



**McDermid St. Lawrence Chisholm Ltd.**  
INVESTMENT SECURITIES

**RESEARCH**

Offices:  
Vancouver (604) 654-1111  
Kamloops (604) 374-3144  
Penticton (604) 492-4442  
Calgary (403) 221-0333  
Hamilton (416) 525-3131  
Toronto (416) 777-7000

## TRIP COMMENTS

September 10, 1991

**WESTERN COPPER HOLDINGS**  
(WTC - VSE, \$ 0.70, O/S shares - 1.91 million)

**THERMAL EXPLORATION CO.**  
(TEEC - NASDAQ, THR - ASE, \$ 0.30, O/S shares - 11.1 million)

### SUMMARY AND CONCLUSIONS

I recently visited the Williams Creek Project now being developed by a joint venture between Thermal Exploration Co. and Western Copper Holdings. The property includes a 10.6 million ton oxide copper deposit which the joint venture hopes to develop as a copper leaching operation.

I was impressed with most aspects of the project. Work is now being done to provide enough information to initiate a full feasibility study over the winter. Trenching results released earlier this summer, show a substantial increase in grades over previous trench sampling. An ongoing 12,500 ft. drill program is designed to upgrade and confirm reserves. These grade improvements are expected to enhance the economics of the deposit substantially. Higher grades can be mined in the early years thereby shortening the pay back period.

Thermal Exploration has earned its interest in the project and now Western Copper must spend \$ 960,000 to earn its 50 % interest in the project.

Western Copper's only significant asset is this project. Thermal Exploration in addition to this project has seismic and geothermal data which both could generate revenue or joint ventures. Nearly 40 % of Western Copper's stock is held by Teck Corp. Patience will be needed to accumulate a position because the stock is relatively illiquid, though the stock offers slightly more leverage concerning this project at current prices. In contrast, Thermal Exploration is more liquid, is listed on NASDAQ and a little better promoted.

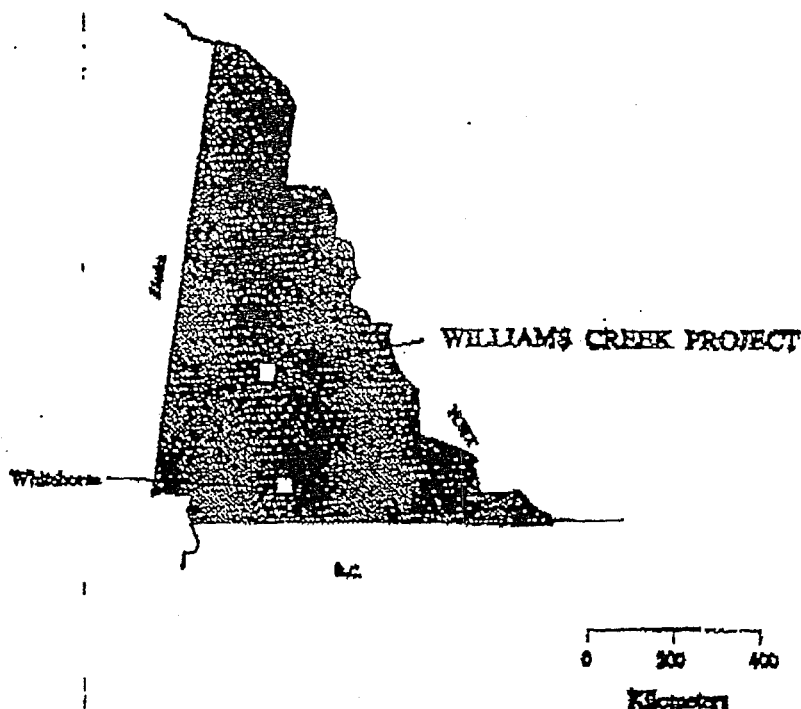
This project is worth monitoring. Both Thermal and Western Copper Holdings are recommended as speculative buys based on this quality project.

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## WILLIAMS CREEK PROJECT REVIEW

The property is located approximately 200 km north of Whitehorse, Yukon. Access is by road.

### YUKON LOCATION MAP



Geological oxide reserves total 10.6 million tons grading 1.02 % copper, 0.011 oz/ton gold and 0.095 oz/ton silver. Situated close to the surface, calculations show that it could be mined using open pit methods at a strip ratio of about 3 to 1. Reserves are still open to the north and south. Exploration potential on the project appears excellent.

Given the size, grade and location, the deposit would not be considered economic if copper occurred with sulphide minerals. The key element is that the copper is tied up in oxide minerals, primarily malachite and azurite. Copper can be leached from oxides using a technique called "Solvent Extraction / Electrowinning". The advantages of using this process are many:

- 1) Low operating costs compared to conventional milling
- 2) Low capital costs
- 3) Technology is well documented
- 4) Oxide minerals leach very well, recovery is expected to exceed 85 %.
- 5) Cathode copper is end product on site. Cathode copper fetches higher prices on the world market. Transportation costs for cathode copper are relatively low compared to shipping concentrates.

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A familiar analogy to compare copper leaching operations is that of heap leach gold operations in the western U.S. Ore is open pit mined at very low cost and then placed onto pads where a cyanide solution is dripped through to dissolve gold. Leaching copper is almost identical except that sulphuric acid is used to dissolve copper instead of cyanide.

Copper is the only metal expected to be recovered, though some thought is being given to recovering the gold and silver.

The joint venture has commissioned preliminary economic evaluations which indicate that an open pit and leaching operation could be profitable. It was estimated that a 1.1 million ton/year operation would have a capital cost approximately \$ 41.0 million using new equipment. This evaluation was done using old reserve data.

The project is still in the pre-development stages and many questions have yet to be answered. Usually projects deteriorate as more information is generated. To date the Williams Creek Deposit has defied this trend and shows signs of continuing to do so.

Douglas Hurst  
Mining Analyst

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