CM9 Record Ref.: 2024/26670

WB2023-02

Potential Focus Areas

Background

Concerns have been raised by a former employee of an HPC RD contractor. These concerns were raised by an individual who believes that there are technical, methodology and cultural shortfalls, relating to the design and manufacture of the EDGs.

A comprehensive set of documentation was produced by the individual, which takes the form of a diary relating to their time working for the contractor. Excerpts of this diary have been shared with ONR and an initial meeting has been held with the individual.

Potential focus areas

Following the meeting and based on discussions held, I have identified three areas that are potentially worthy of further consideration by ONR.

Modification of PCSR3 extreme temperatures – It appears that the minimum site temperature has been altered from its PCSR3 figure of -35°C to -25°C and there is currently no evidence of how this change was justified.

ONR could request that NNB demonstrate that it has maintained adequate control of the minimum temperature requirements and provide evidence that any changes since PCSR3 have been appropriately managed.

Engine breather pipe design and use of OPEX – Evidence is provided of engine vent lines from the crankshaft casing to atmosphere potentially being unsuitable due to their heigh. This could lead to condensation within the breather pipe that could either return to the crankshaft and its associated oil, or cause rust within the pipe that could also contaminate the oil.

OPEX from FA3 highlights the failure of a crankshaft white metal bearing potentially being caused by ferrous fragments in the oil. The diary postulates that this ferrous material is of unknown origin and could have been introduced by the design of the crankshaft breather pipes which are over 16 cm in diameter, sited externally and without any FME protection.

ONR could request that NNB demonstrate how they have applied lessons learned from factory testing, where FME was a significant concern and, how NNB has taken

account of OPEX from FA3, to ensure that the design is adequately robust against FME.

Air Fan Coolers and Heat Exchanger Qualification – There are potential shortfalls in the approach NNB has taken to qualifying the air fan coolers (AFCs) and heat exchangers. These relate to a large number of separate issues, including the seismic qualification, maintenance requirements and design requirements.

An NCR type document has been prepared covering each potential shortfall individually, with contractor responses, gap analysis and a judgement provided for each potential shortfall.

ONR could focus on a sample of key potential risks, such as qualification, and request that NNB GenCo demonstrate how they have assured themselves that the AFCs are adequately qualified.

Summary

In my opinion it is reasonable to pursue a small sample of queries, as laid out above, given the documents presented to ONR and the potential shortfalls identified. This purely focuses on the potential *technical* shortfalls and does not seek to sample shortfalls involving methodology or culture.