

Giant Yellowknife Mines Limited

The Applied Research Group, Inc.

Joint Pilot Venture

The Applied Research Group, Inc. of Charlotte, N.C. U.S.A. has considerable experience in the consumption of arsenic trioxide for the use in the manufacture of CCA type wood preservative.

We have also studied for many years various methods of purifying and refining crude arsenic trioxide such as the by-product from Giant's production.

For the last several years we have been inventing and developing a new process which not only refines the arsenic trioxide but increases its value by converting it to the pentoxide form required for CCA production. All of this is done with the use of copper which is also increased in value by this process and is also required for CCA production.

Our last projection for this process indicated that a \$ 4,400,000 investment would earn before taxes, \$ 6,900,000 per year.

To manufacture copper oxide and arsenic pentoxide in the form required for CCA by the best available technology, without our invention, would require the construction and successful operation of three facilities: a arsenic trioxide refinery; a arsenic acid plant; and a wet-process copper oxide plant. These plants would require a total capital between \$ 11,500,000 and \$ 18,500,000.

In addition the products produced by conventional means do not have the safety (low toxicity), ease of handling and storage that this new product does.

We beleive that this new product, copper arsenate, can become the dominate raw material for CCA and ACA wood preservative production in North America. This process will allow Giant not only to profitable dispose of all current arsenic production but is expected also allow the profitable recovery of the arsenic trioxide presently stored underground.

The process allows recovery of the residue after arsenic extraction in a form which is expected to allow the recovery of the residual gold values contained in the arsenic.

Our proposal is that a small plant to pilot the process and produce quantities of copper arsenate for testing in actual CCA production and for market samples be set at our Charlotte, North Carolina CCA plant.

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In this pilot-market plant, Applied Research will provide:

1. A 1,000 gallon stainless steel chemical reactor with heating, cooling, and agitation.
2. Stainless steel pumps and equipment on site (additional piping and pumps will be required).
3. Oxygen storage and vaporizer
4. Boiler
5. Utilities: Electricity, Water, Sewage
6. Warehousing
7. Material handling for drums, bags etc.
8. Purchasing
9. Laboratory and lab support
10. Accounting
11. Administration
12. Research and Engineering personal for process development and evaluation

In addition, Applied will supply the following raw materials:

1. Oxygen
2. Refined arsenic for stage 1
3. Surfactants, etc.

Giant Yellowknife is requested to provide (a detailed list follows):

1. Additional personnel required for this project.
2. Additional overhead and miscellaneous expenses for this project.
3. Equipment modifications and additions needed for this project.

The following raw materials:

1. Copper (as working capital)
2. Ammonia (as working capital)
3. Giant crude arsenic trioxide for Stage II

Giant is requested to provide:

- | | | |
|----|---|---|
| A. | Additional personnel required for project | |
| B. | Lab Technician 16,000/yr | 6 months = \$ 8,000 |
| C. | Reactor Operator (2) \$ 6/hr | |
| | \$ 1,020/mo x 2 x 6 | = 12,240 |
| D. | Chemical Engineer | 29,000 x $\frac{1}{2}$ time x 6 = 7,250 |
| E. | Maintenance Labor | 500 x 6 = 3,000 |
| F. | Additional overhead and other expenses | |
| | 4,000/mo x 6 | = 24,000 |
| G. | Communications and travel | 1,000/mo x 6 = 6,000 |
| | | <hr/> |
| | | \$ 60,490 |

Additional equipment:

- | | | |
|----|---|--------|
| 1. | Storage tanks, pumps and piping | 7,900 |
| 2. | Anhydrous Ammonia piping and distribution | 700 |
| 3. | Oxygen piping and distribution | 2,000 |
| 4. | Agitator modification | 2,200 |
| 5. | Baffeling for high solids | 800 |
| 6. | Recovery system for ammonia gas | 5,000 |
| 7. | Used filter press with supporting equipment | 35,000 |
| 8. | Arsenic feeding system | 10,000 |
| 9. | Slurry pump | 5,000 |

10. Hoist for bulk chromic acid	6,700
11. Storage tank for Stage II	2,000
12. Additional piping	1,000
13. Instrumentation and alarms	7,000
14. Feed system for copper arsenate	<u>2,000</u>
TOTAL	87,300
Construction Fee 5%	4,365
10% Contingency	<u>8,730</u>
	100,395

Working capital for raw materials not supplied by Applied:

A. Copper	30,090
B. Ammonia	3,670
C. Inventory of copper arsenate	<u>15,500</u>
	49,260

TOTAL OUTLAY: operating costs, equipment and working capital	210,145
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Waste disposal costs are not calculated at this time but will be for Giants's account.

It is expected that the working capital, \$49,260, can be recovered. This would reduce the ultimate outlay to \$ 160,885.

Equipment costs may be reduced on many items and every effort will be made to do so.

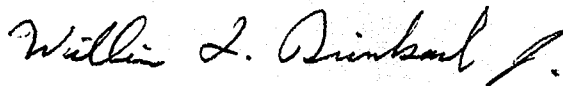
Some profits may be realized on internal or external sales of the product but we feel that to rely on them at this stage would be premature.

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It is our intent that this project will result in a formal joint venture between Giant Yellowknife and Applied Research to produce and promote copper arsenate for our mutual benefit.

Because our corporate commitment is to achievement of higher returns on minerals and metals through their direct conversion to higher-value chemicals, we are hoping this venture will be the first of several with Giant and Falconbridge.

THE APPLIED RESEARCH GROUP, INC.

A handwritten signature in dark ink, reading "William F. Drinkard, Jr." with a stylized flourish at the end.

William F. Drinkard, Jr.
President