Alistair MacDonald

From: David Swisher [dswisher@centurymining.com]
Sent: Tuesday, July 18, 2006 10:43 AM
To: Alistair MacDonald
Cc: dswisher@centurymining.com; Rick Hoos
Subject: DMS testing update

Good morning Al,

Please find attached an updated test outline from our independent contractor for the DMS circuit. It would appear that we may need to add additional infrastructure to support the DMS circuit in order to achieve a Direct Shipped Ore. The input and output solution as defined in the project description will not change and will be well suited for the infiltration basin. There may be a couple additional additives we may need to add to the circuit (see write-up). Godfrey McDonald (Independent contractor) is planning to conduct the initial testing starting July 24th accompanied by Mountain States R&D International Inc. in Vail, Arizona. I will keep you informed as to their testing progress.

Thank you,

David Swisher

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TAMERLANE VENTURES INC.

PINE POINT PROJECT

METALLURGICAL PROCESSING

The **R190 mineral deposit** in the Pine Point Project is a Mississippi Valley Type geological deposit that was formed by epigenetic solutions of lead and zinc sulphides filling open-space cavity and local replacement of internal sediments in carbonate strata. The sulphides have a specific gravity range of 4.0 to 7.5 and the carbonate strata have a specific gravity of 2.7. This significant difference in specific gravity and the zoned deposition of the sulphide mineralization in the carbonate (limestone and dolomite) host rock will be taken advantage of to affect a separation and produce a "Direct Shipment Ore" (DSO) for subsequent selective flotation/milling and smelting of the resultant concentrates; this additional processing will be done at an offsite domestic or foreign location(s).

Preliminary laboratory Dense Media Separation (DMS) testwork has indicated that run-of-mine (ROM) ore could be significantly upgraded to the mid/upper-forty percent range. To improve the overall mineral recovery, laboratory testwork will be done to determine how the pre-screened, -28 mesh screen fraction (range from 10 to 18% of the crushed ROM ore) can be processed so it can also be upgraded and then combined with the DMS "Sink" product for shipment from the site as DSO.

The deposits are located in an area that already has some very necessary infrastructure for a developing mine project. There is electric power, a highway to a railway and two, communities (Hay River and Fort Resolution) in the vicinity which can accommodate the employees, all available to this project.

The DMS process which is proven and conventional technology that includes the following operating stages: first, the ROM ore has to be coarse crushed so there is maximum release (liberation) of the host rock from virtually all of the mineralization. The crushed ore is pre-screened to remove the -28 mesh fines which could contaminate the dense media and thereby increase dense media losses as well as modify the DMS feed, slurry viscosity which will directly affect the specific gravity separation. The +28 mesh screen fraction is mixed with the dense media (ferrosilicon) to a cut-point specific gravity of 2.75 to 2.95 and then pumped to a DMS cyclone. In the cyclone the mineral particles (free and middling with the host rock) which are heavier than the cut-point specific gravity are recovered from the cyclone in the underflow as the "Sink" product and the host rock with minimal sulphides reports to the cyclone overflow as the "Float"

reject product. The dense media and water are recovered in the product (Sink and Float) dewatering screen underflows. The recovered ferrosilicon is recycled to the DMS separation circuit after its specific gravity has been corrected to the cut-point setting.

The -28 mesh screen fines will be dewatered for direct shipment as part of the DSO or post-treated by gravity separation or flotation to upgrade the -38 mesh fines for subsequent shipment as part of the DSO. The -38 mesh post-treatment fines will be thickened and mixed with cement and DMS "Float" reject for deposition as backfill in the underground mined-out areas.

The goal of the testwork is to produce a Direct Shipment Ore that has a combined grade of +45 %.

Proposed Process Development Testwork to attain this goal will be done on diamond-drill core increments that represent the main mineralized, lower zone:

Process Concept No. 1, **Single Stage DMS only**:
The ROM ore will be crushed to -5/8 inch; pre-screened at 28 mesh to remove the fines which will be weighed and assayed. The +28 mesh screen fraction will be subjected to a DMS separation at a specific gravity of 2.95. The "Sink" product and the "Float" reject will be weighed and assayed. A metallurgical balance will be calculated for the test. The Direct Shipment Ore will comprise the "Sink" product and the -28 mesh pre-screen fines. The final deposition of the "Float" reject will be underground as backfill.

