	500	1,500	--	2,000
Milling and Concentrating	--	3,000	3,026	6,026
Magnesia Plant				
Calciner, Hydration & Grinding	--	4,000	5,879	9,879
Iron Processing	--	1,000	4,000	5,000
Briquetting, Dead Burning	--	3,782	4,000	7,782
Handling, Crushing	--	100	300	400
Service and Other				
Ancillary Buildings	--	1,000	242	1,242
Main Electrical & Distribution	--	--	400	400
Yard	--	100	150	250
Supplies Storage	--	50	100	150
Water Supply/Tailings Disposal	--	100	150	250
Gas and Power Supply	--	500	100	600
Environmental	--	50	50	100
General Mobile Equipment	--	100	150	250
Engineering & Other				
Engineering, Constr. Management	547	2,000	1,000	3,547
Pilot, Environmental Studies	728	--	--	728
Field Expense	--	400	200	600
Insurance	--	100	100	200
Contractor/Other	--	1,028	--	1,028
Expedite	--	50	50	100
Management	--	1,000	1,000	2,000
Technical	350	--	--	350
Contingency	--	2,000	3,800	5,800
Interest during Construction	--	2,000	4,000	6,000
Working Capital	--	--	1,000	1,000
Total Capital Investment	2,125	23,860	29,697	55,682

	Volume (tonnes)	Selling Prices (per tonne)	Revenues ($000's)
Dead burned Magnesia	50,000	400	20,000
Caustic Calcined Magnesia	15,000	235	3,525
Ferric Chloride	8,000	770	6,160
Talc	70,000	20*	1,400

* Estimated to increase to $60/tonne by 1999

2.2 Royalties

Pamour is entitled to 2% of the value of the products leaving the Timmins property. The value of the magnesia concentrate for royalty purposes is considered as total revenue minus all operating costs except those for mining and milling.

Dr. Wendell Dunn under an agreement with Magnesium Refractories for development of a process for removal of iron impurities in magnesia is to receive a royalty of $2.50 for each tonne of magnesia sold using the process. At a constant 65,000 tonnes of annual sales the Dunn royalty is estimated at $162,000 annually.

Under the terms of the FedNor funding agreement, repayment of the $527,000 advanced by FedNor is to be derived from 1/2% of 1% of annual net sales from the Project for a period of 7 years or until the contribution is repaid in full, whichever comes first. For purposes of the forecast, repayment is assumed to commence in 1996.

2.3 Operating Costs

The operating costs were developed by Robert Elliott as part of the Pre-Feasibility Study.

The annual operating costs are forecast as follows:

	Annual Volume (tonnes)	Cost per tonne ($)	Cost ($000's)
Mining Contract	360,000	3.50	1,260
Milling/Concentrating	360,000	6,92	2,491
Calcining	65,000	36.86	2,396
Iron Processing*	8,000	220.00	1,760
Briquetting/Burning	50,000	31.00	1,551
Maintenance/Technical	65,000	15.45	1,004
Admin and General	65,000	10.08	655

*The annual operating cost of $1,760,000 for the fluosolids chlorinator is based on throughput of 65,000 tonnes of calcine, and assumes the removal of 8,000 tonnes per year of ferric chloride as a high purity, anhydrous by-product. This cost estimate was developed by the Company jointly with Dr. Wendell Dunn who has operated a similarly designed and sized chlorinator for the beneficiation of ilmenite in India.

Technical Marketing and Research and Development expense at $900,000 per year is separated from the Administrative and General expense to highlight the commitment to technical sales. The laboratory facility and the start-up costs for staffing through 1993 are capitalized.

2.4 Interest Expense

In the "100% Equity" analysis all funds are considered corporate equity so no interest cost is shown. For the "70% Debt, 30% Equity" scenario, funds are assumed to borrowed at Banker's acceptance plus 1.50% (10.25%) with the interest paid monthly on the amount of the loan outstanding at that time. Such interest is capitalized during construction and start-up.

2.5 Depreciation and Amortization

The capital cost is assumed to be amortized uniformly over the 25 year forecast period.

2.6 Federal Income Tax

The federal tax calculation recognizes the appropriate Capital Cost Allowances; Resource Allowance of 25% of operating profit after Capital Cost Allowance; Canadian Exploration Expense; Canadian Development Expense; and, Interest Expense. Federal Tax is calculated at 28.84% of Taxable Income.

