

Environmental Assessment Branch
Nova Scotia Environment
P.O. Box 442
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November 19, 2009

RE: Comments on the Miller's Creek Focus Report (Mine Extension, CGC Inc.-Fundy Gypsum)

Thank you for the opportunity to comment on the above referenced submission. My maternal roots are in Newport Landing (Avondale), settling there as Planters in 1760. My comments, however, do not stem solely from this personal connection. The proposed mining activity is risky on many levels, particularly its potential for significant negative biophysical impacts on the environment and the socio-economic impacts on the local community.

Though not confined to this particular project, I also register my concern with the environmental review process. First, inadequate time is allocated to public comment. Thirty days is insufficient to allow for a meaningful review of and response to the voluminous and highly-technical report materials. Second, the formal process responds primarily to narrowly-interpreted regulatory issues. There is little if any opportunity for consideration of broader, longer-term, synergistic and cumulative social and ecological impacts.

Specific to the Focus Report for Miller's Creek Gypsum Mine Extension, I will necessarily limit my comments to a few overarching concerns and deficiencies, due to my own time limitations.

Overview

The proposal is of a magnitude and character that warrants rejection. This is a large mine imposed on a small peninsular community and geography. It is proposed for lands zoned as agricultural. It has high potential of impacting surface and ground water, with anticipated effects on water supplies, and aquatic habitats. It will convert globally-rare karst ecosystems and displace wetlands and rare and endangered species. A large segment of the local community does not want this expansion to occur. The proponent is a US-based company and the raw resource is not converted to a finished product or consumed locally. Such a proposal warrants a conclusion similar to that for the proposed White Points Quarry, Digby Neck.

Water

The site represents a complex geological and hydrological system with multiple watersheds, streams, headwaters and wetlands, underlain by porous, mixed carboniferous bedrock of the Windsor group. Modelled predictions of impacts are rife with uncertainty. This uncertainty is acknowledged throughout the report, yet the report claims that the mining activities will have no or minimal effects on various hydrological and hydrology-dependent components. Moreover, impacts are anticipated for both surface and ground waters, with associated effects on domestic and agricultural water supplies and freshwater aquatic habitats. Many of these are identified by the proponent as “unavoidable”, and various mitigative actions are proposed. Many water-related impacts are arguably beyond humanity’s current ability to mitigate, and the reliability of mitigative actions proposed by CGC is uncertain at best.

Groundwater and the Conservation Area

The report states that “the model predicts a rise in the groundwater level from the current (pre-mining) level after the reclamation phase of pit backfilling is complete, which may have implications on the Conservation Area” (p. 20). It goes on to suggest that “the assessment of potential impacts ... should be completed using the first 20 years of mine operation data ...” (p. 20). Arguably, anticipated impacts identified after 20 years of mining will be difficult to mitigate or avoid. Since the Conservation Area is a key avoidance strategy for rare and endangered species and ecosystems, any potential negative impact is unacceptable, as is such a high level of uncertainty in modeling risk.

Avoidance and Protection of Surface Water Resources

CGC Inc. has modified the mine footprint to avoid a portion of one of the six headwaters. They state that “no other avoidance options for watercourses were feasible due to the availability of gypsum resources”. Thus, the footprint of the mine alone will still affect five or more headwaters. Other mining-related activities and infrastructure, such as roads, power lines, stockpiles, buildings and storm water retention ponds, will additionally affect these and other headwaters.

The Terms of Reference specifically requires avoidance and mitigative sequences for each wetland. In contrast, CGC, Inc. simply states that 13 wetlands will be “unavoidably removed” (p. 92) in the proposed extraction area, due to economic feasibility. It is not accidental that these wetlands coincide with the proposed extraction area. Rather, karst topography is characteristically uneven and wetlands are often associated. This supports the case that the area within the footprint of the mine provides a good representation of the globally-rare karst topography and associated ecosystems, thus should be conserved.

Significant reductions in baseline flows are expected in several (at least seven of the 16) surface water outlets. For example, Shaw Brook (SW-01) baseline flow is expected to be reduced from 2.21 L/s to 0.58 L/s at 20-year and 0 L/s at 40-year development stages (p. 24). The proposed compensation measure is controlled release of water from storm water retention ponds. There is little or no assurance that the storm water retention ponds and associated infrastructure will reliably supply the required amounts at the required times and over the required duration (until reclamation, or in perpetuity). These changes in flow will affect supply for agricultural uses and for freshwater habitat for fish and other aquatic species.

