Giant Yellowknife Mines Limited

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MEMORANDUM

TO: D.J. Emery

CC: Directors, S.E. El Alfy, J.S. McAlpine

FROM: Ken Blower

SUBJECT: WAROX PROJECT - YELLOWKNIFE DIVISION

DATE: October 11, 1988

Dale 7

At the Board meeting of ~~April 27~~ October 5, 1988, approval was received to conduct pilot plant testing toward production of a high quality arsenic trioxide feedstock for marketing to U.S. C.C.A. manufacturers.

That pilot work was carried out by Research Productivity Council in Fredericton, New Brunswick, utilizing a fluid bed roaster that was available in their labs.

Initial testwork was very successful in producing a high grade primary product and a relatively arsenic-free residue to be treated for gold recovery.

An additional funding of $50,000 was approved on September 9, 1988 to assess the ability of the fuming technique to segregate an antimony product from lower grade underground crude arsenic dust. This testwork gave inconclusive results and will require future work.

Samples of high quality Warox were distributed to potential customers for their evaluation. Customers' reactions have been generally supportive.

Marketing studies have been conducted by Mr. D. Zeraldo and a copy of his report is appended to this memo.

We are proposing to do a formal feasibility study immediately with the objective of bringing a commercial plant into operation by the end of 1989.

We envision the process to be as follows: (Page 6 of Section A)

1.	Complete feasibility by December 1/88	$ 50,000
2.	Conduct antimony elimination and nucleation work by December/88	50,000
3.	Engineering Design by March 31/88	200,000
4.	Procurement by March 31/88	100,000
5.	Construction from April - December 89	5,600,000

To meet these target dates some underground stope development would be required to access the high-gold value crude.

We propose this to start as soon as a favourable feasibility study is received.

Finally, to continue the planning for an underground retrieval process, a transfer facility to rail at Enterprise, and to supervise the R.P.C. testwork on antimony, a further $60,000 will be required in 1988.

A commitment by the Board is necessary to fund the expenditures to December 1/88 of $140,000. This will provide the feasibility report - our next decision point.

Total capital costs for a production facility are at this time estimated to be $5.9 M.

At $500 C/oz Gold and $0.45 C/lb As_2O_3 the project is likely to develop an I.R.R. of 57% and an N.P.V. of $16.2 M @ 15% discount. (See Table 1, Most Likely Case, Page 8, Section A)

Ken Blower

3.2 EXPENDITURE SCHEDULE
(ALL NUMBERS IN DOLLARS)

1988--------1989

	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH
FEASIBILITY			50,000				
R.P.C.		50,000*	50,000				
ENGINEERING COSTS							
DESIGN SERVICES				50,000	50,000	50,000	50,000
PROCUREMENT SERVICES				25,000	25,000	25,000	25,000
GIANT COSTS							
U/G DEVELOPMENT				25,000	25,000	25,000	25,000
WAROX PROJECT GROUP	10,000	10,000	20,000	20,000	20,000	10,000	10,000
TOTAL EXCLUDING Y.T.D. EXPENDITURES	10,000	60,000	120,000	120,000	120,000	110,000	110,000
CUMULATIVE TOTAL	10,000	70,000	190,000	310,000	430,000	540,000	650,000

* AUTHORIZED BY K. BLOWER SEPTEMBER 16, 1988

4.3 SUMMARY OF FINANCIAL ANALYSIS

TABLE 1 - PRE-TAX

CASE		PRODUCTION TONS PER YEAR	PAYBACK YEARS	I.R.R. %	NPV @ 15% $	UNDISCOUNTED NPV - $
OPTIMAL	CASE A	7,000	0.8	146	32.1 M	63.5 M
	CASE B	4,000 - 7,000	1.4	95	25.5 M	56.6 M
	CASE C	7,000	1.9	65	13.7 M	33 M
WORST	CASE D	4,000 - 7,000	3.1	49	9.8 M	26.8 M
	CASE E	7,000	1.6	80	22.6 M	56.2 M
MOST LIKELY	CASE F	4,000 - 7,000	2.9	57	16.2 M	46.5 M

TABLE 2 - AFTER TAX

CASE		PRODUCTION TONS PER YEAR	PAYBACK YEARS	I.R.R. %	NPV @ 15% $	UNDISCOUNTED NPV - $
OPTIMAL	CASE A	7,000	1.0	104	19.7 M	40.0 M
	CASE B	4,000 - 7,000	1.8	72	15.6 M	35.8 M
	CASE C	7,000	2.4	50	8.3 M	21.3 M
WORST	CASE D	4,000 - 7,000	3.5	39	5.8 M	17.5 M
	CASE E	7,000	2.0	62	13.8 M	35.6 M
MOST LIKELY	CASE F	4,000 - 7,000	3.3	46	9.8 M	29.6 M

Zeraldo Minerals
(A Division of 151331 Canada Inc.)
186 Heathwood Heights Drive
Aurora, Ontario
L4G 4X4

October 10, 1988

To The Officers and Directors of
Giant Yellowknife Mines Limited:

In keeping with the terms of our engagement by Giant Yellowknife Mines Limited ("Giant"), we have reviewed, analysed and attempted to assess (a) the North American refined arsenic trioxide market and (b) the prospects for Giant in successfully penetrating this market with its own production.

