**Questions list for Telkwa Coal Ltd. Open House: November 28, 2018**

**The Tenas Coal Mine Project Description document: assessed by G. Ferris**

**WATER**: As a Value for all living systems.

* Water volume estimates required for mine operations is estimated to be 15,000 liters/hour.

What is the Water Balance, by month, by year for the mine site, inclusive of weather pattern precipitation/snow melt? There is no accounting of Process Plant “losses”, that is water consumed by the plant nor any accounting for exfiltration loss/evaporation loss or other additional factors that will increase the requirement for “make-up” water volumes.

If water is recycled from Process Plant, how much water is lost through coal-washing process versus how much water volume can be recycled?

Proposal to “source” water from Goathorn Creek does not address any assessment of potential adverse effects……. what are the probable impacts of removing water flow volumes from Goathorn Creek? Lack of flow/temperature rise/minimum flow to maintain fish habitat.

The proposal to also “supplement” water supply from RDBN/the Regional District of Bulkley Nechako? Does this mean diverting river flows to mine operations? Explain the legal jurisdiction where the RDBN “controls” or can divert river flows.

A “Sediment Pond” for water storage is proposed with a 42ha footprint; how much water volume will be stored for Process Plant and mine site use dust suppression?

How high are the Sediment Pond dams? How much sediment is expected to be contained within the sediment Pond?

Diversion Ditch system is directed to Sediment Pond, to enhance water collection on mine site, but will diversion ditch system be able to carry water flow, considering the sand and gravel lenses present throughout the mine site? Will the Diversion Ditch system have to be lined with clay or HDPL/plastic?

The location of the “Sediment Pond” has been assessed to be an area where sand and gravel lenses can accelerate exfiltration from the collected pond water volumes (see Mount Milligan Mine). What engineering could reduce the risks of water volume losses from this sediment pond as exfiltration?

What will be the impact upon local domestic water wells, due to mine operations?

**WATER**: As a Value that supports aquatic ecosystems and fish populations.

* There are no estimates for Tenas Coal Mine Liquid Effluent Discharges within the Project Description.

Does the Telkwa River provide sufficient dilution and attenuation capacity throughout the year for the coal mine discharges, now directed by “pipeline” to one location on the Telkwa River?

What is the contingency plan, if the Telkwa River flows cannot offer sufficient dilution for the Tenas Coal Mine discharge/s due to low flow?

What are the heavy metals and chemical-composition of the projected mine liquid effluent discharges? What are the estimated volumes of mine discharges, by day, by month, annually?

Where are the actual weather records? What are the crisis management procedures for storm events? How will a storm event scenario be managed, to reduce adverse effects to the Telkwa and Bulkley Rivers?

Since all waste rock dumps’ seepage and run-off will be directly towards the Tenas Pit, and since geochemical data still reveal, even with supposed “segregation”, that ARD/acid rock drainage remains a hazard, what is the projected Water Quality of the Tenas Pit through the mine life, by year?

How will the proposal for the segregation of PAG/potentially acid generating waste rock be accomplished? How much of the Tenas Pit will permanently flood? What is the fluctuation-height-of-water-elevation of that flooded pit area, by season? We already know that this pit water will flow directly towards the Telkwa River; How much pit water volume has been measured, as total flow volumes annually, Wet year/Dry Year?

If exfiltration from the Tenas Open Pit occurs, during mine life operations, what is the expected Water Quality/metals/acidity, by volume, that could enter the shallow groundwater flows that have been measured to flow directly into the Telkwa River?

**GLOBAL WARMING AND CLIMATE CHANGE**: Water

How will the long-term effects of global warming affect the projected water supply requirements of this Tenas Coal Mine?

**LAND AND LAND USE**: Reclamation practices do not restore land attributes.

* The Tenas Open Pit is a massive disturbance on surface, as well as being 100m or more in depth; what has been named pit-backfilling expands the land-base impacted by mine waste storage, estimated to be 1040ha.

Why does the company describe aerial waste rock dumps as being “pit backfill”?

How will the company ensure that waste rock dumps (that they name “piles”) can be reclaimed, since many locations of final Closure Tenas Pit configuration shows many differing height elevations and slope hazards.

Why has the company referred to a pit lake at the Tenas Open Pit, as large as Tyhee Lake? When even their own drawings represent a varied landscape/pit/waste rock dump configuration combined with plant site disturbance that has no surface water “ponded” or visible.

