June 26, 2011

British Columbia Environmental Assessment Office

Dear Sirs and Madams,

RE: RAVEN UNDERGROUND COAL MINE

Further to your request for input into the Draft Application Information Requirements, my concerns are related to the economic viability of the project should it encounter issues with depressed coal prices, unplanned for geological complexity interfering with the ability to meet contracted product flows and quality, and the economic burden of mitigating acid drainage from the wash plant rejects, which will constitute 56% of the mined coal, and which is likely to be considerable given the sulphur content of the coal, as well as final remediation when the project is completed. So my recommendation would be:

> **Include a comprehensive risk assessment of the economic viability of the project given the potential for depressed coal prices, unanticipated geological complexities affecting the ability to deliver contracted coal volumes and coal quality, the effect on economic viability of the liabilities of mitigating acid mine drainage from the rejects of the wash plant, and the ability of the project to provide adequate funding for a complete remediation of the area at the cessation of mining given the risks.**

As background to my recommendation, I submitted some concerns earlier to the CEAA process which I have attached below. I have also reviewed the "Technical Report", posted June 8, 2011, by Compliance prepared by its consultants Pincock, Allen and Holt (PAH). This report is not a "feasibility report" as requested in my earlier comments and which is needed in any review about the future of this project, rather it is yet another interim report with qualifying statements such as:

- "Geological and coal quality data on the Raven coal property are sufficient to support resource and reserve estimations at a feasibility level for the Raven project area." (Page 20.1) – ***Suggesting a feasibility study has not yet been completed.***

- "Mining studies are largely complete to bankable feasibility level; however, work in some areas is still ongoing." (Page 20.1) - ***Suggesting a feasibility study has not yet been completed.***

- "PAH has included assumptions based on current knowledge of the areas still under evaluation. While the final outcomes are likely to result in some change to the project economics, current economics including assumptions related to these issues are sufficiently robust that PAH does not expect the changes would be material. Areas of uncertainty in engineering design that must be resolved to finalize the bankable feasibility

include the following (pages 20.1 and 20.1) - ***Suggesting a feasibility study has not yet been completed.***:

- reject geochemistry to determine if reject material is potentially acid-generating ***[acid drainage is highly likely given the sulphur levels documented in the ROM coal]***,

- groundwater inflows and geochemistry to determine underground water management,

- water treatment requirements, if necessary."

Notwithstanding the above statements to the contrary, PAH in its Executive Summary states that

> *"PAH has completed a feasibility study on the project. This report presents a summary of the feasibility findings in Section 22-Additional Requirements for Technical Reports on Development Properties and Production Properties."*

Furthermore, this mine is being proposed on the basis of reserves that are not proven, as 51% of the coal that is expected to be extracted falls into the "probable", not "proven" category as evidenced by Table 17-4 on page 17.12. Hence my concerns about the need for a risk assessment on the effect of running into unanticipated geological complexities that will be detrimental to the project's economics and its ability to fulfill commitments on mitigating environmental impacts.

Coal price assumptions have been increased substantially from last year's pre-feasibility study to justify the economics of this mine, based on recent increases in coal price that are now assumed to be permanent by the proponents. Hence my concerns about the need for a risk assessment on the potential for depressed coal prices, given the commodity's historic price volatility, and the effect of a collapsed coal price on the project's economics and its ability to fulfill commitments on mitigating environmental impacts.

The liabilities imposed upon taxpayers for the unfunded obligations of mine operators in the past, due to the non-viability of their ventures, begs a careful consideration of this proposal on economic grounds, for which my recommendation considered in a proper feasibility study is essential. The environmental concerns imposed by this proposal, which are considerable, I believe have been well stated by others, and certainly by the sheer number of concerned citizen responses to you on environmental issues justifies an independent review of this project.

Sincerely,

J. David Hughes
Box 237
Whaletown, B.C.
V0P 1Z0

MY RESPONSE TO THE ORIGINAL CEAA CALL FOR COMMENTS:

September 14, 2010

Mr. Andrew Rollo
Canadian Environmental Assessment Agency
805 - 1550 Alberni Street
Vancouver B.C.
V6G 1A5

Dear Mr. Rollo,

RE: Comments on the proposed Raven Mine by Compliance Energy Corporation

I have reviewed the letter sent to you and Minister Prentice by the Environmental Law Centre (ELC) at the University of Victoria requesting a full public inquiry by an independent expert review panel into the Raven Coal Mine application and am aware of the many concerns about this project by people of the Comox Valley, most of which were addressed in the letter.

By way of introduction I am a coal geologist and also the senior author of GSC Paper 88-21 which is the principal document forming the basis of calculating 43-101 compliant coal resources used for the in situ resource assessment of the Raven Mine. Although I believe that there are environmental issues and a level of public concern that certainly meet the threshold of Federal and Provincial Ministers for calling for Public Hearings before an Independent Expert Review Panel, as outlined in the ELC letter, I would like to provide my perspectives as a long time coal geologist on the likelihood of this mine succeeding in meeting its stated production objectives over its proposed 20-year life.