Our review, analysis, and assessment, as contained in the attached report, is based upon and limited to the following parameters set by the senior management of Giant:

1. Initial telephone contact with 7 major U.S. consumers during the March - May, 1988 period.

2. Initial visit and preliminary discussion on March 8, 1988 with Mr. W. P. O'Brien, Vice-President Manufacturing, Osmose Wood Preserving Inc., Buffalo, N.Y.

3. Visit with Giant personnel on June 8-9, 1988 to (a) observe and discuss the (fuming) pilot plant program in progress at Research and Productivity Council, Fredericton, New Brunswick ("RPC") and (b) make arrangements for a 5 pound sample of pilot plant produced material to be sent to each major U.S. consumer.

4. Telephone and/or face to face contact during August-September, 1988 with 2 railway companies and 2 trucking companies concerning transportation costs from Yellowknife, NWT/Enterprise, Alberta to the plant of each major consumer.

5. Visit with Giant personnel on September 19-20, 1988 to observe agglomerating/compacting tests conducted at Ferro-Tech Inc., Wyandotte, Michigan and make arrangements for one 5 pound sample of compacted product (no binder) to be sent in late October, 1988 to each major U.S. consumer.

6. Search and review of available published literature providing statistics relevant to the U.S. arsenic trioxide market.

7. Initial visits during September 28-29, 1988 with 2 major consumers, namely:

   (a) Pennwalt Corporation, Bryan, Texas and

   (b) Koppers Company, Inc., Pittsburgh, Pennsylvania

   to obtain more information on the market and to obtain their comments on the 5 lb. sample of material produced at RPC.

On the basis of the foregoing we have devoted our best efforts to the efficient conduct of the work and to the competence and accuracy thereof, however, we shall not be liable for any errors or omissions of whatever nature in any part of the work or for any possible consequences thereof.

Zeraldo Minerals expressly excludes all representations, conditions and warranties expressed or implied, statutory or otherwise regarding work done, opinions given or statements made by it or on its behalf or regarding their fitness and practicability for any purpose or the results to be directly or indirectly obtained by their use.

Yours very truly,

Daniel N. Zeraldo
Zeraldo Minerals

Executive Summary

1. The production of arsenic trioxide is relatively inelastic since it is produced generally as a byproduct of the pyrometallurgical processing of arsenopyrite bearing base and precious metal ores and its hazardous nature prevents its disposal as a waste product into the environment.

2. The U.S. market for refined arsenic trioxide is estimated at approximately 36,000 short tons in 1988. (There appears to be no meaningful quantity of refined arsenic trioxide directly consumed in Canada.)

3. The major market segment or end-use is in the manufacture of wood preserving chemicals, primarily copper chromium arsenate, which is currently growing at the rate of 6-10% per annum and represents about 75% of total U.S. consumption.

4. During the 1980's 3 new producers of refined arsenic trioxide have entered the market and as a result the delivered customer works price has been gradually eroding.

5. Currently consumers are paying about 33 cents U.S. per pound (40 cents Cdn. per pound) for refined arsenic trioxide delivered to their plant sites. It is projected that under current market conditions, additional supply to the market from Giant would cause a further 20% erosion in delivered prices to about 27 cents U.S. per pound (33 cents Cdn. per pound).

6. Most consumers prefer delivery in bulk truck or railcar however, at the present time only one North American producer (Mexico) offers delivery in bulk (railcar). The remaining North American producers and other offshore producers offer delivery in drums. (Some consumers have drum receiving capability only.)

7. All truck bulk transportation from Giant has been investigated on a preliminary basis. Trimac Transportation System has quoted rates ranging from 15 cents to 18 cents Cdn. per pound, depending on destination, with surcharges for time required to load in excess of 2 hours and unload in excess of 2 hours.

8. Giant is investigating the purchase of land at Enterprise, Alberta for the construction of a bulk truck unloading, silo storage, and bulk railcar loading facility. CN Rail has provided preliminary quotations for moving product from Enterprise to various customer plants ranging from 6.2 to 7.2 cents Cdn. per pound.

9. It is suggested that Giant consider an initial marketing and sales strategy in which 3-4 year sales contracts with major consumers at specified minimum tonnages and fixed prices are secured prior to going into production and preferably as soon as possible after the decision to go ahead with the project has been made.

10. Provided Giant produces a high quality product acceptable to consumers and develops a serious and sustained marketing effort, it is projected that the initial strategy outlined in item 9 above could successfully secure a "base case" sales volume level of about a 4,500 short tons per annum during the 1990-1994 period at delivered consumer work price of 27 cents U.S. per pound.

