

GUNNS LTD PULP MILL PROPOSAL

REQUESTS FOR ADDITIONAL INFORMATION

REQUEST DATE	31/07/07
AGENCY	Department of Tourism, Arts & the Environment
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NATURE OF QUERY	<p>The following information is <u>urgently</u> requested:</p> <p><b>Site levelling works</b></p> <p>1. It is noted that the scale of the site levelling works proposed for the pulp mill site has been significantly reduced from that proposed in the DIIS. Please advise if this will reduce the proposed duration and daily construction period for site levelling works from the nine months of 24-hour operation proposed in the DIIS.</p> <p><b>The ability to operate on a 24-hour basis is still required to handle adverse weather conditions. In principle, the overall volume of works will be less.</b></p> <p><b>Chemical plant - RFI 36 supplementary questions</b></p> <p>1. Please provide the proposed daily and annual production level for the oxygen plant. <b>Daily production 80 t/d Oxygen</b></p> <p><b>Annual production 28,000 t/a Oxygen</b></p> <p>2. The chlorate reactor gas scrubber and the hydrogen bleed are shown as two separate emission points. It is assumed that these both refer to the emission from the gas scrubber on the hydrogen bleed, which will be going to the lime kiln. Clarification is requested.</p> <p><b>The chlorate gas scrubber and the</b></p>

hydrogen bleed are two separate emission points.

The chlorate gas scrubber takes the vents from the tanks in the chlorate plant. However this emission point could be combined with the emission from the chlorine dioxide scrubber, but at the moment it is shown as a separate source.

The hydrogen bleed is from the treatment of the hydrogen gas from the chlorate electrolysis plant. When the hydrogen is not taken to the lime kiln it is led to atmosphere and hence is an emission point.

3. The chlorine dioxide scrubber data does not show an emission rate for chlorine dioxide. Please provide.

The data from the chlorine dioxide scrubber for the non-integrated chemical plant is for ClO<sub>2</sub> expressed as Cl<sub>2</sub>.

4. It is noted that, if correct, the predicted emission levels of chlorine and chlorine dioxide, if added to the bleach plant emissions, will exceed the emission limit guidelines for inorganic chlorinated compounds (ICCs). Please confirm the emission levels for all ICCs from the chemical plant and the bleach plant. The average bleach plant scrubber emissions given in the DIIS for ClO<sub>2</sub> is 0.075 g Cl<sub>2</sub>/s which is based on a flue gas flow from the scrubber of 10 Nm<sup>3</sup>/s and a concentration of 7.5 mg/nm<sup>3</sup>. The values used for this calculation are extremely conservative with the actual gas flow being 3 Nm<sup>3</sup>/s and the actual concentration being less than 5 mg/nm<sup>3</sup>. The reason for the conservative values provided in the DIIS is for the air quality modelling. The ICC air quality design criterion is for 3 min moving average of 10 micro g/nm<sup>3</sup>. The air modelling based on the very conservative numbers provided gives a result well within this limit.

To ascertain the total emission from the plant (bleach plant and chemical plant) it is not correct to add the concentrations from the individual sources. The correct procedure is to calculate the total amount of Cl<sub>2</sub>, ClO<sub>2</sub> from the sources in terms of g/s and then divide by the total gas flow volume from the sources.

For example:

If we have the following for ClO<sub>2</sub> emissions:

Bleach plant scrubber:

Volumetric gas flow = 10 Nm<sup>3</sup>/s

Emission concentration = 7.5 mg/Nm<sup>3</sup>

Actual emission =  $10 \times 7.5/1000 = 0.075$  mg/s

Chemical plant ClO<sub>2</sub> Scrubber:

Volumetric gas flow = 0.333 Nm<sup>3</sup>/s

Emission concentration = 10 mg/Nm<sup>3</sup>

Actual emission =  $0.333 \times 10/1000 = 0.0033$  mg/s

Total mill emission:

From bleach plant = 0.075 g/s

From ClO<sub>2</sub> scrubber = 0.0033 g/s

Total emission =  $0.075 + 0.0033 = 0.0783$  g/s

Total volumetric gas flow =  $10 + 0.333 = 10.333$  Nm<sup>3</sup>/s

Therefore concentration is  $0.0783/10.333 \times 1000 = 7.577$  mg/Nm<sup>3</sup>

The ICC values are not exceeded.

5. The reference to 'dust emissions' suggests that there will be a chlorate crystallisation plant (contrary to advice of 27/7 that there would be no

crystallisation). The water balances also show zero water with chlorate stream going to chlorine dioxide plant. Clarification of this inconsistency is requested.

A merchant chlorate plant (one that produces chlorate for external sale as well as chlorate for the manufacture of ClO<sub>2</sub> in the ClO<sub>2</sub> plant) requires operations such as electrolyte evaporation and crystallisation, washing, filtering, drying and bagging. It is the process after drying which can result in chlorate dust and requires dust scrubbers.

If there is no chlorate for external sale and thus chlorate is only required for the production of chlorine dioxide, there is no requirement for the drying operation and subsequent dust scrubbers. Hence the dust emissions only refer to the chlorate plant when it has capacity for merchant operation.

It is anticipated that the chlorate manufacture in both cases will have a crystallizer.

6. The paragraph referring to dust emissions identifies two further emission points, which are not listed under the 'atmospheric emissions' heading. Clarification is requested.

Dust has been noted as a possible emission point in the merchant case. In the case of a chlorate plant without the external sale of chlorate there is no possibility of dust since there is no drying operation.

There are two vents to the atmosphere from blowers in the merchant chlorate case. Both these vents occur after chlorate dust scrubbers. One vent is after the chlorate dust scrubber in the chlorate drying section and the other vent is after the chlorate dust scrubber for the chlorate storage silos.

These dust emissions are not designated

	<p>points for any of the following: Cl<sub>2</sub>, ClO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, TRS, HCl, etc, as required in the RPDC guidelines.</p> <p>7. The water balance shows a 'warm water' stream from the chlorate and chlorine dioxide plants going to cooling tower. The volume does not match the cooling water input to the plants, and it is unclear if this includes some process water. Clarification is requested.</p> <p>The warm water output does not exactly match the cooling water input because the steam condensate from the steam ejectors required for the water chillers is added to the warm water that is sent to the cooling tower.</p>
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