

August 30, 2017

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Ms. Blaney:

**Subject: August 2017 FAP Ambient Air Monitoring Network Audit Results**

Between the dates of August 14<sup>th</sup> to 25<sup>th</sup> 2017 the Alberta Environment and Parks Ambient Air Monitoring Audit team conducted an audit of the Fort Air Partnerships (FAP) ambient air monitoring stations. The following is a station by station breakdown of the audit findings.

Fort Saskatchewan Station – The H<sub>2</sub>S, SO<sub>2</sub>, CO, Hydrocarbon, O<sub>3</sub>, NO<sub>x</sub>, NH<sub>3</sub> and meteorological sensors all met the audit criteria; the Sharp PM<sub>2.5</sub> monitor was down at the time of the audit and was not audited. The following issues were noted:

1. The Range setting on the SO<sub>2</sub> analyzer was set to 0-1000 ppb, but the analyzer is being calibrated at a 0-500ppb range. FAP is required to calibrate this analyzer using calibration points spaced across the analyzers range at 60-80%, 30-40%, and 10-20% (AMD chapter 7 CAL 2-J (b)), or change the range setting on the analyzer to match the desired calibrated range. An additional audit point at 10-20% of 0-500 ppb range was completed.
2. The high NH<sub>3</sub> audit point took over 45 minutes to stabilize – FAP is required to provide calibration data (both a DAS strip trace and one minute averaged data) showing the analyzer response to as-found high point span gas achieves stability in 45 minutes or less.

Scotford Temporary Station – The SO<sub>2</sub>, H<sub>2</sub>S and NO<sub>x</sub> analyzers met audit criteria. Only the wind and ambient temperature sensor met AMD criteria. The station temperature and RH sensors did not meet AMD criteria. The following issues were noted:

- 3 The BTEX analyzer failed on the high points for all parameters. Subsequent audits points were not done. A shift in retention times was observed thus audit was not successful. A follow up audit will take place once the instrument is operating properly. The shift in retention times looks to have happened at some point on the weekend prior to the audit. FAP is required to repair this instrument – the EMSD audit team will re-

audit at a later date. FAP will be required to forward the WSP follow-up calibration results conducted after the audit attempt.

- 4 The station temperature was out 2.0° C low compared to the audit standard. The RH was reading low 18%.

RR 220 Station – The Hydrocarbon, NO<sub>x</sub>, Ethylene and meteorological sensors all met audit criteria; the following issues were noted:

- 5 The manifold was found to be dirty at the sample ports – FAP is required to clean the manifold.

Bruderheim Station – The SO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, Sharp PM<sub>2.5</sub> and Partisol PM<sub>2.5</sub> and all meteorological sensors met AND criteria. The following issues were noted:

- 6 The Methane Non-methane analyzer failed the last point for Non-methane and THC. By 24% and 17%. WSP confirmed the non-methane was out by 14% using the on-site calibration equipment.
- 7 The PM sample tube disconnected when the PM sample heads were being removed to conduct the audit. The sample tube was re-tightened before audit could be completed.

Ross Creek Station – The SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, Ethylene, and meteorological sensors all met audit criteria; the following issues were noted:

- 8 The high NH<sub>3</sub> audit point took over 45 minutes to stabilize – FAP is required to provide calibration data (both a DAS strip trace and one minute averaged data) showing the analyzer response to as-found high point span gas achieves stability in 45 minutes or less.

Lamont County Station – The SO<sub>2</sub>, H<sub>2</sub>S, Methane / Non-methane and O<sub>3</sub> plus all meteorological sensors met AMD criteria. The NO<sub>x</sub> analyzer failed to meet AMD criteria. Please note the Sharp PM<sub>2.5</sub> was not audited due to elevated readings from smoke in the region. The following issues were noted:

- 9 The SO<sub>2</sub> analyzer passed but is considered marginal.
- 10 The NO<sub>x</sub> analyzer failed on the mid points and low points of the NO / NO<sub>x</sub> audit. The on-site checklist completed demonstrated a potential leak in the analyzer.

Elk Island Station – All analyzers and meteorological equipment met AMD criteria. Please note a strong musty smell was apparent upon entry into the station. There were large dark stains around the perforations of the sample manifold inlet and PM sampler inlet. Another dark stain along the inside roof edge was also visible. FAP needs to address this issue to prevent instrument damage and lessen the possibility of hazardous mold buildup inside the shelter.

Redwater Station – The SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, and meteorological sensors all met audit criteria; the PM<sub>2.5</sub> Teom was down and was not audited. The following issues were noted:

- 11 The high NH<sub>3</sub> audit point took over 45 minutes to stabilize – FAP is required to provide calibration data (both a DAS strip trace and one minute averaged data) showing the analyzer response to as-found high point span gas achieves stability in 45 minutes or less.
- 12 The sample manifold was found to be dirty – FAP is required to clean the sample manifold.

Gibbons Station – All analyzers met AMD criteria. Only the wind, station temperature and RH sensors met AMD criteria. Please note the Sharp PM<sub>2.5</sub> was not audited due to elevated readings from smoke in the region. The following issues were noted:

- 13 The NO<sub>x</sub> analyzer initially failed. Follow-up investigation found that the audit NO gas regulator had developed a leak and was allowing NO<sub>2</sub> to enter into the audit system. A subsequent re-audit determined the NO<sub>x</sub> analyzer met AMD criteria and is considered a pass.
- 14 The ambient temperature sensor was reading 1.4° C high when compared to the audit sensor.

FAP will be required to provide a response by September 29, 2017 that meets AMD Chapter 8 section 5.3 for all items noted in this audit cover letter. If you have any questions or comments, please contact the undersigned at 780-427-7888.

Regards,



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Al Clark  
Monitoring Systems Auditor



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Shea Beaton  
Monitoring Systems Auditor

Attachments:

Station Audit Reports  
Audit Summary Report

cc: John Collins – Regional Compliance Manger, AEP  
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