Jane
Comment ?

PROPOSAL

Ken.

Giant Yellowknife Mines Limited intends to build and operate a WAROX transfer facility to enable transfer of bulk WAROX from truck to rail. Giant's preferred location for the WAROX transfer facility is approximately 5 km north of Enterprise at what is known as Site C.

Specific elements of Giant's proposal to the Community of Enterprise may be summarized as follows

1. Giant will undertake to maintain the latest in dust control equipment and a variety of monitoring programs to ensure that compliance limits for environmental control and air quality in the workplace are not exceeded.

2. Giant will provide a residence for the Plant Operator and will take steps to guard the property from vandalism.

3. Giant will include high quality fire protection design and equipment in the Transfer facility.

4. Giant will maintain mobile emergency response equipment at the plant, to assist in off site cleanup of WAROX spills, or of other hazardous spills in the area.

5. Giant will use its best efforts to employ residents of Enterprise to operate the Transfer Facility. The operator will be a responsible person, thoroughly trained in the handling of the product and the operation of the equipment.

6. Whenever feasible to do so, Giant will purchase goods and services from businesses located in Enterprise.

7. Giant will contribute to a worthwhile community endeavor.

It is Giant's understanding that a public referendum will be held to determine if the citizens of Enterprise support Giant's proposal for location of the Transfer facility at Site C. Giant believes that all of the concerns arising from the May 11 meeting were satisfied during the meeting of October 7. Unfortunately there was not a large turnout at this meeting and Giant feels that a number of residents still have concerns that they would not have if they had attended the meeting.

To ensure that as many residents as possible are fully aware of all sides of the issue, Giant respectfully suggests that four interested parties should speak to the residents just before a secret ballot vote is taken. The four parties should include: the Enterprise Settlement Council Chairperson, a GNWT Environmental representatives, a representative from Giant and a spokesperson for those still opposed to the project.

PROPOSAL FOR
CONSTRUCTION AND OPERATION OF A
WAROX TRANSFER FACILITY AT ENTERPRISE

As the Settlement of Enterprise must approve of the project before the Application for Lease of land within the Enterprise Block Land Transfer can proceed, Giant proposes the following.

1. The Transfer Facility will be built and operated generally as described during discussions between Giant and Enterprise Settlement representatives.

2. To help satisfy the stated health and environmental concerns of some residents of Enterprise, and the need for the community to benefit from the project, Giant proposes the following.

a. Dust Control.

Equipment will be installed at the Yellowknife WAROX purification plant to produce a hard granular product highly resistant to degradation. Very little dust will be generated through shipping and transfer of this product.

Equipment at the Transfer Facility will be totally enclosed, dust tight and under negative pressure. This applies both to unloading and loading equipment. Dust collected due to the negative pressure induced at transfer points will be captured in a fabric baghouse filter.

Spillage of granular or dusty product will be cleaned up using vacuum cleaning equipment especially installed for the purpose.

b. Dust Monitoring.

To ensure that fugitive dust emissions cannot occur without the knowledge of the regulatory authorities or of the plant operator, dust monitoring will be carried out on several fronts, as follows:

i. Background soil survey prior to construction. This will help to determine concentrations of arsenic occurring naturally in soils adjacent to the site.

ii. Annual soil surveys during the first few years of operation. Any significant dust losses from the plant will accumulate in soils and be

detected during the annual survey. Other monitoring programs make it highly unlikely that significant dust losses will occur.

iii. Monthly dust fall surveys using 2 sets of dust fall samplers, one set in the area where arsenic emissions from the plant could be expected to be detected and one set in a control area, where emissions from the plant would not be detected. This arrangement protects against false conclusions being drawn from detection of normal background levels of arsenic in the samplers. After evaluation of results achieved during the first year of operation, sampling interval may be increased.

iv. Stack opacity monitoring. An electronic sensing device will be included in plant design, to sound an alarm if excessive levels of dust are detected in the baghouse exhaust stack. As the baghouse fan operates only when loading or unloading is taking place, the operator will hear the alarm if it sounds. The alarm indicates failure of one of the baghouse filters. The baghouse exhaust stack will be built with sampling ports so that stack sampling using highly sensitive measuring devices can be used if desired.

v. Routine gravimetric monitoring of air quality inside the Transfer Facility. A standard of .03 mg/cu.m As over 8 hours has been adopted by Giant as the maximum acceptable average concentration of arsenic in the workplace environment. Though Canada does not have an air quality standard regarding arsenic, Giant's 0.03 mg/cu.m. compares quite favourably with the acceptable concentrations of arsenic in the workplace environments legislated in many countries.

