

# **Environmental Assessment Approval**

**Approval Date: February 4, 2010**

## **Miller's Creek Mine Extension**

**CGC Inc. - Fundy Gypsum Company, Proponent**

**Hants County, Nova Scotia**

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Miller's Creek Mine Extension (the "Undertaking"), proposed by CGC Inc.- Fundy Gypsum Company (the "Approval Holder"), in Hants County, Nova Scotia is approved pursuant to Section 35 of the *Environment Act* and Section 18(a) of the Environmental Assessment Regulations. This Approval is subject to the following conditions and obtaining all other necessary approvals, permits or authorizations required by municipal, provincial and federal acts, regulations, by-laws, guidelines, policies or standards before commencing work on the Undertaking. It is the responsibility of the Approval Holder to ensure that all such approvals, permits or authorizations are obtained before commencing work on the Undertaking.

This Environmental Assessment Approval is based upon the review of the conceptual design, environmental baseline information, impact predictions, and mitigation presented in the Registration Document and the Focus Report (Registration Information).

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### **Terms and Conditions for Environmental Assessment Approval**

#### **1.0 General Approval**

- 1.1 The Environmental Assessment Approval is limited to the Undertaking and commitments as described in the Registration Information and further to the conditions of this approval. Expansion, modification or relocation of any aspect of the Undertaking from that proposed in the Registration Information and the conditions of this approval, must be submitted to the Environmental Assessment Branch for review and may require an environmental assessment.
- 1.2 The Approval Holder must, within two years of the date of issuance of this approval, commence work on the Undertaking unless granted a written extension by the Minister.
- 1.3 The Approval Holder must not transfer, sell, lease, assign or otherwise dispose of this approval without the written consent of the Minister. The sale of a controlling interest of a business or a transfer of an approval

from a parent company to a subsidiary or an affiliate is deemed to be a transfer requiring consent.

- 1.4 The Approval Holder must implement all mitigation and commitments in the Registration Information, unless otherwise approved by Nova Scotia Environment (NSE).

## **2.0 Mine Extent**

- 2.1 The Undertaking is to be confined to the 20-year mine extent, as delineated in the Focus Report, October 2009.
- 2.2 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval, a plan completed by a licensed surveyor delineating the boundaries of the 20-year mine extent and identifying all pertinent structures.

## **3.0 Environmental Effects Monitoring Plan and Reporting**

- 3.1 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval, an Environmental Effects Monitoring (EEM) Plan that will include, but not be limited to:

-detailed monitoring plans for construction, operation and reclamation to address:

- surface water quality and quantity
- groundwater quality and quantity
- species-at-risk and the Conservation Area
- blasting, noise and air quality
- progressive reclamation

- 3.2 EEM Reports must be submitted at a frequency determined by NSE.
- 3.3 The Approval Holder is responsible for the cost of any specialized professional or consulting services deemed necessary by NSE, to assist in the technical review of EEM Reports.

## **4.0 Surface Water Resources**

- 4.1 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval:

a) hydrologic modeling results and interpretation that incorporate baseline characterization carried out over a two year period including, but not limited to, consideration of dewatering activities;

b) a detailed program to monitor surface water quality and quantity; surface water/wetland/groundwater interactions, changes in stream chemistry and temperature. This program must include, monitoring locations, parameters, and interpretation criteria. The program must be designed to evaluate potential impacts to both surface water quality and quantity from activities associated with the Undertaking, and with consideration of baseline conditions/data. Based on the results of monitoring programs, the Approval Holder must make necessary modifications to mitigation plans and/or mine operations, if required, to prevent unacceptable environmental effects, to the satisfaction of NSE. This program must be updated upon Part V application renewal or other frequency as determined by NSE;

c) A detailed erosion and sedimentation control plan including design details and locations of all proposed mitigation measures;

d) Engineered designs for settling ponds and storm catchment areas (including mine open pit and stockpiles) which include flow control outfall structures and monitoring devices used to ensure stream flow maintenance. Designs must be submitted for approval on a catchment-by-catchment basis prior to disturbance of the catchment area;

e) A map illustrating proposed locations of settling ponds and liquid effluent and stormwater discharge points;

f) A plan for storm water control and stream flow (quality and quantity) maintenance. An ongoing stream flow evaluation program must be implemented.

- 4.2 All surface water protection and management programs must be updated /revised periodically and resubmitted to reflect the progressive development of the mine. This is to take place over the lifetime of the Undertaking, at a schedule acceptable to NSE, and revised as approved by NSE.
- 4.3 The Approval Holder must not undertake any mine related activities within 30 metres of a watercourse unless otherwise approved by NSE.
- 4.4 The Approval Holder must develop and implement, in consultation with NSE, a detailed program to collect a minimum of two years of baseline data, for water quantity and quality, for streams within the study area. Rating curves must be developed for streams in the zone of influence, to better define actual flows.

