**CAMEL Pouce Coupe Deployment Report Summary of Findings**

The Commission Air Monitoring Environmental Laboratory (CAMEL) was deployed in close proximity to the Encana South Central Liquids Hub (SCLH)[[1]](#footnote-1) from July 29, 2016 to May 28, 2018, to measure ambient air quality and meteorological conditions.

All recorded data was validation checked by Tropospheric Measurement Systems Inc. under contract with the BC Oil and Gas Commission. Millennium EMS Solutions was retained by the Commission to provide an assessment of the validated data. Measurements were analyzed by hour of day, month of year and frequency distribution.

Data availability was 95% for all meteorology measurements. For ambient air quality measurements, data availability ranged from 75% to 90%.

Observations are:

* Ozone measurements were highest in spring likely due to stratospheric intrusion and during afternoons due to photochemical production.
* Concentrations of CO and PM2.5 were highest in the early morning hours in August 2017. These patterns were consistent with higher altitude plumes mixing to the ground near sunrise. Analysis suggests the cause of most elevated PM2.5 values was forest fire activity, which would also generate increased CO emissions.
* NO2 measurements were highest in winter and outside of daytime hours likely as a result of trapping combustion emissions (traffic, flaring, compression) within stable layers near the ground, especially just before sunrise.
* The highest NMHC values were measured from June to December, but concentrations were low. THC showed a similar seasonal pattern, with the lowest values during the day suggesting sources may be haven near ground level, and mixed upward during the day.
* BTEX values (Benzene, Toluene, Ethylbenzene, Xylene) showed a similar seasonal pattern with higher measurements in September to December.

Other data did not show marked diurnal or seasonal variation.

Where possible data was compared to British Columbia ambient air quality objectives (BCAAQOs). For cases where the BC objectives do not apply[[2]](#footnote-2), comparison was made to Alberta Ambient Air Quality Objectives (AAAQOs). Findings are:

* No concentrations were found to be excess of ambient air quality objectives for British Columbia or Alberta for Ozone (O3), Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Sulphur Dioxide (SO2), TRS (24 hour), Benzene (C6H6), Toluene (C7H8), Ethylbenzene/ BTEX (C8H10), Total Xylene (X-C8H10)
* Exceedances of BCAAQOs and AAAQOs, for 1-hour TRS, 24 hour PM2.5 and PM10 were:
  + Maximum 1-hour TRS was 5.5 ppb, and resulted in a single one hour of exceedance of the BCAAQO and WHO odour threshold of 5 ppb;
  + Maximum 1-hour PM2.5 was about 7 times higher than the Alberta AAQG (80 µg/m3) and there were 20 hours of measurements above this value. Analysis showed that most of these high values could be attributed to forest fires in the area.
  + Maximum 24-hour PM2.5 was about 4 times higher than AAAQQ (29 µg/m3) and there were three days of measured exceedances.
  + The maximum 24-hour PM10 was about 2.8 times higher than BCAAQO (50 µg/m3), and there were 10 days of exceedances.

The highest particulate measurements were mostly in late spring and summer (May, August and September), during the forest fire season, under light southwest winds. The light winds exacerbated the effects of the fires.

1. Near Pouce Coupe [↑](#footnote-ref-1)
2. Monitoring period was 1.7 years and BC objective requires 3 years data, or there is no BC objective [↑](#footnote-ref-2)