The principal document outlining the resource base which the Raven Mine hopes to extract is the Technical Report prepared by Denver-based consultants Pincock, Allen and Holt (PAH) dated June 4, 2010, which incorporates all previous geological studies. This report correctly implies that this project is a long way from demonstrated “feasibility”. There is a great deal of additional study that will be required to demonstrate the portion of the in situ resource they have calculated that could actually be recovered by current mining methods. Some basic points:

- At 2.2 million tonnes per year the proposed mine is a very large mine by Canadian standards for underground operations.

- The 3,100 hectare footprint is correspondingly large.

- The quality of this coal is very high ash High Volatile Bituminous A, meaning that to clean it to an acceptable ash content for a metallurgical product, recovery is only 40%, and even with an additional higher ash- and sulphur-thermal product total recovery will be less than 60% overall. This leaves a very large volume of rejects from the washing operation for surface disposal, hence public concerns about groundwater contamination and acid drainage.

- The coal seams are highly variable in thickness and bordering on "complex" in terms of structural configuration. This will complicate and restrict the recovery of these seams in actual mining operations. Of the seams present, the Denver-consultants focus on seams 150 and 360 stating:

  - *"Coal zone 1 is composed of many thin coals, bony coals, coaly mudstones, carbonaceous mudstones, mudstones, and siltstones. Despite the variability in thickness and composition, Seam 150 conforms to the thickness and coal-to-rock ratio defining resources over much of the property."*

  - *"Coal zone 3 is just as persistent as zone 1, but is much more variable in thickness and coal-to-rock ratio, and therefore will probably be considered less attractive to mine."*

This raises the issue of the recoverability of the "in situ resources" defined in the Technical Report. The inferred resources should be discounted completely from consideration of recoverable resources at this point. Seams 340L and 150L should also be discounted completely as they are based on only three and four boreholes respectively. Similarly, seam 340 should be discounted completely as it is unlikely to be feasible for mining, given its small resource content. This leaves the remaining measured and indicated in situ resources in seams 150 and 360 of **63 million tonnes**. The proportion of this in situ resource that could potentially be recovered will certainly be restricted by the aforementioned variability in thickness, included rock partings and structural complexity.

Four factors combine to question the recoverable resources on which the mining proposal is based and the potential ultimate viability of the mine over its proposed life:

1. **Structural Complexity** – The classification of the deposit as borderline "complex" means that a portion of the area for which in situ resources are calculated will likely be unmineable due to these complexities. It is my experience in coal deposits such as this that the more data you have, the more complex the interpretation of the deposit becomes. A generous assumption would be that 75% of the area included in the in situ resource calculation will prove to be mineable. This reduces the in situ "recoverable" resource to **47 million tonnes**.

2. **Mining Method** – Typical recoveries by the proposed "room and pillar" mining method are in the order of 50% of the in situ resource. Assuming that this can be increased to 70% by the practice of "pulling pillars" on retreat, that leaves **recoverable coal of 33 million tonnes**, which is **insufficient to meet the 44 million tonne requirement of the proposed mining operation**.

3. **Higher Waste Volumes than indicated will have to be handled and disposed of** – The recoveries after washing in the PAH report are low (40% for metallurgical and less than 60% for a combined metallurgical/thermal product) yet still understate the amount of material that will have to be removed from the mine and disposed of which will adversely affect economic viability. The PAH report indicates on page 12.1 that "partings greater than 0.3 m were not sampled". Given the variability of seams as described above in the PAH report there will certainly be partings thicker than this that will have to be removed to surface during the mining process as it will not be possible to selectively remove them underground. This is likely to substantially increase the volume of waste that will have to be handled and disposed of on the surface compared to the estimates in the mining proposal. This will adversely affect economic viability and increase the environmental impacts of surface disposal.

4. **The Lack of Corporate Experience in Underground Coal Mining of Compliance Energy Corporation (CEC)** – CEC as a corporate entity has been around for ten years. A review of the experience of Management and Directors of CEC shows that although some have extensive mining expertise in metals and surface mining of coal in the Alberta Plains and in the Alberta and BC mountains, none have expertise in underground coal mining let alone an underground operation of the proposed size of the Raven Mine. CEC as a corporate entity has no experience in underground coal mining.

In summary, there are many questions concerning the economic and environmental viability of the Raven Mine based on the factors outlined above that can only be answered with a proper feasibility study and the acquisition of a lot more data.

It is important to assess the potential economic viability of the mine through its lifetime in order to assess the ability to deliver on claims for employment and other social benefits as well as the ability to mitigate and reclaim environmental impacts.

In my involvement with the coal industry over nearly four decades I have observed instances of mines enthusiastically promoted by corporate entities which subsequently collapsed for both geological and economic reasons, most notably the Westray mine in Nova Scotia, which tragically killed 26 miners in 1992. These factors plus the environmental concerns outlined in the ELC letter and by the very extensive comments provided to you already by the people of the Comox Valley more than justify the fullest independent review of the Raven Mine proposal, as I hope you will agree.

Sincerely,

David Hughes
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