## 5.0 Groundwater Resources

- 5.1 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval:
- a) a detailed groundwater monitoring program including location of monitoring wells, monitoring parameters and frequency. This program must be designed to evaluate potential impacts to both groundwater levels and groundwater quality. Based on the results of the monitoring programs, the Approval Holder must make necessary modifications to mitigation plans and/or mine operations, if required, to prevent unacceptable environmental effects, to the satisfaction of NSE. This program shall be updated upon Part V application renewal or other frequency as determined by NSE.
- 5.2 The Approval Holder must collect baseline groundwater level and chemistry data by implementing the groundwater monitoring program a minimum of two years prior to dewatering operations commencing.
- 5.3 Additional monitoring wells must be installed within or adjacent to the footprint of the Undertaking to further characterize the aquifer properties and for long-term monitoring. This must include packer testing, downhole video inspection, detailed rock core inspection and monitoring from discrete depth intervals.
- 5.4 Additional groundwater assessment work must be completed to improve modeling predictions of potential impacts. This modeling work must be submitted to NSE with the Environmental Effects Monitoring Report (Section 3.0) and must include:
- a) surface water flow monitoring to provide more calibration points for the base flow evaluation of the groundwater model;
  - b) a simulated groundwater budget for the groundwater model;
  - c) fold and fault location information. This must be incorporated into the groundwater model, and key areas where fracture flow could occur between the proposed mine dewatering and domestic wells must be identified;
  - d) baseflow targets (must be added to the model calibration evaluation);and
  - e) vertical gradients (must be added to the model calibration evaluation).
- 5.5 A revised report on the anticipated draw down cone of the water table and the potential to impact domestic water wells, surface water and wetlands must be submitted to NSE at the same time as the Environmental Effects Monitoring Report (Section 3.0) and provided with each subsequent

application for approval renewal, or other frequency, as determined by NSE.

- 5.6 The Approval Holder must replace or repair, at their expense, any water supply which has been lost or damaged as a result of mine operations to the satisfaction of NSE.

## **6.0 Flora and Fauna**

- 6.1 Clearing of vegetation must be conducted outside of the breeding season for most bird species (May 1 to August 31), unless otherwise approved by NSE.
- 6.2 Within four years of the date of this Approval, the Approval Holder must develop and implement a plan, in consultation with NSE's Protected Areas Branch (PAB) and NS Department of Natural Resources (NSDNR) for the legal protection of a minimum 46 ha Conservation Area as outlined in the Focus Report. The plan must include, but not be limited to, consideration of adjacent land use and long term viability of the Conservation Area. The Conservation Area must be established and a legal survey must be conducted and provided to NSE, to clearly identify the boundaries of the Conservation Area and the mine.
- 6.3 Within four years of the date of this Approval, the Approval Holder must work with NSE's PAB to identify lands for future conservation.
- 6.4 Prior to mine development, a detailed long-term research and monitoring program for the vascular plant species-at-risk and lichen species-at-risk and those of conservation concern within the Conservation Area must be developed and implemented by the Approval Holder, in consultation with NSE's PAB, NSDNR, and the Confederacy of Mainland Mikmaq.
- 6.5 Prior to mine development, the Approval Holder must prepare for NSE's PAB and NSDNR review and approval, a protection plan for vascular plants that are known to be at-risk and those of conservation concern within the area of the Undertaking.
- 6.6 Prior to mine development, the Approval Holder must provide NSE and NSDNR:
- a) additional inventory data, both within and immediately outside the area of the Undertaking, to establish the importance of the area for overwintering bat hibernacula that may be affected by project operations;

- b) a plan to fully protect any known bat hibernacula within the area of the Undertaking. The plan must be approved by NSDNR, prior to implementation.

## **7.0 Wetlands**

7.1 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval:

- a) a Wetland Protection and Conservation Plan to be developed in consultation with NSDNR and NSE.
- b) a plan for monitoring potential impacts of the Undertaking on surrounding wetlands.
- c) a wetland compensation plan to be approved by NSE and NSDNR. The plan must be implemented within time frames established by NSE and NSDNR.

7.2 The Approval Holder must not undertake any mine related activities within 30 metres of a wetland unless otherwise approved by NSE.

## **8.0 Archaeological & Heritage Resources**

8.1 At least 60 days prior to ground disturbance, the Approval Holder must provide the Heritage Division with an Archaeological Resource Protection Plan for review and approval.

8.2 The Approval Holder must cease work and contact the Director, Heritage Division, Nova Scotia Department of Tourism, Culture and Heritage immediately upon discovery of an archaeological site or artifact unearthed during any phase of the proposed Undertaking. If the find is of certain or suspected Mi'kmaq origin, the Approval Holder must also contact the Executive Director of the Kwilmu'kw Maw-klusuaqn Negotiation Office.

## **9.0 Dust, Noise and Greenhouse Gas**

9.1 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval:

- a) a detailed dust management program;
- b) a detailed noise management program;
- c) Greenhouse Gas Management Plan.

9.2 The Approval Holder must monitor for dust at the request of NSE.

- 9.3 The Approval Holder must monitor for noise at the request of NSE.
- 9.4 All equipment is to be operated with standard noise suppression exhaust systems and kept in good repair.