Ecological Integrity of the Conservation Area

The report states, “The proposed CGC Conservation Area is a large, continuous expanse of calcareous habitat, which supports considerable populations of ... species of concern.”(p. 44). The more important point to consider is that this description characterizes the entire site,

including the proposed extraction area. Indeed, high concentrations of rare and endangered species occur outside of the proposed Conservation Area, and within the proposed extraction and stockpiling areas. Moreover, due to cross-boundary influences, an area of 46 ha is of insufficient size to maintain ecological processes, communities, and viable populations of local species over the longer term. Arguably, the entire site warrants conservation.

The report goes on to state that “None of the environmental conditions discussed in the previous subsections will be negatively affected by the development of a gypsum mine to the north of the proposed Conservation Area” (p. 44). The first problem with this statement is that the Conservation Area would not only be affected by development of a gypsum mine to the north, but also by stockpiles to the west and the south. No doubt, the mining activities will also require further infrastructure development, such as roads, power lines, buildings, storm water retention ponds, etc. These will presumably be accommodated on the south side of the Conservation Area, as this is the only part of the site that is not proposed as extraction or stockpiling areas. Consequently, the Conservation Area will be surrounded on three or all four sides by mining activities and developments, creating an island effect.

The second problem with the statement is its claim that these surrounding activities will not result in negative impacts on the ecological integrity of the Conservation Area. Rather, they would most definitely be negatively affected. Isolation and fragmentation from the surrounding landscape would result in local extirpations and consequent losses of components of biodiversity over time (e.g., decades). Moreover, direct and indirect effects from roads and other activities have been shown to extend 300-1000 m into adjacent natural areas. Although the proponent is careful to outline several edge-effects relative to each rare and endangered species, their potential impacts are minimized and limited in their scope to only the most direct and proximate. Longer term, larger scaled, inter-specific, systemic, cumulative and synergistic impacts are not adequately addressed, nor are uncertainties acknowledged.

Given the proposed changes and activities, many environmental conditions in the proposed Conservation Area would very likely be affected. It is clear from the photographs (Figs 2.2 and 2.2a) that much of the forest was recently clear cut in anticipation of the mining activity (and presumably any required environmental assessments). Removal of over story has both short and long term effects on the ecological integrity of the site, including ephemerals and other sensitive rare and endangered forest species. Additional natural cover and topographic relief would be significantly changed in areas immediately adjacent the CA. These and other changes have and will affect microclimate, hydrology, humidity, exposure, proximity to forest edges, natural patterns and species interactions. Obviously, landscape position would be affected by the fragmentation and isolation caused by the proposed extraction and stockpiling areas. Similarly, its proximity to forest edges/exposure has already been and would be further affected by removal of vegetative cover and its replacement with an open pit and stockpile areas. The further removal of surrounding vegetation would also affect the local microclimate, including temperature and humidity. Changes to the water runoff/percolation regime resulting from the loss of natural cover in surrounding lands would affect soil moisture levels. Certainly the water retention, slow release, and filtration services currently provided by wetlands would be removed with the loss of the wetlands, affecting ground and surface water runoff and quality. Natural patterns in forest succession would be affected, since seed sources from adjacent landscapes would be different or missing. Similarly, cross-boundary species interactions would be affected by physical barriers and inhospitable habitat created by stockpiles, extraction, and other infrastructure developments and activities. Anthropogenic changes, like the ones proposed, tend to interfere with the movement and persistence abilities of native species, especially sensitive and vulnerable ones (e.g., most rare and endangered species) and support the movement and establishment of non-native invasive generalist species.

The proponent does not adequately address the requirement in the Terms of Reference for communications with adjacent landowners for further protection on neighboring lands. Changes

in locations or configurations of the extraction site and the stockpiles may be necessary to maintain current linkages with adjacent areas of natural cover. Such considerations are necessary to maintain broader landscape structure, function and connectivity. One obvious example is with the Poplar Grove Habitat of Concern. The report indicates that it includes a small portion (northwest edge) of this area, but no further indications are made as to methods of ensuring continued connectivity and protection of neighbouring lands.

Further, while the report states that “The Conservation Area ... will be protected by CGC to ensure it remains undisturbed” (p. 45), there is no indication of how this would be done. The Terms of Reference explicitly requires that the mechanisms for “protection in perpetuity” be addressed. For example, would the land be officially designated as Nature Reserve, or through a conservation easement with a land trust?