How high, that is, what is the elevation of the proposed waste rock dumps, in relation to the landscape? What are the delineated flow-paths from these elevated waste rock dumps?

All proposals for mine site components require construction materials other than waste rock: roads require heavy ballast rock; dams require competent tills/clays and ballast rock; plant site can only be dressed with Non-PAG waste rock. In fact, PAG rock should not be used for any mine components construction. Where will the required construction materials come from?

How large a disturbed, land-based zone of rock quarry or till-borrow-pits, in addition to the mine site disturbance, be adversely impacted by acquiring the necessary construction rock and tills for the stated mine site components? Where are these construction-materials’ supply locations?

The projected, entire open pit and waste rock dump/s is measured, north to south at more than 4km. This mine site waste and pit walls hazard will remain within this landscape forever. What is the compensation to government for the loss of this productive land base?

**“NON-SALEABLE COAL”**: All coal produced from the Tenas Pit is Acid Generating or PAG due to the Pyrite/Sulphide Sulphur content and lack of an NP/neutralizing potential.

* Once estimated at 20 million tonnes by Allegiance, this thermal, high Sulphur coal seems now to be a “waste” coal, in addition to the narrow seams’ coal waste tonnage estimated by Manalta to be 10 to 11% of the total raw coal reserves.

Why has the “saleable” coal tonnage been reduced to 15 million tonnes, total, across the full mine life? Allegiance has periodically stated within their Investor Reports that fully 20 million tonnes of metallurgical coal was known as a “reserve”. …. not estimated as a “resource”.

Even with an operational sampling program, how will so-called metallurgical coal be segregated from thermal coal, within mine Units?

If high-sulphur coal is excavated, where will this tonnage be placed?

Will the two categories of waste coal (real waste coal and non-saleable coal) be segregated away from PAG waste rock dumps? Or, will all waste coal tonnage be included into the waste rock dumps?

What are the estimated drainage acidity loadings estimated from the PAG waste rock dumps, considering the waste coal tonnage?

Has any consideration been given, the by proponent, to the known hazard of coal fires within waste dumps, due to ignition through thermal convection and heat transfer due to acid rock drainage?

How much acid generating coal will be left, un-excavated within the Tenas pit walls?

What is the elevation of these coal seam pit wall layers and what is the spatial area of the pit wall where these coal seams are exposed to air and to water flows? Or, will they be permanently flooded, or, exposed to the wet/dry cycle of ARD production acceleration, or, simply “dry” but still exposed to weather pattern, rain and snow melt? Oxidation, then ARD flushing.

**WASTE ROCK AND ACID ROCK DRAINAGE**: Geochemical inventory has historically shown that by rock type or by rock “unit”, there is insufficient NP/neutralization potential, to balance the pyrite/AP/acid producing mineralization of the waste rock tonnage within the Tenas Pit. That waste rock tonnage estimate ranges from 270 million m3 to 135 million m3. Only 45% by volume will fit back into the pit wall configuration; an unknown volume may be permanently flooded in one section of the Tenas Pit, and all additional waste rock volumes will be exposed to Wet/Dry cycle.

* When separate categories of waste rock are tabulated by the company, as gross m3 with no geochemical data, “low sulphur rock” equals 30 million m3. If most “low Sulphur rock” is sand and gravel, there will not be enough Mass Balance of NP, as sufficiently reactive and available through time NP to neutralize and/or to passively “treat” the PAG waste rock that equals an estimated 25 million m3.

When ARD from Waste Rock Dumps occurs, how will this drainage be collected?

What is the acidity loading expected from the Waste Rock Dumps and what will be the cost in Lime, annually to treat that acidity?

**PUBLIC CONSULTATION**: How has the Telkwa Coal Ltd. staff recorded public comments and concerns. How has the company responded to these concerns or provided answers to questions posed by public stakeholders?

* Public consultation does not only apply to “groups” or even registered “groups”, “societies” or levels of government. Civil Society is a complex with individuals retaining as much right to have input and comment as any group.

There is no record kept, apparently, when direct written comment is submitted to Telkwa Coal Ltd. employees from members of the public. Why?

What has been the detailed list of concerns raised by the public? Not the “interpreted” company version, but real concerns such as Domestic Water Wells.

How is the company managing good information, accurate data distribution and distribution of information to all sectors and complexity of civil society: local, regional?

Why isn’t the Tenas Coal Mine Project Description signed by anyone? Individuals, such as Professional Engineers, are accountable for the documents they provide to both government regulators and/or the public. All reports and submissions to the BCEAO should be signed.