.03	0.05	0.2	0.25	0.3	0.5
Giant	Sweden	Romania Switzerland	Italy	Czechoslovakia East Germany Hungary Poland	Australia Belgium Finland Japan Holland

vi. Urinary arsenic monitoring of plant operator. Unless there is a reason for more frequent sampling, this will be conducted routinely on a monthly basis. Since there are a number of dietary inluences on urinary arsenic concentrations, follow-up samples will be collected for analysis immediately upon receiving notice of elevated levels. If elevated urinary arsenic levels persist through follow up sampling, the operator will be removed from any possibility of arsenic exposure until urinary arsenic levels return to normal. In the meantime, efforts will be made to find and correct the cause of arsenic exposure in the plant.

vii. Monitoring by regulatory agencies. Though Giant has no control over the type and frequency of monitoring programs conducted by regulatory agencies, it has been Giant's experience that most agencies will conduct monitoring programs whenever there is a perceived need, and often when there is not. Given the controversy surrounding the facility, Giant expects that routine regulatory monitoring and inspections will be a fact of life with this facility.

c. Spill Protection

Two types of spill can occur as a result of WAROX transfer, those inside the Transfer Facility, and those outside. Giant has taken specific action to prevent such spills, and in the event that spills do occur, to minimize the detrimental effects.

i. To protect against spills inside the plant, the same equipment design that prevents fugitive dust emissions within the plant also protects against accidental spillage. The totally enclosed design, both for loading and unloading, keeps product within the equipment and prevents contamination of the workplace environment under most upset conditions. However, there are occasions wherein spills will occur, during dismantling of equipment, for example. On these occasions, the operator will be required to wear protective respiratory equipment and to guard against skin contact with the product. Immediate cleanup of spills and contaminated equipment before doing necessary repair work will help prevent further contamination of the plant. Cleanup will ordinarily be accomplished with a vacuum cleaner designed for the purpose.

ii. Product spills outside of the plant, whether occurring during transportation, storage, or transfer, will be recovered by use of a trailer mounted, diesel engine powered vacuum recovery system. The unit will be designed to clean up product spills and/or contaminated ground, etc. through a 4" flexible hose. Material collected is deposited into sealed bags or drums for later disposal. Operators engaged in cleanup of this nature will be protected against exposure by the use of personal protective equipment

d. Fire Control

Fire in the plant has the capability, not only of disrupting shipments of WAROX, but also of causing the generation of toxic gases due to sublimation of arsenic trioxide. Though the gases condense as soon as contacted by cold air, the fine particulate formed could cause some local contamination. Spillage resulting from fire could also cause local contamination in the immediate area of plant.

To guard against these dangers, plant design will focus on fire prevention. Features such as use of fire resistant construction materials and locating flammable equipment and supplies in a separate building are examples. Fire control will also be built in as additional protection. A dry chemical extinguishing system will be installed in the unloading area to protect against truck or trailer fire and the remainder of the plant will be similarly protected, wherever flammable materials are used.

e. Plant Security

Some concern about the possibility of environmental contamination due to vandalism has been expressed. Giant proposes that the Plant Operator will live on the transfer site in a house provided for the purpose. In addition, an 8' chainlink fence enclosing the plant and the spur line

will help to deter vandals. A locked gate at the highway entrance to the site will also help.

f. Community Benefits

Though some items on the list of benefits to the Community of Enterprise may not be seen as benefits by everyone concerned, Giant has made the assumption that industrial development, in general, is considered desireable.

1. Contribute to maintaining a viable rail link. With the cessation of concentrate shipments from Pine Point, reasons to keep the line in existence may be increasingly hard to find.

2. Purchase of some community services, such as water delivery and sewage pumpout, fuel for generators, road clearing, etc.,

3. Employment of one resident of Enterprise, at an estimated salary in the range of $39,000 to 46,000, not counting the standard Giant benefit package normally averaging 35% of salary.

4. A goodwill contribution to a worthwhile community project. For example a fully equipped children's playground, or perhaps a portable building equipped with shelves, books, etc as a community library. Undoubtedly the community will have a number of ideas to add to these.

5. Establishment of an industry in a district often has the effect of attracting other industries.

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GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE BB) current production