Karst ecosystems

The proposed mine would obliterate a fine example of a globally-rare karst ecosystem. The proponent minimizes the value and potential contribution of the proposed mine site, stating that only 0.05% (p. 47) of the “potential” karst topography in the entire province (as identified by Neily et al 2003) would be affected. This is misleading. While this figure may be the case for the “extraction footprint”, the site (including extraction and stockpile areas, storm water retention ponds, etc) represents more than double this amount. Further more, it represents 3% of the “potential” karst in the lowlands of Hants and Colchester Counties (natural landscape 28), which would be distinct from karst in other natural landscapes in the province.

While there are other areas of karst topography in Nova Scotia, these are also under pressure from mining and other developments and activities. Nova Scotia’s karst ecosystems represent a disproportionate share of the global distribution. Karst topography is listed by the International Union for the Conservation of Nature and Natural Resources as globally-rare and threatened, and thus identified as of “high priority” for conservation. As a globally-responsible nation state, Canada, and Nova Scotia, lags far behind in enacting legislation to protect such ecosystems for which they should be stewards. Under the Environmental Goals and Sustainable Prosperity Act, Nova Scotia has committed to protecting 12 percent of the land base by 2015, including representation of every natural landscape type. The Province has committed more than \$100 million in the past year to securing key private lands for achieving this goal, including through the Nova Scotia Crown Share Land Legacy Trust, of which I am currently Chair. Karst ecosystems, and the natural landscape type (28) in which the proposed expansion is situated, are not yet adequately protected, as mandated by NS legislation.

Rare species

Several species officially designated under Provincial Endangered Species and Federal Species at Risk Acts exist on the site, including in the extraction and stockpiling areas. It is likely that several other rare and endangered species that are not yet officially designated occur on the site. In addition, other important elements of biodiversity are reported to be present on the site, including bat hibernacula. The Proponent has completed an inventory of known rare and endangered species. From this, it is clear that several occurrences occur within the proposed extraction and stockpile areas, and that these would be obliterated by the proposed activities. It is also likely that several occurrences of as yet undesignated but important species occur in the 13 wetlands that would be “unavoidably removed”. It is also likely that species occurring within the proposed Conservation Area would be negatively affected by impacts from surrounding mining activities and developments.

Regional landscape connectivity

The proposed expansion would convert natural cover and habitat into a mine with depths well below sea level and associated stockpiles and infrastructure. Even in a supposed mitigated state

as a “lake” or a “regenerating forest and meadow” 50 or more years from now, it represents a loss of habitat. The loss, fragmentation and conversion of contiguous natural cover into remnant patches separated by inhospitable habitat create local extirpations of populations, contributing directly to biodiversity decline. Thus, not only will the removal of the majority of the remaining natural cover on the peninsula severely impact biodiversity at the local level, it will also contribute to broader landscape fragmentation and consequent declines in biodiversity at a regional scale. As was the case with the EARD, the Focus Report does not address these scales.

Agricultural lands and communities

The proposed expansion will significantly impact the viability of agriculture as a consequence of both the associated socio-economic and biophysical impacts. The proposed expansion is on land zoned for Agriculture (Priority 2). The amount of arable land is finite, as is recognized in NS legislation to protect agricultural land. Not only would conversion of arable land to mining be counter to NS’s own policies, it is irresponsible in a context of increasing concern over food security, rising human populations, finite supplies of arable lands, and increasing costs of oil for food transportation. Certainly it is counter to the intent, if not the letter, of the Province’s Environmental Goals and Sustainable Prosperity Act.

Community concerns and the community-consultation process

The local community has many concerns with the proposed mine and with the lack of consultative processes. Many of the concerns of the community were noted in the EARD, but were not addressed through that process. Neither have adequate consultative processes occurred during this Focus reporting phase. Many of the same and additional community concerns remain. Though I do not have the time or expertise to itemize these here, the community does not seem to be aware of any community-consultation phase conducted by the proponent. If this did occur, it was obviously not satisfactory to the community. Neither the EARD nor the Focus report alleviates their concerns.

On balance, the Focus report, while comprehensive, is inadequate to fully elucidate and address numerous environmental and socio-economic concerns. While I could go on at length to detail these, I am limited by time constraints and other significant responsibilities related to my employment and family.

Any further elaborations or explorations through an environmental assessment process would be unlikely to alleviate concerns or address the significant aspects of uncertainty around the risks to water, biodiversity and sustainable livelihoods. Moreover, investment of resources into further assessments would raise the expectations of the proponent for a favourable outcome, and subsequently raise the political stakes of a decision in either favour.

On these bases, I urge NSE to recommend to the Minister of Environment that the undertaking be rejected.

Please acknowledge receipt of this letter and provide for a written response to my concerns.

Sincerely,
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