2.7 Ontario Income Tax

On the same basis as the Federal Tax, the Ontario Tax is calculated at an additional 14.5% of Taxable Income.

2.8 Ontario Mining Duty

The income for mining duty is calculated as net profit less depreciation, exploration and development costs and processing allowance. The duty rate is 20% of taxable income over $500,000. Since the processing component of income is so high for this Project, the mining duty is estimated to be 50% of those duties normally applicable to a typical Ontario gold producer.

2.9 Capital Investment

Ongoing maintenance type capital investments are included in the appropriate operating costs. No significant capital investments are expected during the forecast period given the open pit nature of mining and the durability of the processing equipment.

2.10 Bank Loans

Under the 70% debt scenario, credit lines are drawn to a maximum of $42 million during the construction period. The equity component reaches a peak of $19.8 million at the end of 1996.

Repayment of the loan principal is over 7 years uniformly, beginning in 1997.

3. PROJECT RETURN

The performance of the Timmins project over 25 years has been analyzed for a 100% equity scenario and for a leveraged scenario involving an assumed financing where $42 million (70% of total cost) is borrowed (see Exhibit 9). The project achieves the following attractive financial results as follows:

Financing Scenario	Equity* Payout (years)	Discounted Cash Flow Return on Equity (%)	Return of Investment (X)	Cum. Net Cash Flow ($millions)
100% Equity	4.0	20.1	5.5	273
70% Debt/ 30% Equity	3.2	32.2	5.3	260

* from start of product sales

The Project's January 1, 1993 present value of future net capital and revenue after taxes, discounted at 12%, is $39 million.

At start of project sales (January 1, 1996) the 12% present value of the Project increases to $57 million.

Mag-las - 5:12pm 14 Aug, 1991

Magnesium Refractories Ltd - Timmins Project
($CND thousands)
100% Equity

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Revenue															
Dead Burned Magnesia	-	-	-	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Caustic Calcine	-	-	-	1,763	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525
Ferric Chloride	-	-	-	3,080	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160
Talc	-	-	-	700	1,400	1,400	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200
Total Revenue	-	-	-	15,543	31,085	31,085	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885
Less: NSR Royalty	-	-	-	146	456	456	512	512	512	512	512	512	512	512	512
Dunn Royalty	-	-	-	81	162	162	162	162	162	162	162	162	162	-	-
FedNor Royalty	-	-	-	78	155	155	138	-	-	-	-	-	-	-	-
Net Revenue	-	-	-	15,238	30,311	30,311	33,072	33,211	33,211	33,211	33,211	33,211	33,211	33,373	33,373
Operating Costs															
Mining Contract	-	-	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260
Milling/Concentrating	-	-	830	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491
Calcining	-	-	798	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396
Iron Processing	-	-	586	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760
Briquetting/Burning	-	-	517	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551
Maintenance, Technical, Other	-	-	335	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004
Administration & General	-	-	218	655	655	655	655	655	655	655	655	655	655	655	655
Tech Marketing and R&D	-	-	500	900	900	900	900	900	900	900	900	900	900	900	900
	-	-	5,044	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017
Operating Profit	-	-	(5,044)	3,221	18,294	18,294	21,055	21,194	21,194	21,194	21,194	21,194	21,194	21,356	21,356
Less: Interest Expense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation & Amortization	-	-	-	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227
Net Operating Profit Before Taxes	-	-	(5,044)	994	16,067	16,067	18,828	18,966	18,966	18,966	18,966	18,966	18,966	19,128	19,128
Less: Federal Income Tax	-	-	-	-	-	-	-	4,485	4,580	4,581	4,582	4,582	4,583	4,618	4,618
Ontario Income Tax	-	-	-	-	-	-	-	2,255	2,303	2,303	2,304	2,304	2,304	2,322	2,322
Ontario Mining Duty	-	-	-	-	-	-	121	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425
	-	-	-	-	-	-	121	8,164	8,307	8,309	8,310	8,311	8,312	8,365	8,365
Net Profit after Taxes	-	-	(5,044)	994	16,067	16,067	18,707	10,802	10,659	10,658	10,656	10,655	10,655	10,764	10,763