Process Concept No. 2, **Double Stage DMS only**:
The ROM ore will be crushed to -5/8 inch; pre-screened at 28 mesh to remove the fines (-28 mesh) which will be weighed and assayed. The +28 mesh screen fraction will be subjected to a DMS separation at a specific gravity of 2.95. The "Sink" product and the "Float" reject will be weighed and assayed. This "Float" reject will be re-crushed to -1/4 inch; re-screened on 28 mesh screen. The -28 mesh re-screen fines will be weighed and assay for the metallurgical balance. Fines from the -28 mesh re-screen will be combined with the coarse crush pre-screen fines. The +28 mesh re-screen fraction will be subjected to a second, DMS separation at a specific gravity of 2.75. The "Sink" product and the "Float" reject will be weighed and assayed. The DSO will comprise the two "Sink" products and the combines -28 mesh screen fines. The final deposition of the "Float" reject will be underground as backfill.

Process Concept No.3, **Single Stage DMS and Flotation of the -28 mesh Pre-Screen Fines**:
The Single Stage DMS test will be the same Process Concept as No. 1, except the DMS circuit specific gravity cut-point will be 2.85. The -28 mesh pre-screen fines will be conditioned with flotation reagents (lime, copper sulphate, xanthate and a frother) and will be subjected to "Flash" flotation to recover a bulk lead/zinc sulphide concentrate.

The bulk sulphide concentrate and the flotation tailings will be weighed and assayed. Then the metallurgical balance for the test will be calculated. The flotation tailings will be dewatered (thickened) and then mixed with cement and the DMS "Float" reject for deposition underground as backfill. The DSO will comprise the DMS "Sink" product and the bulk sulphide concentrate.

Process Concept No. 4, **Single Stage DMS and Secondary Crushing of the -28 mesh Pre-Screen Fines to -70 mesh**:
The Single Stage DMS test will be the same a Process Concept No. 3. The -28 mesh pre-screen fines will be crushed in a Rolls type crusher to -70 mesh and then conditioned with flotation reagents (lime, copper sulphate, xanthate and frother) and will be subjected to "Flash" flotation to recover a bulk lead/zinc sulphide concentrate. The bulk sulphide concentrate and the flotation tailings will be weighed and assayed. Then the metallurgical balance for the test will be calculated. The flotation fines will be dewatered (thickened) and then mixed with cement and the DMS "Float" reject for deposition underground as backfill. The DSO will comprise the DMS "Sink" product and the bulk sulphide concentrate.

Process Concept No. 5, **Single Stage DMS and Gravity Separation of the -28 mesh Pre-Screen**

The Single Stage DMS test will be the same a Process Concept No. 3. The-28 mesh pre-screen fines will be subject to various Gravity Separation techniques (spirals, cyclone with natural specific gravity media, centrifuges, jigs, blanks, etc.) to produce an upgraded mineral product while rejecting the host rock as a fines. The Gravity Separation mineral product and fines will be weighed and assayed. Then the metallurgical balance for the tests will be calculated. The Gravity Separation fines will be dewatered (equipment selected to accommodate the type of Gravity Separation employed) and then mixed with cement and the DMS "Float" reject for deposition underground as backfill. The DSO will comprise the DMS "Sink" product and the Gravity Separation mineral product.

General Notes:

Dewatering the tailings by thickening will probably be employed. It is anticipated that a clear, environmentally acceptable overflow water quality should be produced that can be recycled to the process and/or pumped directly to the infiltration basin. The proposed testwork and evaluation of the thickening process will be tested employing proven flocculent reagents. The exact waste water quality analysis will be determined at that time.

The solids volume for the fine and coarse particles from the processing of the ROM ore will be less than the total volume of the voids (stopes/development) available underground so final deposition of all the process fines (DMS "Float" reject and -28 mesh screen secondary processing fines) should be accommodated underground.

Consumables:

The DMS circuits (Single and Double) will employ ferrosilicon as the media and very little is loss from the process circuit (very expensive). Ferrosilicon is an inert material that is currently used in the diamond processing circuits in Canada.

The reagents to be tested for the flotation of a bulk sulphide concentrate are: Lime (pH modifier), Copper Sulphate (activate the surface of sphalerite particles so they can be

recovered by flotation techniques), Isopropyl and/or Amyl Xanthate (attaches to the surface of galena and activated sphalerite particles so they can be recovered by flotation techniques) and Methyl Isobutyl Carbinol (used to stabilize the surface of the water/slurry in a flotation cell during the flotation process).

None of the consumables are considered hazardous in transporting, storage and for operating conditions. They are all relatively expensive to purchase so care in handling and use is an operating norm that everyone receives training for; it is a direct operation cost concern.

Delivery and Storage:

Ferrosilicon is usually shipped in tote bags (one/two tonnes) and/or steel drums. It can be stored outside as long as it is in a secure area (cost concern). It is an inert physical and chemical material.