## **10.0 Visual Impacts**

- 10.1 The Approval Holder must maintain undeveloped buffer lands and implement progressive reclamation to reduce the visual impacts of the mine.

## **11.0 Transportation**

- 11.1 Plans for the level crossing proposed for Ferry Road must be presented to NS Transportation and Infrastructure Renewal and the Community Liaison Committee (CLC) for input prior to construction.

## **12.0 Community Involvement**

- 12.1 A CLC must be established prior to Part V Approval under the *Environment Act*. The Approval Holder must submit to NSE for review and approval, a plan for the formation and operation of a CLC for the Undertaking, including a terms of reference. The NSE Guidelines for the Formation of a Community Liaison Committee should be used for guidance.

The CLC terms of reference must describe the CLC's degree of participation in, but not necessarily limited to, the following:

- a) environmental monitoring
- b) dispute resolution / complaint response procedures
- c) reclamation planning
- d) wetlands compensation plans
- e) mine development and operations

- 12.2 Prior to Part V Approval under the *Environment Act*, the Approval Holder must develop and implement a Mi'kmaq Communication Plan for the Undertaking, which will include a process for communicating project details and seeking input from the Mi'kmaq community.

## **13.0 Project Operation**

- 13.1 The Approval Holder must operate the mine in compliance with all NSE requirements.
- 13.2 No hazardous materials or petroleum products are to be stored on the site, unless otherwise approved by NSE.

- 13.3 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval:
- a) details of site development
  - b) details of stockpiling (aggregate, sediment removed from settling ponds, and overburden and top soil piles), including, but not limited to, stockpile locations, stockpile volumes, length of duration of any stockpiling activity on-site, and erosion protection measures
  - c) details of anticipated impacts or changes in impacts which will occur beyond the area of the mine expansion. (eg. gypsum which is transported to the crusher on the existing site is expected to generate noise, dust and waste fines which will need to be disposed)
  - d) plans for shutdowns
- 13.4 All plans related to mine operation must be resubmitted over the lifetime of the project, at a schedule to be established by NSE, and revised as determined by NSE.
- 13.5 The Approval Holder must conduct a pre-blast survey including a well monitoring survey for any water wells within 800 m of the open pit during project development and operation.
- 13.6 The Approval Holder must monitor for odour concerns at the request of NSE.
- 13.7 The Approval Holder must use an adaptive management strategy which allows for the implementation of monitoring and mitigation plans to address new information which becomes available during the lifetime of the operation.
- 13.8 The Approval Holder must apply for renewals to the Part V Approval at intervals established by NSE and provide additional information as deemed necessary by NSE.
- 13.9 The Approval Holder must submit to the Province a financial security or proof of adequate third party environmental impairment liability insurance to cover costs of adverse environmental impacts which are confirmed to be caused by mining activity.

#### **14.0 Contingency Plans**

- 14.1 As part of the application for Part V Approval under the *Environment Act*, the Approval Holder must submit to NSE for review and approval, an acceptable contingency plan that meets NSE's Contingency Planning Guidelines, September 2004 and addresses:
- a) accidental occurrences, including but not limited to contingencies



- for spills, including spill equipment kept on-site; fire or other emergency situations, and location of emergency phone numbers
- b) possible mishaps involving liquid effluents, groundwater resources, noise and dust emissions, flora and fauna and solid and hazardous waste management. Plans should ensure maintenance of operating systems outlined in the EA Registration and Focus Report, including but not limited to, stream flow maintenance and protection of water resources in the event of a long term shut down or strike.
- c) training to be delivered to staff
- d) procedures for responding to incidents occurring during times when the facility is not staffed (e.g. evenings, weekends, holidays, shutdowns and strikes).
- e) water well complaint response plan

## 15.0 Site Reclamation

- 15.1 Prior to the application for Part V Approval under the *Environment Act*, the Approval Holder must submit to NSE for review and approval:
  - a) detailed conceptual reclamation plans for the mine extension and routinely report on the progress of reclamation plans during the life of the project;
  - b) a revised reclamation plan and schedule for the existing Miller's Creek mine, to be implemented in a timeframe acceptable to NSE.
- 15.2 Mine extension approval is subject to progressive reclamation at the existing site being completed to the satisfaction of NSE.
- 15.3 The Approval Holder must orient reclamation planning and design toward the restoration of habitats that reflect NSE's Protected Areas Branch values.
- 15.4 A plan to monitor natural vegetation of the disturbed areas must be established and refined for the life of the project. An initial plan must be submitted to NSE for review and approval with the application for Part V Approval under the *Environment Act*.
- 15.5 The Approval Holder, as part of the application for Part V Approval under the *Environment Act*, must submit to NSE for review and approval, a long term post mining environmental monitoring program which must include: monitoring schedules, parameters and reporting requirements, reclamation maintenance and water treatment and stream flow maintenance details.

- 15.6 The Approval Holder must post financial security to cover the reclamation of the mine development, and reclamation must be completed to the satisfaction of the Province.

*Original Signed By*

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Sterling Belliveau  
Minister of Environment