SUMMARY OF RESULTS

YEAR	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
PRODUCTION												
Tons Feed From Mill	0	4,636	4,636	4,636	4,636	4,636	4,636	4,636	0	0	0	32,452
Tons Feed From U/G	0	86	86	86	86	86	2,910	2,910	7,936	7,972	8,114	30,269
Tons Feed Processed	0	4,722	4,722	4,722	4,722	4,722	7,546	7,546	7,936	7,972	8,114	62,721
Tons As2O3 Produced	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
Ounces Gold Produced	0	549	549	549	549	549	848	848	836	853	917	7,048
REVENUES ($1,000)												
Revenue Arsenic	0	2,997	2,997	2,997	2,997	2,997	4,662	4,662	4,662	4,662	4,662	38,295
Revenue Gold	0	274	274	274	274	274	424	424	418	427	459	3,524
Total Revenue	0	3,271	3,271	3,271	3,271	3,271	5,086	5,086	5,080	5,089	5,121	41,819
Revenues/ton Feed	694	693	693	693	693	693	674	674	640	638	631	7,416
Revenues/ton As2O3	727	727	727	727	727	727	727	727	726	727	732	7,999
OPERATING ($1,000)												
Total Operating	0	1,923	1,923	1,923	1,923	1,923	3,092	3,092	3,277	3,284	3,307	25,669
Operating/Ton Feed	433	407	407	407	407	407	410	410	413	412	408	4,522
Operating/Ton Product	454	427	427	427	427	427	442	442	468	469	472	4,884
Total Capital	5,902	0	0	0	(750)	0	0	0	0	0	0	5,152
Cash Flow Before Tax	(5,902)	1,348	1,348	1,348	2,098	1,348	1,994	1,994	1,803	1,805	1,814	10,997
Total Taxes	0	5	5	100	202	272	506	524	536	628	638	3,415
Net Cash Flow	(5,902)	1,344	1,344	1,248	1,896	1,076	1,488	1,470	1,267	1,177	1,176	7,582
Discount Rate	15.0%											
Aft Tax Discounted Cash Flow	(5,902)	1,168	1,016	821	1,084	535	643	553	414	335	291	957
Cum. Discounted Cash Flow	(5,902)	(4,734)	(3,718)	(2,897)	(1,813)	(1,278)	(635)	(82)	332	666	957	

BEFORE TAX

Net Present Value	$2,208 of first	10 years of operation.
Payback Period	6.1 Years	
IRR	23.50%	

AFTER TAX

Net Present Value	$957 of first	10 years of operation.
Payback Period	7.2 Years	
IRR	19.2%	

Date Printed: 11-Oct-88

Engineering Department, Yellowknife Division.

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GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE BB)
PRODUCTION RATES AND PRODUCT PRICES

YEAR	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
VOLUME PARAMETERS												Page 2
Tons As2O3 Sold	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
Feed Grade As	73.00%	72.91%	72.91%	72.91%	72.91%	72.91%	70.97%	70.97%	67.48%	67.17%	66.00%	
Feed Grade As2O3	96.39%	96.27%	96.27%	96.27%	96.27%	96.27%	93.71%	93.71%	89.10%	88.69%	87.15%	
As Recovery	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	
Tons Feed	0	4,722	4,722	4,722	4,722	4,722	7,546	7,546	7,936	7,972	8,114	62,721
PRODUCTION DATA												
ARSENIC												
Feed % As2O3	96.39%	96.27%	96.27%	96.27%	96.27%	96.27%	93.71%	93.71%	89.10%	88.69%	87.15%	
Recovery (%)	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	
Tons As2O3	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
GOLD												
Feed Grade (oz/ton)	0.137	0.137	0.137	0.137	0.137	0.137	0.132	0.132	0.124	0.126	0.133	
Recovery (%)	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	
Ounces Gold	0	549	549	549	549	549	848	848	836	853	917	7,048
PRODUCT PRICES												
As2O3 / lb CDN	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	
Gold / oz CDN	500	500	500	500	500	500	500	500	500	500	500	
REVENUES												
As2O3	0	2,997	2,997	2,997	2,997	2,997	4,662	4,662	4,662	4,662	4,662	38,295
Gold	0	274	274	274	274	274	424	424	418	427	459	3,524
TOTAL REVENUES	0	3,271	3,271	3,271	3,271	3,271	5,086	5,086	5,080	5,089	5,121	41,019

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GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE BB)
OPERATING COSTS