Copper Sulphate is usually shipped in sealed plastic bags and will be stored in a covered area or under a tarp so it can easily be retrieved when needed in the process. Copper Sulphate is a chemical that is used to kill algae in water and should be handled carefully, no spills. The solution tanks should be in a safety basin in the plant.

Xanthate is usually shipped in sealed plastic bags or totes and should be stored and handled like Copper Sulphate.

Methyl Isobutyl Carbinol is usually shipped in drums and is distributed in the flotation circuit directly from the drum with metering pump(s). It should be stored in a warm area with spill protection.

The only consumable that will be stored at the site in a volume will be the ferrosilicon. All the other consumables will be purchased in a monthly consumable quantity (small requirement that will be determined during the laboratory test program) as they can all be purchased in Canada.

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Godfrey McDonald **July 17, 2006**
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Professional Qualifications in Brief:

Forty years experience in the mineral processing industry in all sectors of operations, liaising with engineering companies and project management and executive head office co-ordination.

Proven managerial capabilities and personnel development and leadership skills: worked within staff and unionized operating environments, coordinated professional/technical staff groups, engineering groups and consultants. Unique experience of guiding company and regulatory agencies in mining projects development and permitting processes.

Recipient of the "Canadian Milling Man of the Year" award in 2002. This was a selection by my professional piers.

Employment History:

1997 to 2002* **Breakwater Resources Ltd. and Black Hawk Inc. – Vice-President, Metallurgy and Environment**

- Responsible to the Chief Operating Officer and President of each corporation for the Milling operations and Site Environmental compliance (budget/forecast production preparation, capital and operating cost, annual environmental audit, research and technical knowledge transfer, and all process economic improvements).
- Team member of the company's Due Diligency Team that critiqued other mining operations/projects for acquisition purposes.
- National and International experience in metallurgical and environmental activities.
- Proposed testwork, reviewed test results, evaluated activities/proposals for economic justification.
- Training personnel and commissioning mill changes in processing and the overall operation.

1993 to 1997 **Confidential Metallurgical Services – President**

- Provide a service related to the processing of precious, base, ferrous and non-ferrous minerals.
- Trouble shoot and critique milling processes.
- Assist and/or manage client's interests.
- Develop projects through all phases from core hole sample testwork to mill operation with optimized economics.

1989 to 1993 **Curragh Inc. – Vice –President, Metallurgy**

- Responsible to the President of Operations and the President of Corporate Development and Projects for the overall metallurgical response and costs (capital and operating) for all mineral concentrators and coal preparation plants of the company's interest.
- Understand implement company policies, procedures and goals.
- Promote and exemplify safety in the work place, as well as off the job.
- Responsible for metallurgical development plans, engineering studies and feasibility data for all new projects and acquisitions.
- Liaised with site management and metallurgical staff/operators and marketing personnel, engineering specialists, consultants, contractors and contracted engineering companies.
- Liaised with site personnel on operating strategies, operating results, budgets/forecasts, personnel, training, new technology transfer, environment management, project abandonment planning and data exchange with joint venture partners, financial institutions, government agencies and market contracts.
- Worked in a project team approach to provide technical input on metallurgy, personnel selection, plant design, equipment selection, construction securing and project commissioning.
- Direct response to metallurgical and market related concerns of the chairman.

1981 to 1989 **BP Canada, Mining Division – Assistant Manager, Mining and Development**

- Responsible to the General Manager, Mining and Development and the Senior Vice President, Operations for

supervision and motivation of key division personnel who decide on work methods/processes to be used in new and existing operations (metallurgical processing, plant engineering and maintenance and engineering services).
- Assist BP personnel in the international theatre on engineering, technical and human resource matters.
- Make presentations on specific projects to senor company officials and the Board of Directors.

1975 to 1981 **Selco Mining Corporation – Senior Corporate Metallurgist**

1971 to 1975 **Selco Mining Corporation – South Bay Division, Mill Superintendent**

1968 to 1971 **New Imperial Mines – Mill Metallurgist/ Assistant Mill Superintendent**

1963 to 1968 **Cominco - Sullivan Mill - Metallurgical Technician/Training EIT**

*** Retired from full employment with Breakwater Resources Ltd., in mid-2002.**

Professional and Technical Affiliations:

Member of the CIM
- Chairman of CMP, Toronto District 1982, 1983 and 1984
- National Chairman CMP, 1987-1988

Member of AIME
Member of Engineers Club, Toronto
Member of MEND Subcommittees
Member of CAMIRO Working Committee

Education :

University of British Columbia – Arts and Science

Godfrey W. McDonald
President,
Confidential Metallurgical Services