Net Cash Flow Calculation

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Net Profit after Taxes	-	-	(5,044)	994	16,067	16,067	18,707	10,802	10,659	10,658	10,656	10,655	10,655	10,764	10,763
Plus: Bank Loans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	-	-	-	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227
Less: Capital Investment	2,125	23,860	29,697	-	-	-	-	-	-	-	-	-	-	-	-
Bank Loan Repayments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Flow	(2,125)	(23,860)	(34,741)	3,221	18,294	18,294	20,935	13,029	12,887	12,885	12,884	12,883	12,882	12,991	12,990
Accumulated Cash Flow	(2,125)	(25,985)	(60,726)	(57,505)	(39,211)	(20,916)	18	13,047	25,934	38,819	51,703	64,586	77,468	90,458	103,449
PV's of Current Net Cash Flow Disc. to Jan 1, 1993															
PV disc. at 12%	(2,008)	(22,138)	(48,308)	(46,141)	(35,155)	(25,346)	(15,325)	(9,756)	(4,838)	(447)	3,473	6,972	10,096	12,910	15,421
PV's of Future Net Cash Flow Disc. to Jan 1, 1996															
PV disc. at 12%	-	-	-	3,044	18,478	32,259	46,339	54,163	61,072	67,241	72,747	77,664	82,053	86,006	89,534
Discounted Cash Flow Rate of Return	-	-	-	-	-	-	0.01	5.34	9.08	11.76	13.71	15.15	16.24	17.07	17.71

EXHIBIT 9

Mag-las - 5:12pm 14 Aug, 1991

Magnesium Refractories Ltd - Timmins Project
($CND thousands)
100% Equity

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenue														
Dead Burned Magnesia	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	490,000
Caustic Calcine	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	86,363
Ferric Chloride	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	150,920
Talc	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	95,900
Total Revenue	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	823,182
Less: NSR Royalty	512	512	512	512	512	512	512	512	512	512	512	512	512	12,331
Dunn Royalty	-	-	-	-	-	-	-	-	-	-	-	-	-	1,539
FedNor Royalty	-	-	-	-	-	-	-	-	-	-	-	-	-	527
Net Revenue	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	808,786
Operating Costs														
Mining Contract	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	32,760
Milling/Concentrating	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	63,105
Calcining	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	60,698
Iron Processing	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	44,586
Briquetting/Burning	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	39,292
Maintenance, Technical, Other	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	25,435
Administration & General	655	655	655	655	655	655	655	655	655	655	655	655	655	16,593
Tech Marketing and R&D	900	900	900	900	900	900	900	900	900	900	900	900	900	23,000
	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	305,469
Operating Profit	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	503,317
Less: Interest Expense	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation & Amortization	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	55,682
Net Operating Profit Before Taxes	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	447,635
Less: Federal Income Tax	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	96,676
Ontario Income Tax	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	48,606
Ontario Mining Duty	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	30,040
	8,365	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	175,322
Net Profit after Taxes	10,763	10,763	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	272,312

Net Cash Flow Calculation

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Net Profit after Taxes	10,763	10,763	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	272,312
Plus: Bank Loans	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	55,682
Less: Capital Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	55,682
Bank Loan Repayments	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Flow	12,990	12,990	12,990	12,990	12,990	12,989	12,989	12,989	12,989	12,989	12,989	12,989	12,989	272,312
Accumulated Cash Flow	116,439	129,429	142,419	155,408	168,398	181,387	194,377	207,366	220,355	233,345	246,334	259,323	272,312	272,312
PV's of Current Net Cash Flow Disc. to Jan 1, 1993														
PV disc. at 12%	17,664	19,666	21,454	23,050	24,475	25,747	26,883	27,898	28,803	29,612	30,334	30,979	31,554	31,554
PV's of Future Net Cash Flow Disc. to Jan 1, 1996														
PV disc. at 12%	92,685	95,498	98,009	100,252	102,254	104,042	105,638	107,063	108,335	109,471	110,486	111,391	112,200	112,200
Discounted Cash Flow Rate of Return	18.21	18.60	18.91	19.16	19.36	19.52	19.65	19.75	19.84	19.91	19.96	20.01	20.05	20.05

Mag-las - 5:13pm 14 Aug, 1991

Magnesium Refractories Ltd - Timmins Project
($CND thousands)
70% Debt, 30% Equity