YEAR		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
UNIT COSTS	U/G $/ton Feed	26	26	26	26	26	26	26	26	26	26	26	
	Plant $/ ton Feed	140	140	140	140	140	140	140	140	140	140	140	
	Plant $/ton Residue	0	0	0	0	0	0	0	0	0	0	0	
	Transfer $/ton As2O3	46	46	46	46	46	46	46	46	46	46	46	
	Freight $/ton As2O3	220	220	220	220	220	220	220	220	220	220	220	
	Tails $/ton As2O3	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	
	UNITS (Tons) U/G	0	86	86	86	86	86	2,910	2,910	7,936	7,972	8,114	30,269
	Plant Feed	0	4,722	4,722	4,722	4,722	4,722	7,546	7,546	7,936	7,972	8,114	62,721
	Residue	0	222	222	222	222	222	546	546	936	972	1,114	5,221
	Transfer	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
	Freight	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
	As2O3 to Tails	0	45	45	45	45	45	70	70	70	70	70	575
	COSTS U/G	0	2	2	2	2	2	76	76	206	207	211	787
	Plant	0	661	661	661	661	661	1,056	1,056	1,111	1,116	1,136	8,781
	Residue	0	0	0	0	0	0	0	0	0	0	0	0
	Transfer	0	207	207	207	207	207	322	322	322	322	322	2,645
	Freight	0	990	990	990	990	990	1,540	1,540	1,540	1,540	1,540	12,650
	Tails	0	63	63	63	63	63	98	98	98	98	98	806
	Additional Operating	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL OPERATING COSTS	0	1,923	1,923	1,923	1,923	1,923	3,092	3,092	3,277	3,284	3,307	25,669
	NET OPERATING PROFIT	0	1,348	1,348	1,348	1,348	1,348	1,994	1,994	1,803	1,805	1,814	16,149
CAPITAL	U/G RECLAIM	1,000	0	0	0	0	0	0	0	0	0	0	1,000
	SURFACE PLANT	3,873	0	0	0	0	0	0	0	0	0	0	3,873
	TRANSFER FACILITY	1,029	0	0	0	0	0	0	0	0	0	0	1,029
	U/G Storage Const.	0	0	0	0	(750)	0	0	0	0	0	0	(750)
	EXTRA CAPITAL	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL CAPITAL	5,902	0	0	0	(750)	0	0	0	0	0	0	5,152
CASH FLOW BEFORE TAX		(5,902)	1,348	1,348	1,348	2,098	1,348	1,994	1,994	1,803	1,805	1,814	10,997
TOTAL TAXES		0	5	5	100	202	272	506	524	536	628	638	3,415
NET CASH FLOW		(5,902)	1,344	1,344	1,248	1,896	1,076	1,488	1,470	1,267	1,177	1,176	7,582
CUMULATIVE NET CASH FLOW		(5,902)	(4,558)	(3,215)	(1,967)	(71)	1,005	2,493	3,963	5,230	6,406	7,582	
DISCOUNT RATE		15.00%											
Discount Period		0	1	2	3	4	5	6	7	8	9	10	
BEF TAX DISCOUNTED CASH FLOW		(5,902)	1,172	1,019	886	1,200	670	862	750	589	513	448	2,208
CUMUL DISCOUNTED		(5,902)	(4,730)	(3,710)	(2,824)	(1,624)	(954)	(92)	657	1,247	1,760	2,208	
AFT TAX DISCOUNTED CASH FLOW		(5,902)	1,168	1,016	821	1,084	535	643	553	414	335	291	957
CUMUL DISCOUNTED		(5,902)	(4,734)	(3,718)	(2,897)	(1,813)	(1,278)	(635)	(82)	332	666	957	

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GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE AA) 2-35

SUMMARY OF RESULTS

YEAR	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
PRODUCTION												
Tons Feed From Mill	0	0	0	0	0	0	0	0	0	0	0	0
Tons Feed From U/G	0	7,534	7,534	7,534	7,534	7,534	11,720	11,720	9,446	8,672	8,672	87,903
Tons Feed Processed	0	7,534	7,534	7,534	7,534	7,534	11,720	11,720	9,446	8,672	8,672	87,903
Tons As2O3 Produced	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
Ounces Gold Produced	0	7,813	7,813	7,813	7,813	7,813	12,154	12,154	5,572	3,332	3,332	75,609
REVENUES ($1,000)												
Revenue Arsenic	0	2,997	2,997	2,997	2,997	2,997	4,662	4,662	4,662	4,662	4,662	38,295
Revenue Gold	0	3,907	3,907	3,907	3,907	3,907	6,077	6,077	2,786	1,666	1,666	37,805
Total Revenue	0	6,904	6,904	6,904	6,904	6,904	10,739	10,739	7,448	6,328	6,328	76,100
Revenues/ton Feed	694	916	916	916	916	916	916	916	788	730	730	9,356
Revenues/ton As2O3	727	1,534	1,534	1,534	1,534	1,534	1,534	1,534	1,064	904	904	14,338
OPERATING ($1,000)												
Total Operating	0	2,511	2,511	2,511	2,511	2,511	3,906	3,906	3,528	3,400	3,400	30,693
Operating/Ton Feed	433	333	333	333	333	333	333	333	374	392	392	3,924
Operating/Ton Product	454	558	558	558	558	558	558	558	504	486	486	5,835
Total Capital	5,902	0	0	0	(750)	0	0	0	0	0	0	5,152
Cash Flow Before Tax	(5,902)	4,393	4,393	4,393	5,143	4,393	6,833	6,833	3,920	2,928	2,928	40,254
Total Taxes	0	789	920	1,211	1,432	1,518	2,518	2,538	1,427	1,058	1,064	14,475
Net Cash Flow	(5,902)	3,604	3,473	3,181	3,711	2,875	4,315	4,295	2,492	1,870	1,864	25,779
Discount Rate	15.0%											
Aft Tax Discounted Cash Flow	(5,902)	3,134	2,626	2,092	2,122	1,429	1,866	1,615	815	531	461	10,788
Cum. Discounted Cash Flow	(5,902)	(2,768)	(142)	1,950	4,071	5,501	7,367	8,981	9,796	10,328	10,788	

BEFORE TAX

Net Present Value $17,613 of first 10 years of operation.

Payback Period 1.6 Years

IRR 76.57%

AFTER TAX

Net Present Value $10,788 of first 10 years of operation.

Payback Period 2.1 Years

IRR 58.3%

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Engineering Department,Yellowknife Division.

GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE AA)
PRODUCTION RATES AND PRODUCT PRICES

YEAR	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
VOLUME PARAMETERS												
Tons As2O3 Sold	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
Feed Grade As	73.00%	45.69%	45.69%	45.69%	45.69%	45.69%	45.69%	45.69%	56.69%	61.75%	61.75%	
Feed Grade As2O3	96.39%	60.33%	60.33%	60.33%	60.33%	60.33%	60.33%	60.33%	74.85%	81.53%	81.53%	
As Recovery	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	
Tons Feed	0	7,534	7,534	7,534	7,534	7,534	11,720	11,720	9,446	8,672	8,672	87,903
PRODUCTION DATA												
ARSENIC												
Feed % As2O3	96.39%	60.33%	60.33%	60.33%	60.33%	60.33%	60.33%	60.33%	74.85%	81.53%	81.53%	
Recovery (%)	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	
Tons As2O3	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
GOLD												
Feed Grade (oz/ton)	0.137	1.220	1.220	1.220	1.220	1.220	1.220	1.220	0.694	0.452	0.452	
Recovery (%)	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%	
Ounces Gold	0	7,813	7,813	7,813	7,813	7,813	12,154	12,154	5,572	3,332	3,332	75,609
PRODUCT PRICES												
As2O3 / lb CDN	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	
Gold / oz CDN	500	500	500	500	500	500	500	500	500	500	500	
REVENUES												
As2O3	0	2,997	2,997	2,997	2,997	2,997	4,662	4,662	4,662	4,662	4,662	38,295
Gold	0	3,907	3,907	3,907	3,907	3,907	6,077	6,077	2,786	1,666	1,666	37,805
TOTAL REVENUES	0	6,904	6,904	6,904	6,904	6,904	10,739	10,739	7,448	6,328	6,328	76,100

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GIANT YELLOWKNIFE MINES LIMITED
WAROX PLANT
PRELIMINARY ECONOMIC STUDY (CASE AA)
OPERATING COSTS

YEAR		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	TOTAL
UNIT COSTS	U/G $/ton Feed	26	26	26	26	26	26	26	26	26	26	26	
	Plant $/ ton Feed	140	140	140	140	140	140	140	140	140	140	140	
	Plant $/ton Residue	0	0	0	0	0	0	0	0	0	0	0	
	Transfer $/ton As2O3	46	46	46	46	46	46	46	46	46	46	46	
	Freight $/ton As2O3	220	220	220	220	220	220	220	220	220	220	220	
	Tails $/ton As2O3	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	1,402	
UNITS (Tons)	U/G	0	7,534	7,534	7,534	7,534	7,534	11,720	11,720	9,446	8,672	8,672	87,903
	Plant Feed	0	7,534	7,534	7,534	7,534	7,534	11,720	11,720	9,446	8,672	8,672	87,903
	Residue	0	3,034	3,034	3,034	3,034	3,034	4,720	4,720	2,446	1,672	1,672	30,403
	Transfer	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
	Freight	0	4,500	4,500	4,500	4,500	4,500	7,000	7,000	7,000	7,000	7,000	57,500
	As2O3 to Tails	0	45	45	45	45	45	70	70	70	70	70	575
COSTS	U/G	0	196	196	196	196	196	305	305	246	225	225	2,285
	Plant	0	1,055	1,055	1,055	1,055	1,055	1,641	1,641	1,322	1,214	1,214	12,306
	Residue	0	0	0	0	0	0	0	0	0	0	0	0
	Transfer	0	207	207	207	207	207	322	322	322	322	322	2,645
	Freight	0	990	990	990	990	990	1,540	1,540	1,540	1,540	1,540	12,650
	Tails	0	63	63	63	63	63	98	98	98	98	98	806
	Additional Operating	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL OPERATING COSTS	0	2,511	2,511	2,511	2,511	2,511	3,906	3,906	3,528	3,400	3,400	30,693
	NET OPERATING PROFIT	0	4,393	4,393	4,393	4,393	4,393	6,833	6,833	3,920	2,928	2,928	45,406
CAPITAL	U/G RECLAIM	1,000	0	0	0	0	0	0	0	0	0	0	1,000
	SURFACE PLANT	3,873	0	0	0	0	0	0	0	0	0	0	3,873
	TRANSFER FACILITY	1,029	0	0	0	0	0	0	0	0	0	0	1,029
	U/G Storage Const.	0	0	0	0	(750)	0	0	0	0	0	0	(750)
	EXTRA CAPITAL	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL CAPITAL	5,902	0	0	0	(750)	0	0	0	0	0	0	5,152
CASH FLOW BEFORE TAX		(5,902)	4,393	4,393	4,393	5,143	4,393	6,833	6,833	3,920	2,928	2,928	40,254
TOTAL TAXES		0	789	920	1,211	1,432	1,518	2,518	2,538	1,427	1,058	1,064	14,475
NET CASH FLOW		(5,902)	3,604	3,473	3,181	3,711	2,875	4,315	4,295	2,492	1,870	1,864	25,779
CUMULATIVE NET CASH FLOW		(5,902)	(2,298)	1,175	4,356	8,067	10,942	15,258	19,553	22,045	23,915	25,779	
DISCOUNT RATE		15.00%											
Discount Period		0	1	2	3	4	5	6	7	8	9	10	
BEF TAX DISCOUNTED CASH FLOW		(5,902)	3,820	3,322	2,888	2,940	2,184	2,954	2,569	1,281	832	724	17,613
CUMUL DISCOUNTED		(5,902)	(2,082)	1,239	4,128	7,068	9,252	12,206	14,775	16,056	16,889	17,613	
AFT TAX DISCOUNTED CASH FLOW		(5,902)	3,134	2,626	2,092	2,122	1,429	1,866	1,615	815	531	461	10,788
CUMUL DISCOUNTED		(5,902)	(2,768)	(142)	1,950	4,071	5,501	7,367	8,981	9,796	10,328	10,788	

