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To : Anita Scordia EPA Victoria **Date:** 17 August 18
From: Les Harman Qenos Senior Environmental Adviser **Pages:** 3
Subject: Licence non-compliance for flare noise.

Date: 1/6/2018

Qenos Incident Report: QNC 506876 Ethylene off specification on CO2

EPA Reference No: 200189416 **Date:** 13/6/2018

Nature of Incident: The SCAL-1 ethylene product went off specification on CO2 after commissioning the propylene purification plant. The off specification ethylene was diverted to fuel gas with the excess product going to the flare. Four noise complaints were received about the flare operation between 9:55 pm and 11:10pm on the first of June.

Once follow up discussions were completed with the community members regarding the noise impact of the flaring, Qenos determined that the flare noise was a non-compliance with licence condition LI_A2. This was communicated to EPA on 13th June.

Incident Summary:

The propylene purification unit was returned to service on the afternoon of June 1st and was completed at 4 pm. At 6pm the SCAL-1 ethylene production went off specification on CO2. Off specification ethylene product cannot be reprocessed and is diverted to fuel gas to recover as much as possible as energy with the excess being diverted to flare for safe disposal.

SCAL-1 feed-rates were reduced from 9:00pm onwards to reduce the flare impact, which reduced the flaring rate significantly between 10:30 pm and midnight. The flare noise level measured by the on-site flare noise meter reduced from 78 dBA to 65 dBA over the corresponding period.

The flare is controlled by a smoke suppression system which adds steam to reduce the risk of the flare smoking. The control system uses an emissivity output from IR cameras as a proxy indicator of when smoking may occur and has a feed forward function based of flare gas flow or pressure. The control system tends to add more steam than needed to keep it from the smoking threshold, but increases the noise generated by the flaring.

The performance of the IR cameras used for flare emissivity measurement (two per flare) does not look to be optimum. Documentation from suppliers on current generation flare monitoring cameras



indicate that they would be less likely to over steam the flare. An assessment of two suppliers flare monitoring cameras is already underway to identify the best camera to potentially replace the old cameras. Qenos Plastics has recently installed one of these to replace a failed camera. Its performance at Plastics will form part of this assessment. The flare may have been noisier at this time due to smoke suppression control system and that there were also some difficulties balancing the flow across the two flares.

The smoke suppression control system set up is consistent with the requirements of the PEM for Stationary Sources and needs to maintain smokeless combustion for license compliance.

Four noise complaints were received via the Environmental Action Line about Flare noise as follows.

- 9:55 pm - Charles Road Altona
- 10:55pm - Brook Drive Altona
- 11:00 pm - Green Court Altona.
- 11:10 pm - Grieve Parade Altona

The flaring continued at the reduced rate until overnight until 11:30 am on the 2nd June when the ethylene product was back on specification.

The four noise complaints were accepted by Qenos and their community impacts evaluated once we were able to discuss the details with each of the four callers.

Environment Assessment

Environmental impact:

The flaring event was classified as a non-compliance with condition LI_A2 of Qenos EPA licence as we considered the flare noise from this event as detrimental to the wellbeing of the callers due to the following factors:

- The four complaints were between 21:55 and 23:10 which is largely in the N1 night time period.
- The callers reported that the noise was loud outside and audible enough inside to impact the ease of getting to sleep and interfere with the audio from in house media such as TV.
- The four complaints were spread around a significant area of the local community confirming a broad impact zone

Environment Risk Assessment:

Likelihood:	A \geq 0.1 times per annum
Consequence:	III Moderate impact to closest residents
Risk Rating:	III Medium Risk Level



CAUSES AND ACTIONS

CAUSE:

The flare smoke suppression system adds more steam that is required to achieve smokeless flare combustion

Action	Review and tune the smoke suppression control system to try and reduce the addition of extra steam.	Status	Completed
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Note: A review of the steam addition rate across the control range identified that a more linear addition of steam could be achieved. This has been implemented through the Qenos MOC process and has improved the flare control

Action	Review findings of the Plastics flare IR camera and determine applicability to replace the Olefins camera.	Status	Due 30/3/19
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CAUSE:

Review processes to ensure balancing of the flares can be achieved.

Action	Review current flare operation to ensure balancing of the flare can be achieved.	Status	Completed
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