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Revenue															
Dead Burned Magnesia	-	-	-	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Caustic Calcine	-	-	-	1,763	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525
Ferric Chloride	-	-	-	3,080	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160
Talc	-	-	-	700	1,400	1,400	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200
Total Revenue	-	-	-	15,543	31,085	31,085	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885
Less: NSR Royalty	-	-	-	146	456	456	512	512	512	512	512	512	512	512	512
Dunn Royalty	-	-	-	81	162	162	162	162	162	162	162	162	162	-	-
FedNor Royalty	-	-	-	78	155	155	138	-	-	-	-	-	-	-	-
Net Revenue	-	-	-	15,238	30,311	30,311	33,072	33,211	33,211	33,211	33,211	33,211	33,211	33,373	33,373
Operating Costs															
Mining Contract	-	-	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260
Milling/Concentrating	-	-	830	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491
Calcining	-	-	798	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396
Iron Processing	-	-	586	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760
Briquetting/Burning	-	-	517	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551
Maintenance, Technical, Other	-	-	335	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004
Administration & General	-	-	218	655	655	655	655	655	655	655	655	655	655	655	655
Tech Marketing and R&D	-	-	500	900	900	900	900	900	900	900	900	900	900	900	900
	-	-	5,044	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017
Operating Profit	-	-	(5,044)	3,221	18,294	18,294	21,055	21,194	21,194	21,194	21,194	21,194	21,194	21,356	21,356
Less: Interest Expense	-	-	-	4,305	4,305	3,690	3,075	2,460	1,845	1,230	615	-	-	-	-
Depreciation & Amortization	-	-	-	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227
Net Operating Profit Before Taxes	-	-	(5,044)	(3,311)	11,762	12,377	15,753	16,506	17,121	17,736	18,351	18,966	18,966	19,128	19,128
Less: Federal Income Tax	-	-	-	-	-	-	-	-	3,389	4,226	4,404	4,582	4,583	4,618	4,618
Ontario Income Tax	-	-	-	-	-	-	-	279	2,101	2,169	2,236	2,304	2,304	2,322	2,322
Ontario Mining Duty	-	-	-	-	-	-	121	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425
	-	-	-	-	-	-	121	1,704	6,915	7,820	8,065	8,311	8,311	8,365	8,365
Net Profit after Taxes	-	-	(5,044)	(3,311)	11,762	12,377	15,632	14,803	10,207	9,917	10,286	10,656	10,655	10,764	10,763
Net Cash Flow Calculation															
Net Profit after Taxes	-	-	(5,044)	(3,311)	11,762	12,377	15,632	14,803	10,207	9,917	10,286	10,656	10,655	10,764	10,763
Plus: Bank Loans	1,488	16,702	23,811	-	-	-	-	-	-	-	-	-	-	-	-
Government Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	-	-	-	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227
Less: Capital Investment	2,125	23,860	29,697	-	-	-	-	-	-	-	-	-	-	-	-
Bank Loan Repayments	-	-	-	-	6,000	6,000	6,000	6,000	6,000	6,000	6,000	-	-	-	-
Net Cash Flow	(638)	(7,158)	(10,931)	(1,084)	7,989	8,604	11,860	11,030	6,434	6,144	6,513	12,883	12,882	12,991	12,991
Accumulated Cash Flow	(638)	(7,796)	(18,726)	(19,810)	(11,821)	(3,216)	8,643	19,673	26,107	32,251	38,764	51,647	64,530	77,521	90,511
PV's of Current Net Cash Flow Disc. to Jan 1, 1993															
PV disc. at 12%	(602)	(6,641)	(14,875)	(15,604)	(10,806)	(6,193)	(516)	4,199	6,654	8,748	10,729	14,229	17,353	20,167	22,678
PV's of Future Net Cash Flow Disc. to Jan 1, 1996															
PV disc. at 12%	-	-	-	(1,024)	5,716	12,198	20,174	26,797	30,247	33,188	35,972	40,889	45,279	49,231	52,760
Discounted Cash Flow Rate of Return	-	-	-	-	-	-	10.92	19.03	21.99	23.95	25.40	27.36	28.65	29.55	30.18

Mag-las - 5:13pm 14 Aug, 1991

Magnesium Refractories Ltd - Timmins Project
($CND thousands)
70% Debt, 30% Equity

