



**Royal Oak
Mines Inc.**

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**SENT VIA FACSIMILE
(to (867) 873-0221)**

September 27, 1998

Mr. Jim Sparling
Air Quality Specialist
Environmental Protection Service
Resources, Wildlife & Economic Development
Suite 600, 5102 - 50th Avenue
Yellowknife, N.T., X1A 3S8

Dear Mr. Sparling,

Re: Implementation Schedule for the Giant Mine Emissions Monitor

Further to my letter of August 27 on this subject, addressed to Mr. Emery Paquin, and following your visit to the Giant Mine last Tuesday, I would like to summarize the current status of this project.

The installation is ahead of the schedule I had indicated in my last letter. The sample probe box, sample probe, pitot tube assembly and 'umbilical cord' have all been installed in their final configuration. Remaining outdoor installations include mounting and connection of the differential pressure and temperature transmitters, and insulation of the sample probe box.

The analyser room has been completed and the analyser cabinet has been installed. An air cleaning unit, required to provide dry, oil-free compressed air to the system, has been refurbished and installed. The required calibration gases have been ordered. The remaining purchases include a small air compressor and the computer hardware and software required to calculate the gas mass flow rate and log the mass-flow and SO₂ concentration data. Final decisions on these purchases will be made by October 2nd.

In my letter of August 27, I indicated that manual stack sampling for the purposes of evaluating the accuracy of the C.E.M.S., and 'certifying' the system, would not be possible in very cold weather. In the last few weeks I have consulted with Entech Environmental Services on this subject. They have informed me that, while low ambient temperatures do affect stack sampling for arsenic, manual stack sampling for sulphur dioxide is quite possible, even in the coldest of winter weather.



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With this in mind, Royal Oak Mines is proposing to complete the installation and commissioning of the C.E.M.S. in October and to conduct certification testing at the earliest opportunity in November, of this year. Royal Oak is very much interested in the financial assistance that has been offered by your department to conduct this testing.

You may wish to contract the certification testing directly. I would recommend the services of Entech Environmental for this work, given their extensive, recent experience with this particular roaster/stack system. I understand that they still have time available in November, but that this time may be allocated to other clients in the next couple of weeks. You may contact Entech as follows:

Entech Environmental Services
Unit 6, 1826 - 25th Avenue N.E.
Calgary, Alberta, T2E 7K1
Tel (403) 250-3532
Fax (403) 250-9577

Contact: John Jackson, President

I will contact you shortly to discuss these issues. In the meantime, if you should have any questions, please call me at (867) 669-3729.

Yours sincerely,
Royal Oak Mines Inc.

Stephen Schultz
Superintendent, Environmental Services
NWT Division

cc: Ed Collins (Environment Canada)
John Stard (ROM)
Kent Morton (ROM)
Al Goetz (ROM)
Larry Connell (ROM - Kirkland)



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August 27, 1998

Mr. Emery Paquin
Director, Environmental Protection Service
Resources, Wildlife & Economic Development
Suite 600, 5102 - 50th Avenue
Yellowknife, N.T.
X1A 3S8

Dear Mr. Paquin,

Re: Implementation Schedule for the Giant Mine Emissions Monitor

In response to your letter of August 19, 1998, addressed to Mr. Rick Allan, I would like to inform you of our progress in the installation of a Continuous Emissions Monitoring System (CEMS) at the Giant Mine.

The two major structural modifications required for the CEMS installation are: the provision of two new access ports on the stack structure, and the construction of an analyzer room within the adjacent Roaster Building. The new stack ports have been bored and flanges have been installed. Construction of the analyzer room is in progress. Some un-anticipated problems have delayed the construction of the analyzer room, including a requirement to remove a large redundant compressor, to provide the necessary space, and the removal of concrete foundations associated with the compressor.

The activities currently being addressed, concurrent with the construction of the analyzer room, include mounting of the sample probe box, sample probe, pitot tube, differential pressure transmitter, sample tube assembly ('umbilical cord') and the installation of an air cleaning unit to provide dry, oil-free compressed air to the sample probe box. Once the analyzer room is completed, the analyzer cabinet, calibration gas bottles and computer hardware can be installed and connected.

At this time, the construction schedule indicates that the analyzer room, and all outdoor installations, will be completed by the end of September. Installation of the analyzer cabinet will not take place until October. An estimated ten (10) days of commissioning assistance from Rosemount Instruments Inc. will take place in October and the CEMS is expected to be



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operational by the end of that month.

Royal Oak Mines intends to operate the CEMS continuously after Rosemount has commissioned the system and to provide regular reports to the Environmental Protection Service on operating and calibration measurements. However, given the limitations of manual stack sampling techniques in low temperatures, a certification testing program to demonstrate the accuracy of the continuous measurements will not be possible this year.

Royal Oak will commission a series of manual stack tests in September, to determine current emission rates for sulphur dioxide and arsenic. We will forward the results of these tests to your department as soon as they are available and would welcome the participation of your Mr. Jim Sparling during the testing process.

Please contact me at (867) 669-3729 if you should have any questions on the CEMS installation project or the planned manual stack testing.

Yours sincerely,

Royal Oak Mines Inc.

Stephen Schultz
Superintendent, Environmental Services
NWT Division

cc: Ed Collins (Environment Canada)
Rick Allan (ROM)
John Stard (ROM)
Al Goetz (ROM)
Kent Morton (ROM)



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February 22, 1999

Mr. Emery Paquin, Director
Environmental Protection Services
Resources, Wildlife & Economic Development
Government of the NWT
600-5102, 50th Avenue
Yellowknife, N.T.
X1A 3S8

Dear Mr. Paquin,

***Re: Giant Mine - Installation of the Sulphur Dioxide
Continuous Emissions Monitoring System (CEMS)***

At our last meeting, on November 27, 1998, we discussed the status of the installation of our SO₂ emissions monitoring system. The remaining expenditures included a datalogging system, commissioning assistance from Rosemount Instruments and certification testing of the system. It was understood that, if Royal Oak Mines had the system fully operational before the end of March (1999), RWED would be able to provide financial assistance to conduct the certification testing.

We have been investigating options for datalogging systems and now believe we can purchase a relatively simple datalogger for less than \$2,000. However, in order to commission the system and provide the training required to ensure consistent operation of the system, significant further expenses and commitment of resources remain.

As you are aware, Royal Oak Mines is currently hampered by a severe cash flow crisis and is attempting to restructure its existing debt agreements to achieve greater financial flexibility in the future. Because of this, the expenditures required to commission the CEMS can not be made at this time and we will not be in a position to conduct certification testing of the system before the end of March.

Royal Oak Mines remains committed to commissioning and consistent operation of the CEMS, as soon as our available resources will allow. We will continue to keep you fully informed of our progress in this regard.



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Please contact myself, or Mr. Stephen Schultz (Environmental Superintendent), at (867) 669-3700, if you would like further information on this project.

Yours sincerely.

Royal Oak Mines Inc.

John Stard
Mine Manager
NWT Division

cc: Stephen Schultz
Larry Connell