



## Gladstone Conservation Council Inc.

Queensland, Australia.  
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23<sup>rd</sup> January 2015

### LNG Flare in Gladstone

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To:

Jonathan (Jon) PC Black  
Director-General  
Department of Environment and Heritage Protection

Jon,

Thank for your letter dated 22<sup>nd</sup> January 2015, responding to my emails of 16 and 18 December 2014 concerning flare emissions from the Queensland Curtis Liquefied Natural Gas (QCLNG) facility on Curtis Island in Gladstone.

You refer to QCLNGs flare being specifically authorised under EA EPPGOO71 1513, which contains conditions to ensure that the flare is operated in a manner that reduces impacts on the environment. Would you be so kind as to furnish me with a copy thereof?

I am somewhat surprised at your suggestion that *"the EIS information contained in the EIS about flaring duration and frequency is non-specific"*, for two reasons.

1. I thought it actually was quite specific and
2. If it was not specific, it damn well should have been.

#### Specificity of flaring dealt within the EIS

No doubt you are aware of the bulk of the Queensland Curtis LNG EIS documents and how tedious it would have been for me to ferret through these documents to provide the minister with the below excerpt:

Detailed design information for flares is not available, but flares are assumed to be approximately 15 m high. Each FCS is expected to have approximately 10 flaring events per annum of approximately 30 minutes' duration, with approximately 0.005 mmscf (142 m<sup>3</sup>) flared per event. In total approximately 2.65 mmscf (75,040 m<sup>3</sup>) will be flared per annum.

Detailed design information for flares is not available, but flares are assumed to be approximately 30 m high. Each CPP is expected to have approximately six flaring events per annum of approximately 30 minutes' duration, with between 0.3 mmscf (8,495 m<sup>3</sup>) and 1.5 mmscf (42,475 m<sup>3</sup>) flared per event. In total approximately 22.8 mmscf (645,624 m<sup>3</sup>) will be flared per annum. Use of a ground flare will also be considered.



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It is indeed extraordinary to suggest that this is not specific.

Just considering central processing plant (CPP) flaring, 30 meters high, 6 times per year, 30 minutes duration, 22.8 mmscf (645,624 m<sup>3</sup>) will be flared per annum.

Now, before you draw my attention to the “approximately” qualifiers, I will remind you that the flare has been going essentially continuous for weeks, vastly exceeding this descriptor provided in the EIS.

Using the numbers they provide in the EIS, and extrapolating them to the current event we can calculate that the current flaring involved 247 million cubic meters of gas so far. Now, even the most brazen turner of blind eyes would not be able to claim that this even “approximately” resembles what the EIS document led us to believe. It is 384 more than what was stated in the EIS and there is another 11 months of flaring to go for the year.

### Black smoke

We also have been advised by QCLNG that the flaring activity is consistent with their ongoing commissioning phase. Further to that they also informed us that visible smoke is typical of the commissioning and start up activities being undertaken which can result in incomplete combustion.

This however is at odds with their EIS, only once is smoke mentioned in relation to flares and then only when dealing with burning off of contaminants coming in with their gas vessels.

Emissions to air comprise primarily NO<sub>x</sub>, CO, CO<sub>2</sub> and hydrocarbons. Smokeless flares will be installed resulting in near-zero particulate emissions in normal operations. On rare occasions when LPG from a vessel is flared through the marine flare **smoke** may occur, although this has not been modelled or assessed in detail due to the sporadic nature of this event.

Absolutely NOWHERE in the EIS is incomplete combustion at the flares dealt with and NOWHERE in the EIS is black smoke mentioned. Quite the contrary, they repeat themselves on numerous occasions that smokeless flares with near zero particulate emissions are central in their air quality impact assessment, viz.

Emissions to air from the Dry and Wet Gas Flares comprise primarily NO<sub>x</sub>, CO, CO<sub>2</sub> and hydrocarbons. **Smokeless** flares will be installed resulting in near zero particulate emissions.

Their reliance on the absence of smoke led them to ignore basic chemical speciation work of the combustion products. They most likely haven't got a clue what they are sending up into the air, and neither does the department, viz.

equivalents), are presented in Table 28. The USEPA AP-42 emission factors for industrial flares also consider particulate emissions for a range of flare types. QCLNG propose to use **smokeless** flares with a particulate emission rate of zero. Due to the extremely low emission rate of hydrocarbons from the flares during normal pilot conditions, speciation and assessment of hydrocarbon impacts has not been conducted. Speciation has been conducted for the non-normal scenario.



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Their reliance on the absence of smoke from their flares also led them to exclude PM<sub>10</sub> emissions from the modelling of non-normal plant operations, viz.

**Table 55 Modelling scenario 3 – non-normal plant operations with Dry Gas Flare upset conditions**

Source unit	Number of units	Oxides of nitrogen	Carbon monoxide	PM <sub>10</sub>	Hydrocarbons
<b>Train 1</b>					
Dry gas flare (upset)	1	Yes	Yes	No <sup>1</sup>	Yes
<sup>1</sup> No PM <sub>10</sub> emissions due to smokeless flare					
Note: During emergency release from the flares all normal emissions from the plant are assumed to cease.					

This is crucial, because this black smoke is a very significant source of particulate matter emissions and it was not factored in the scenarios presented in the EIS. It brings into question the very basis of their air quality impact assessment.

A rudimentary look at their modelling should raise some serious concerns with the department.