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Revenue														
Dead Burned Magnesia	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	490,000
Caustic Calcine	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	86,363
Ferric Chloride	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	6,160	150,920
Talc	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	95,900
Total Revenue	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	33,885	823,182
Less: NSR Royalty	512	512	512	512	512	512	512	512	512	512	512	512	512	12,331
Dunn Royalty	-	-	-	-	-	-	-	-	-	-	-	-	-	1,539
FedNor Royalty	-	-	-	-	-	-	-	-	-	-	-	-	-	527
Net Revenue	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	33,373	808,786
Operating Costs														
Mining Contract	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	32,760
Milling/Concentrating	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	2,491	63,105
Calcining	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	2,396	60,698
Iron Processing	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	1,760	44,586
Briquetting/Burning	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	1,551	39,292
Maintenance, Technical, Other	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	25,435
Administration & General	655	655	655	655	655	655	655	655	655	655	655	655	655	16,593
Tech Marketing and R&D	900	900	900	900	900	900	900	900	900	900	900	900	900	23,000
	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	12,017	305,469
Operating Profit	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	21,356	503,317
Less: Interest Expense	-	-	-	-	-	-	-	-	-	-	-	-	-	21,525
Depreciation & Amortization	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	55,682
Net Operating Profit Before Taxes	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	19,128	426,110
Less: Federal Income Tax	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	4,619	90,468
Ontario Income Tax	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	2,322	46,226
Ontario Mining Duty	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	30,040
	8,365	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	8,366	166,734
Net Profit after Taxes	10,763	10,763	10,763	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	259,375

Net Cash Flow Calculation

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Net Profit after Taxes	10,763	10,763	10,763	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	10,762	259,375
Plus: Bank Loans	-	-	-	-	-	-	-	-	-	-	-	-	-	42,000
Government Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227	55,682
Less: Capital Investment	-	-	-	-	-	-	-	-	-	-	-	-	-	55,682
Bank Loan Repayments	-	-	-	-	-	-	-	-	-	-	-	-	-	42,000
Net Cash Flow	12,990	12,990	12,990	12,990	12,990	12,989	12,989	12,989	12,989	12,989	12,989	12,989	12,989	259,375
Accumulated Cash Flow	103,502	116,492	129,481	142,471	155,461	168,450	181,440	194,429	207,418	220,408	233,397	246,386	259,375	259,375
PV's of Current Net Cash Flow Disc. to Jan 1, 1993														
PV disc. at 12%	24,921	26,923	28,711	30,307	31,732	33,004	34,140	35,155	36,060	36,869	37,591	38,236	38,811	38,811
PV's of Future Net Cash Flow Disc. to Jan 1, 1996														
PV disc. at 12%	55,910	58,723	61,235	63,477	65,479	67,267	68,863	70,288	71,561	72,697	73,711	74,617	75,425	75,425
Discounted Cash Flow Rate of Return	30.62	30.95	31.18	31.36	31.49	31.58	31.65	31.70	31.74	31.77	31.80	31.81	31.83	31.83

VI. 1992/93 PROGRAM

1. **Pilot Operation**

The prototype fluo-solids chlorination plant design and construction should be completed by October, 1992. The facility will be skid mounted and initially installed in the Company's leased area at the Preston East Dome mine site, Timmins. The site has utility services, natural gas and laboratory services available for our use. (See Exhibit 10).

In late 1992 a representative sample of ore will be obtained by coring and ore will be removed from the existing open pit. Magnesite concentrate, prepared from the ore by Luzinac Talc's operation near Timmins, will be calcined at 850°C in a small multiple hearth furnace erected at the pilot site. The 30 tonnes of calcine product from this furnace will be processed in the prototype plant to a 0.3% iron oxide content.

The 30 tonnes of low iron 98% MgO product will be briquetted at the pilot site and prepared for shipment in 1 ton bags. This material will be transported to RCE Engineering in Radenthien, Austria for dead burning in their research shaft kiln to optimal density and periclase crystal size.

Shipments of the material to selected refractory brick makers in the USA and Canada should begin by May 1, 1993.

2. **Feasibility Study**

The Hatch Associates feasibility study will begin in May, 1993 and be complete by November, 1993. The engineering design work on which the feasibility study will be based will be of a standard that will allow purchasing of major long delivery equipment to begin in early 1994 (subject to completion of debt and equity financing).