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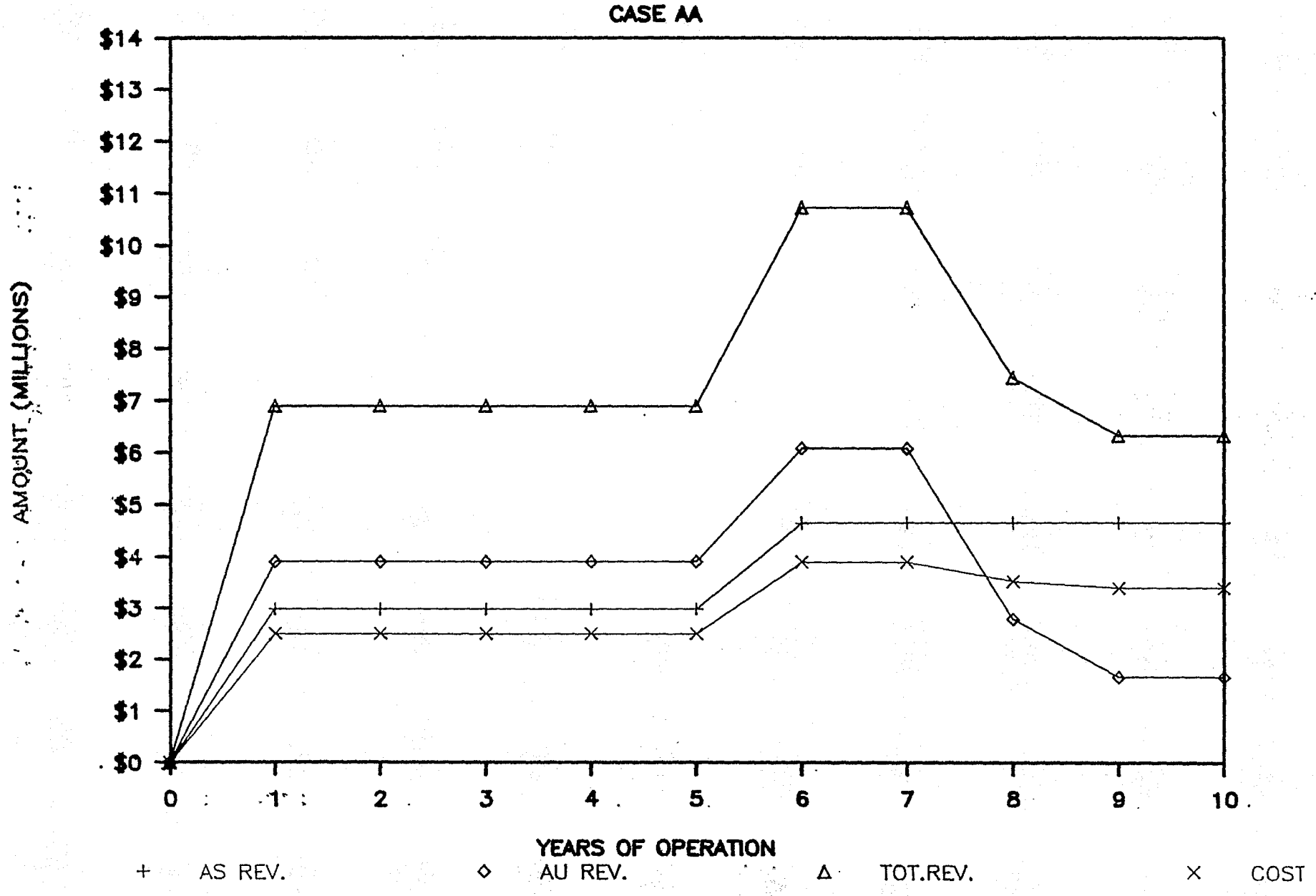
Engineering Department,Yellowknife Division.

TOTAL REVENUE AND OPERATING COSTS



EFFECTS OF CHANGES ON THE NPV