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Quality Engineering
Test Establishment
Ottawa ON, K1A 0K2

QETE 19001-1 (A006513-28/29)

October 9, 2013

M. Andrew Tam
CFB Trenton Wing Environmental Officer

Subject: Detection of Lead in Aviation Fuel F-34 for CFS Alert Tank 4A and Tank 5A

References: A. QETE project A006513-28/29 – email tasking request for lead analysis
B. Licence No. 3BC-ALT1015 issued to DND – 1 Canadian Air Division by Nunavut Water Board (NWB)
C. QETE ICP test method

1. This letter is to inform you that personnel at QETE have compiled their results as per Reference A for the F-34 aviation fuel samples provided by CFS Alert to confirm that the aviation fuel held in storage tanks at CFS Alert is not contributing to the lead level found in the water surrounding these tanks.
2. Tank 4A was sampled by the client on the 7th of July 2013, Tank 5A was sampled by the client on the 18th of July 2013. Both samples were received and logged in on the 19th of August 2013 by QETE.
3. The samples were tested by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry) method to determine the concentration of lead in fuel. As per reference B, effluent discharged from fuel storage facilities shall not exceed a lead content of 1 part per billion (ppb). Therefore to determine if lead in fuel is the source of contamination the QETE laboratory method ensured the identification of lead below 1 part per billion (ppb) in fuel.
4. ICP-MS is an instrument capable of detecting metals at concentrations as low as 10^{12} parts per trillion (ppt).
5. The concentration of lead in the fuel samples taken from Tank 4A and Tank 5A are found to be $2.38 \text{ ppb} \pm 0.36$ and $2.00 \text{ ppb} \pm 0.30$, respectively.

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6. Based on these results, lead originating from F-34 fuel type in Tank 4A and Tank 5A would not be the cause for the surrounding contamination in the berm. For F-34 to be the source of lead contamination, assuming lead partitions completely into water, there would need to be a ratio of 1: 2 F-34 fuel in water, hence a significant amount of fuel would need to be mixed with water in the berm area which is not the case.

7. If there are any questions, please contact Laura Medeiros at 819-997-6426, laura.medeiros@force.gc.ca or the undersigned below.

A handwritten signature in black ink, appearing to read 'P. Poitras', with a stylized flourish at the end.

Pierre Poitras
Senior Technical Authority – Fuels and Lubricants
For Superintendent