3. **Environmental Assessments**

Baseline work for assessing the environmental impact of the Project will begin in early 1992. Work to support Applications for approval of the pilot operation will take precedence. The Preston East Dome site is a fully licenced, working mine operation and the processing of 100 tonnes of concentrate at that site should present minimal environmental concern.

EXHIBIT TEN

MAGNESIUM REFRACTORIES LTD.

PROJECT BUDGET FOR R&D STUDIES AND FEASIBILITY ENGINEERING for the MANUFACTURING OF DEAD BURNED HIGH PURITY MAGNESIA

1.0		Obtain representative core samples for testing		80,000
2.0		Development work to prepare concentrate, prepare calcine, design and construct high purity magnesia purification prototype plant		
	2.1	Prepare concentrate		40,000
	2.2	Calcine 65 tonnes of concentrate feed. Examine calcining temperature vs. product characteristics		132,000
	2.3	Laboratory pilot studies by Dunn for specific design parameters		85,000
	2.4	Design and Construct prototype pilot plant (portable), with full computer control, for fluosolids chlorination of soft burned MgO calcine containing 6% iron oxide.		744,000
3.0		Prepare 30 tonnes of high purity MgO by operation of the prototype plant		250,000
4.0		Dead burning of high purity MgO in Austria		
	4.1	Testing (Austria)	12,000	
	4.2	Prepare and ship material	18,000	
	4.3	Briquette and dead burn	45,000	
	4.4	Observe, test and report	25,000	
				100,000
5.0		Environmental Studies		165,000
6.0		Market Studies, Advisory Services		112,000
7.0		Process review and confirm power and gas requirements and equipment sizing		27,000
8.0		Engineering Studies Plant design for commercial production of high purity, calcined and dead burned magnesia and ferric chloride. Full cost estimating and preparation of feasibility study		460,000
9.0		Company engineering and supervision		305,000
TOTAL				2,500,000

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9660.00100

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.16494

Instructions:
- Please type or print and submit in duplicat
- Refer to the Mining Act and Regulations f Recorder.
- A separate copy of this form must be com
- Technical reports and maps must accomp
- A sketch, showing the claims the work is

42A06SW0013 2 16494 DELORO 900

Recorded Holder(s): Magnesium Refractories Ltd	Client No.: 29980
Address: Suite 2116, 130 Adelaide St. W. Toronto, Ont M5H 3P5	Telephone No.: (416) 865-9300
Mining Division: Porcupine / Township/Area: Deloro	M or G Plan No.: G-3993
Dates Work Performed From: March 25, 1991 To: May, 1992	

Work Performed (Check One Work Group Only)

RECEIVED
MAY 9 - 1996
MINING LANDS BRANCH

	Work Group	Type
	Geotechnical Survey	
	Physical Work, Including Drilling	
	Rehabilitation	
✓	Other Authorized Work	Industrial Mineral Testing and Marketing
	Assays	
	Assignment from Reserve	

Total Assessment Work Claimed on the Attached Statement of Costs $ 3539

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Robert A. Elliott	
Hatch and Associates	
Lakefield Research	

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Feb 27/96	[signature]

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: W. MacRae, P.O. Box 417, Timmins, Ont P4N 7E3		
Telephone No.: (705) 267-3081	Date: Feb 28, 1996	Certified By (Signature): [signature]

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
3539		Undated Gary White	RECEIVED FEB 27 1996 PORCUPINE MINING DIVISION
	Deemed Approval Date: MAY 27/96	Date Approved	
	Date Notice for Amendments Sent		

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	~~P 704644~~					
	~~P 784643~~					
	~~P 725183~~					
	P 725184	1	—	400		
	P 781232	1	—	400		
	P 725183	1	—	400		
	P 850094	1	3539	400	1200	1939
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☑ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature (signed)	Date Feb 28, 1996

0241 (03/91)

Ministry of Northern Development and Mines
Ontario
Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction: W9660.00100

2.16494

Personal Information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Market Research	4979	
	Pilot testing	1453	
	Report.	647	7079
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
	Total Direct Costs Total des coûts directs		7079

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
	Sub Total of Indirect Costs Total partiel des coûts indirects		
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		
	Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)		

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	3539

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation		Évaluation totale demandée
	× 0,50 =	

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Agent (Recorded Holder, Agent, Position in Company) I am authorized to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______ (titulaire enregistré, représentant, poste occupé dans la compagnie) je suis autorisé à faire cette attestation.

