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Dear Dr Barlow

**Inquest touching the death of David Chandler
Regulation 28 Report to Prevent Future Deaths**

I am responding on behalf of Carlsberg Supply Company UK Limited ("Carlsberg") to your Regulation 28 Report dated 5 July 2018.

I confirm that I am duly authorised to respond on behalf of Carlsberg.

Carlsberg's response is as follows:

1) The isolation for the 2014 work was still in place and does not appear to have been reviewed in the intervening period. The 2014 work was of a different nature and did not require physical removal of the whole compressor. There does not appear to have been any formal review of the appropriate isolation standard for the work in November 2016 to be performed safely.

It is agreed that the work carried out in 2014 was of a different nature to that carried out in 2016. In 2014 only the compressor unit was removed. The oil separator (to which the discharge pipework remained connected at all times) remained in situ. The 2014 isolations on both the discharge and suction sides of the compressor were effective throughout those works. The isolations remained in place in readiness for a return to service of the compressor unit which had undergone refurbishment.

Those isolations remained in situ between 2014 and 2016. However, even if the isolations had failed in some way, which they did not, ammonia would not have escaped to atmosphere because the ammonia system was closed. In other words, even if one of the isolations failed, ammonia would have progressed into the compressor unit only rather than to the atmosphere.

During the course of 2016 Crowley Carbon Limited (**Crowley Carbon**), a specialist energy efficiency company with expertise in industrial ammonia refrigeration plant systems, conducted an energy efficiency study and concluded that Carlsberg could make significant improvements. Carlsberg accepted Crowley Carbon's recommendations and appointed them as Principal Contractor and Principal Designer (within the meaning of the Construction Design and Management Regulations 2015) for the project.

Crowley Carbon's recommendations, referred to above, involved the removal of the compressor unit and the oil separator (the **Works**). Crowley Carbon was responsible for the planning, management and monitoring of the Works. As Principal Designer, Crowley Carbon was also responsible for preparing and modifying designs so as to eliminate, reduce or control foreseeable risks that may have arisen during the Works. Crowley Carbon signed to acknowledge its acceptance of its appointment to those roles. Therefore, Crowley Carbon had a responsibility for ensuring that the risks posed by the presence of

ammonia at the site were adequately controlled and that the isolations were adequate for the purposes of the Works.

Crowley Carbon conducted numerous site visits to enable it to plan the Works.

At all material times, Crowley Carbon:-

- (a) was aware of the nature of the isolations performed in 2014 (i.e. that they were not 'double block and bleed' type isolations);
- (b) was aware of the likely presence of ammonia in the pipework behind those isolations;
- (c) had access to the relevant Piping and Instrumentation Diagrams which identified the locations of potential isolation points; and
- (d) had access to the Permit to Work relating to the isolations in 2014.

Since the incident the isolation policy and procedures across Carlsberg have been reviewed using the HSE guidance document entitled "The safe isolation of plant and equipment" (HSG253). The policy and procedures now in place require any isolation to be risk assessed and implemented in accordance with HSG253. For each isolation, there is a defined procedure to enable trained individuals to apply an isolation suitable to protect against the hazardous energy source. All relevant personnel have received refresher training.

As noted above, the isolations implemented in 2014 were effective between that date and the Works (in that they did not allow ammonia to pass). Nevertheless, Carlsberg has implemented a system to ensure that long-term isolations are reviewed in accordance with HSG253. It has implemented a colour co-ordinated 'Lock-Off and Tag Out' procedure so that long-term isolations are easily distinguished from short-term isolations. Carlsberg has also introduced a long-term isolation register, which is reviewed on a quarterly basis and re-validated by the Head of Engineering.

(2) Carlsberg contracted the work to Crowley Carbon who employed specialist refrigeration engineers. The evidence at the inquest suggested that Crowley Carbon and Carlsberg were each relying on the other to ensure that the compressor was safely isolated.

As noted above, Crowley Carbon had been appointed as both Principal Contractor and Principal Designer. Carlsberg was relying on Crowley Carbon to ensure that the isolation was adequate having regard to the nature of the Works.

Since the incident, and to ensure appropriate communication ahead of any future engineering work, Carlsberg has enhanced its suite of documentation concerning the provision of pre-construction information to relevant parties. This documentation was and is specific to each project and will identify the hazards relevant to the works being undertaken. As part of this communication the responsibility for isolations is clearly defined. To ensure all parties understand the role that they are assigned specific to CDM15 Carlsberg continues to require those parties to sign a "client brief checklist".

Carlsberg requires all potential Principal Contractors and Principal Designers to adequately demonstrate competency in undertaking said duties and any companies not approved under the safe contractor scheme for these critical roles are not invited to tender.

Although Crowley Carbon was aware of the nature of the isolation in place, the enhancement of the isolation standards now in place (as detailed in the response to point 1 above) ensures that the appropriate standard for isolation is applied irrespective of who is responsible for it.

(3) The Permit To Work (PTW) issued by Carlsberg to allow Speedrite to remove the compressor made reference to the 2014 PTW isolation, was completed incorrectly, and made no reference to hazardous substances.

Carlsberg has reviewed the PTW system and has concluded that it is fit for purpose. The Health and Safety Executive attended the site on the 15 August 2017. The permit system was reviewed during that visit and it made no recommendations for improvement.

The referencing of one permit to another is an acceptable practice within the PTW system. Post incident practice would ensure that any previous isolations were verified against the enhanced isolation procedure referred to in response to point 1. In these circumstances, an appropriate level of isolation will be implemented at all times.

Since the incident, Carlsberg has reviewed the competence of individuals with responsibility for completing PTWs. To further enhance competency, specific HSG253 training was conducted post incident.

(4) Relying on the isolation from previous work on the compressor appears to have caused confusion as to the safe level of isolation necessary for work of a different nature two years later.

We do not accept that there was confusion caused by the permit issued in respect of either the 2014 or 2016 works. Crowley Carbon was aware of the nature of the isolation performed in 2014. The evidence clearly demonstrated that Crowley Carbon personnel were fully aware of the presence of ammonia in the discharge pipework beyond the isolation on the discharge side of the compressor unit. See the response to point 1 above. Carlsberg expected the work to be planned, managed and monitored by Crowley Carbon so as to control those risks. See the response to point 2 above.

I believe that the above addresses all issues raised in your report.

Yours sincerely

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Head of Legal