Figure 24 Scenario 1 - Predicted maximum 24-hour average ground-level concentrations of PM<sub>10</sub> for the QCLNG plant during normal operations, with background

I reproduce one of their PM<sub>10</sub> concentration contour maps and draw your attention to the overall level of around 29 µg/m<sup>3</sup>, based on measurements at the Targinie Stupkin Lane monitoring station.

This may not appear too bad when we set ourselves an air quality objective for health and wellbeing of 50 µg/m<sup>3</sup>, but we know from advice from the WHO that there is no safe level of exposure to PM<sub>10</sub> and that the current recommended background exposure level is 20 µg/m<sup>3</sup>. <http://www.who.int/mediacentre/factsheets/fs313/en/>

In light of this, you do the community a disservice expressing the department's lack of concern in relation to health impacts resulting from the flare emissions. We certainly do not want to add to the pollution burden when we already suffer PM<sub>10</sub> above WHO recommended levels. And the fact that people do not send their complaints to the department but to GCC has more to do with the lack of response they have come to expect from the department than anything else. There is a smell of old locomotives about and that most definitely should have your attention because if you smell it, there may be aromatics involved.



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### Abundance of caution

You refer to the department *"investigating the matter and air quality monitoring in the Gladstone region has not identified any anomalies in December 2014 which could be attributed to this event.*

*Based on this monitoring, the department does not have specific concerns in relation to health impacts resulting from the flare emissions at this time."*

Could you provide me a copy of the report and the associated data?

### Non-Normal operation

Commissioning is covered in the EIS under non-normal operation and here also there is no correlation between the current flaring and what has been put forward in the EIS.

During start up conditions, a flaring event can be expected for a duration of approximately 24 hours, however, the gas flow rate to the Dry and Wet Gas Flare systems at this time will be approximately 40% of the flow rate for a blowdown. Start up conditions may be expected at a frequency of approximately four per year, with potentially more during the first year and, will depend on plant maintenance and other plant operational conditions during subsequent years. Smaller flaring events may occur during start-up, which may involve periodic flaring for up to five days.

#### Startup conditions, 4 per year, 24 hour duration

Each LNG train will have a planned shutdown every 3-4 years with associated maintenance and start-up flaring.

For non-normal operating conditions (planned events during maintenance and start-up), the operating condition likely to generate the highest plume is the Dry Gas Flare release during start-up conditions. This event is estimated to occur 2-4 times per year for duration of 12-24 hours, but with much smaller events during start-up which may involve periodic flaring for up to five days.

#### Planned shutdowns (and start-ups), every 3-4 years, 2-4 times per year, 12-24 hour duration

For non-normal operating conditions (unplanned events or emergency releases), the operating condition likely to generate the highest plume is the emergency operation of the Dry Gas Flare. This event is likely to occur less than once per year and last for a duration of approximately 20 minutes.

Small flaring events may occur throughout the year due to minor process upsets.

#### Emergency Dry Gas Flare, <1 per year, 20 minutes duration

As discussed in Section 3.3.1, releases from the Dry and Wet Gas Flare systems may occur for the initial 24 hours during plant start up. These emissions will be approximately 40% of those during an emergency release. Consequently, they do not constitute the worst-case and have not been modelled for this assessment.

Flaring essentially continuously for weeks is clearly vastly different to the descriptions of even non-normal operation. Not only bringing into question the air quality assessment but matters concerning air safety, visual amenity, and greenhouse gas emissions etc. It brings into question the very basis of the project's approval.



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### Conclusion

The flaring has been vastly in excess of anything declared in the EIS. My calculations indicate that it is hundreds of times higher than the flaring declared in the EIS.

Of extreme concern is the apparent casualness of the company and the authorities regarding this matter, creating an air that this is quite normal.

*"Flaring and smoke during commissioning and start-up at the LNG facility was anticipated and is within our compliance requirements."*

*"The visible smoke is typical of the commissioning and start up activities being undertaken which can result in incomplete combustion."*

*"Flaring is a normal part of industry in Gladstone and around the world to safely manage activities like this."*

*"Combustion through flaring is the most environmentally friendly way to manage gas releases from the QCLNG facility and is part of our stringent safety controls that meet the requirements of the Queensland Work Health and Safety Act 2011."*

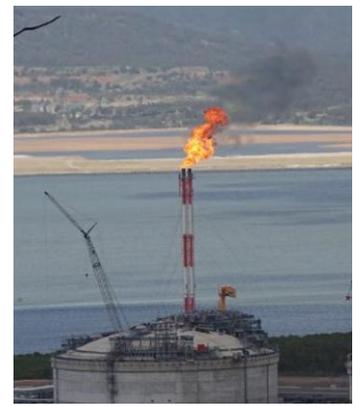
You made it very clear that from your perspective:

*"The EA is not inconsistent with the EIS information contained in the EIS about flaring duration and frequency because the EIS is non-specific and the estimates based on available information."*

Gladstone Conservation Council rejects the claims that this flaring is in any way normal. We reject the claim that flaring duration and frequency was non-specific in the EIS to the extent that a 384 fold departure from the EIS submitted numbers could be justified in the Environmental Authority.

We express our disappointment in the marginalising of our community's concerns regarding the reports of locomotive smells during the flaring

We despair at the thought of our World Heritage listed Curtis Island having acquired the visual amenity of Mordor.





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This is NOT smokeless.

This is NOT normal.

This was NOT declared in the EIS.

This is unacceptable.

Sincerely,

Jan Arens

President – Gladstone Conservation Council