Signature	Date
[signature]	Feb 28/96

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

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

Telephone: (705) 670-5853
Fax: (705) 670-5863

May 30, 1996

Our File: 2.16494
Transaction #: W9660.00100

Mining Recorder
Ministry of Northern Development & Mines
60 Wilson Avenue, 1st Floor
Timmins, Ontario
P4N 2S7

Dear Mr White:

SUBJECT: APPROVAL OF ASSESSMENT WORK CREDIT ON MINING LAND, CLAIM P.850094 IN DELORO TOWNSHIP

A 45 Day Notification was not issued on this Work Report prior to the 90 day deemed approval date as outlined in subsection 6(7) of the Assessment Work Regulation. Accordingly, this submission is **deemed approved** as of May 27, 1996.

The assessment work credit has been deemed approved under Section 18(9), DATA, of the Assessment Work Regulation.

If you have any questions regarding this correspondence, please contact Lucille Jerome at (705) 670-5858.

Yours Sincerely,
ORIGINAL SIGNED BY:

Ron C. Gashinski
Senior Manager, Mining Lands Section
Mines and Minerals Division

LBJ/jl
Enclosure:

cc: Resident Geologist
Timmins, Ontario

Assessment Files Library
Sudbury, Ontario

MAP SYMBOLOGY

Aerial Cableway		Pipeline (above ground)	
Boundary		Railroad	
International		Single Track	
Interprovincial		Double Track	
District, Township Indian Reserve		Abandoned	
Approximate		Turntable	
Lot, Concession		Road	
Approximate		Highway, County Township	
Park Boundary		Access (road of doubtful maintenance or significant driveway)	
Bridge		Trail, Bush Road (portage, alley)	
Road, Railroad		Rapids	
Building		Double line river with multiple rapids	Rapids
Chimney		Double line river with multiple rapids	Rapids
Cliff, Pit, Pile		Reservoir	Reservoir
Contours	68	River, Stream, Canal	
Interpolated		Approximate seasonal	
Approximate		Direction of flow	
Depression		Rock	
Control Points		Significant	
Horizontal	01774051	Shoal	
Vertical	300 02	Spot Elevation (lake elevations)	300.0
Culvert		Tower	
Falls		Transmission Line	
Double line river	Falls	Poles	
Fence, Hedge, Wall		Pylons	
Feature Outline (Construction features, etc.)		Tunnel	
Flooded Land	Flooded or	Utility Poles	
Lock		Wharf, Dock, Pier	
Marsh or Swamp		Wooded Area	
Mast			
Mine Head Frame			
Outcrop			

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY

S.R.O. – SURFACE RIGHTS ONLY

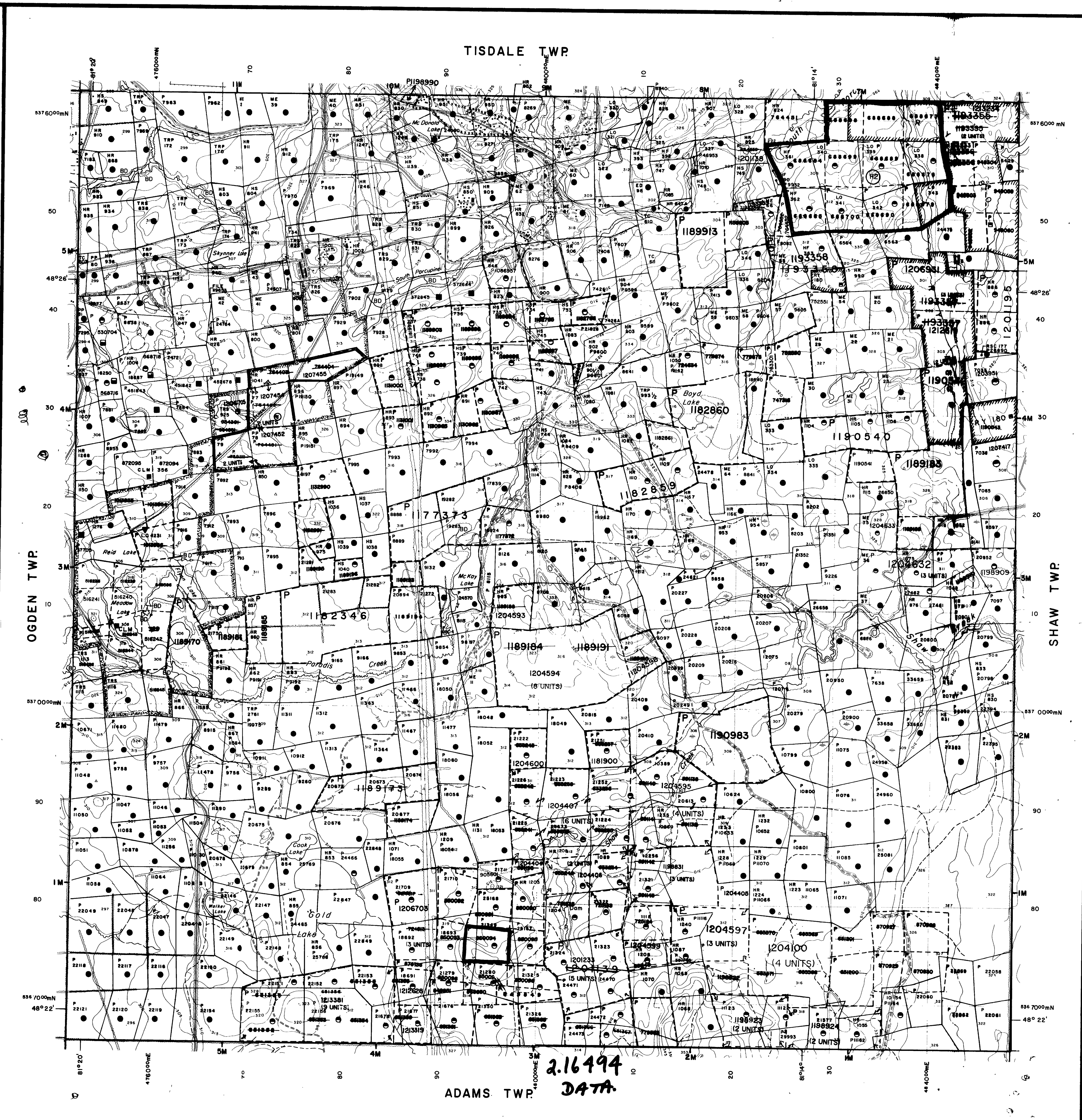
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
①	W-P-12/92 NR	92-FEB-24	S.R.O.	

(APPLICATION UNDER THE PUBLIC LANDS ACT FOR A WASTE DISPOSAL SITE)

(R2) — THE SURFACE AND MINING RIGHTS ARE WITHDRAWN FROM PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 35 OF THE MINING ACT R.S.O. 1990, DATED FEB.27, 1996 AT 4:01 P.M., ORDER NO. W-P-11/96 NER.

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.



LEGEND

HIGHWAY AND ROUTE No.	
OTHER ROADS	
TRAILS	
SURVEYED LINES:	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES:	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAILWAY AND RIGHT OF WAY	
UTILITY LINES	
NON-PERENNIAL STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS	
ORIGINAL SHORELINE	
MARSH OR MUSKEG	
MINES	
TRAVERSE MONUMENT	

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	
CANCELLED	
SAND & GRAVEL	

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

Metres 500 0 1000 Metres

Chains 10 0 10 20 30 40 50 60 70 Chains

Feet 500 0 1000 2000 3000 4000 5000 Feet

SCALE 1:20 000

GRID ZONE : 17

NOTES

REGISTERED PLAN OF SUBDIVISION

MINING CLAIMS SHOWN WITHIN THIS AREA ARE SUBJECT TO THE RIGHTS AND PRIVILEGES GRANTED TO DELNITE MINES LTD. UNDER AN EASEMENT ORDER DATED MAY 19, 1937.

DOME MINES, LIMITED SURFACE RIGHTS LEASE #103926

2.16494

RECEIVED MAY 9 - 1996 MINING LANDS BRANCH

TOWNSHIP

DELORO

M.N.R. ADMINISTRATIVE DISTRICT

TIMMINS

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

COCHRANE

Ontario Ministry of Natural Resources Land Management Branch

ACTIVATED NOV. 24/93 BY: D.C.

ORIGINAL COMPILATION	JULY 1984	Number
REVISED CHECKED BY: ARW NOV 23/93		G-3993

42A06SW0013 2.16494 DELORO

200