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DATE: August 22, 2011 FILE NO.:

TO: Larry Avanthay cc: Ken Reid

FROM: Geoff Doerksen

RE: **Analysis of PM<sub>10</sub> Monitoring at Burnaby North**

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An air quality monitor to measure Inhalable Particulate (PM<sub>10</sub>) was installed at the Burnaby North (Station ID: T24) air quality monitoring network site in early June of 2010. Continuous hourly PM<sub>10</sub> measurements were taken at this site along with ten other network sites located throughout the Lower Fraser Valley (LFV). A comparison of validated measurements (June 11, 2010 to April 30, 2011) between Burnaby North site and other sites in the LFV with sufficient data completeness (>75%) is provided here. Overall the Burnaby North site experiences very similar PM<sub>10</sub> concentrations as other monitoring sites in the LFV. During the 11 month period that was analyzed there were no exceedances of any Metro Vancouver, Provincial or Federal PM<sub>10</sub> objectives or standards at Burnaby North.

Figure 1 shows the average PM<sub>10</sub> concentration for the 11 month period. The Burnaby North site experienced the third highest average value during this period with the Richmond-Airport site experiencing the highest. Figure 2 presents the maximum 24 hour rolling average concentration along with several percentiles including the 90<sup>th</sup>, 95<sup>th</sup>, 98<sup>th</sup> and 99<sup>th</sup> percentile. In the figure it can be seen that three sites (Pitt Meadows, North Vancouver and Hope) exceed the Metro Vancouver 24 hour PM<sub>10</sub> Objective of 50 ug/m<sup>3</sup>. The Burnaby North site did not exceed the objective but experienced the fourth highest 24 hour maximum. Note that the Kensington Park shows the lowest average concentration which is likely due a data gap at this station in the summer when other sites experienced higher PM<sub>10</sub> than usual.

In Figure 3, the maximum hourly average concentration along with several percentiles (90<sup>th</sup>, 95<sup>th</sup>, 98<sup>th</sup> and 99<sup>th</sup>) is given. In the figure it can be seen that Port Moody and Pitt Meadows experienced much higher hourly maximum PM<sub>10</sub> concentrations than the other network sites. The Burnaby North site experienced a maximum hourly concentration which was very similar to several other monitoring sites. In Figure 4 the monthly averages at each site are presented. It can be seen that for the majority of the months the Burnaby North site experience very similar monthly averages as the other network sites.

Overall, it is concluded that the Burnaby North site has similar PM<sub>10</sub> measurements compared with the other PM<sub>10</sub> monitoring sites in the LFV. During the 11 month period of validated data that was analyzed there were no exceedances of any Metro Vancouver, Provincial or Federal PM<sub>10</sub> objective or standard. The Burnaby North site experienced similar hourly, 24 hour and monthly averages as other monitoring sites in the LFV.

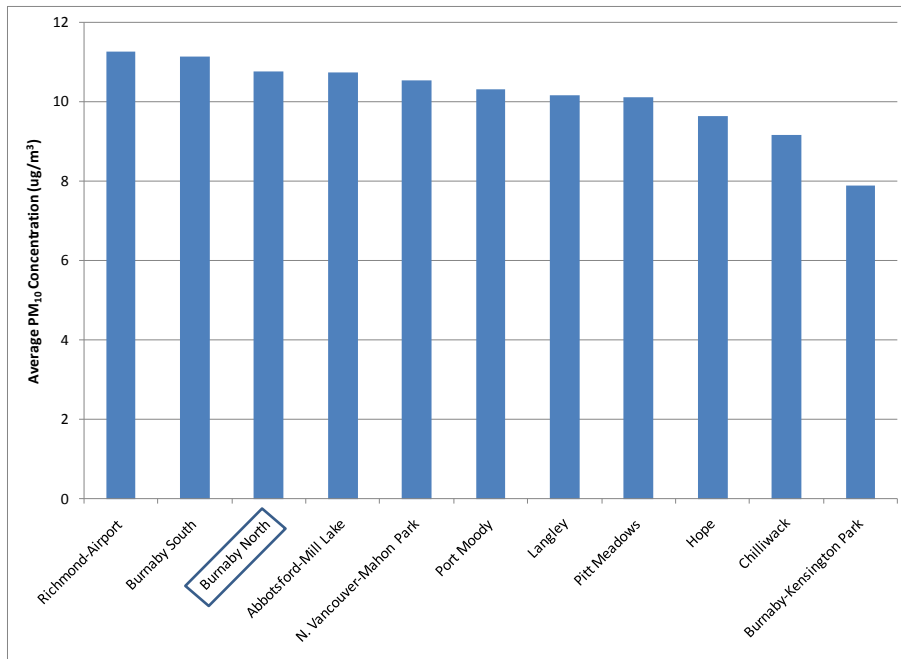


Figure 1: Average PM<sub>10</sub> Concentrations from June 11, 2010 to April 30, 2011.

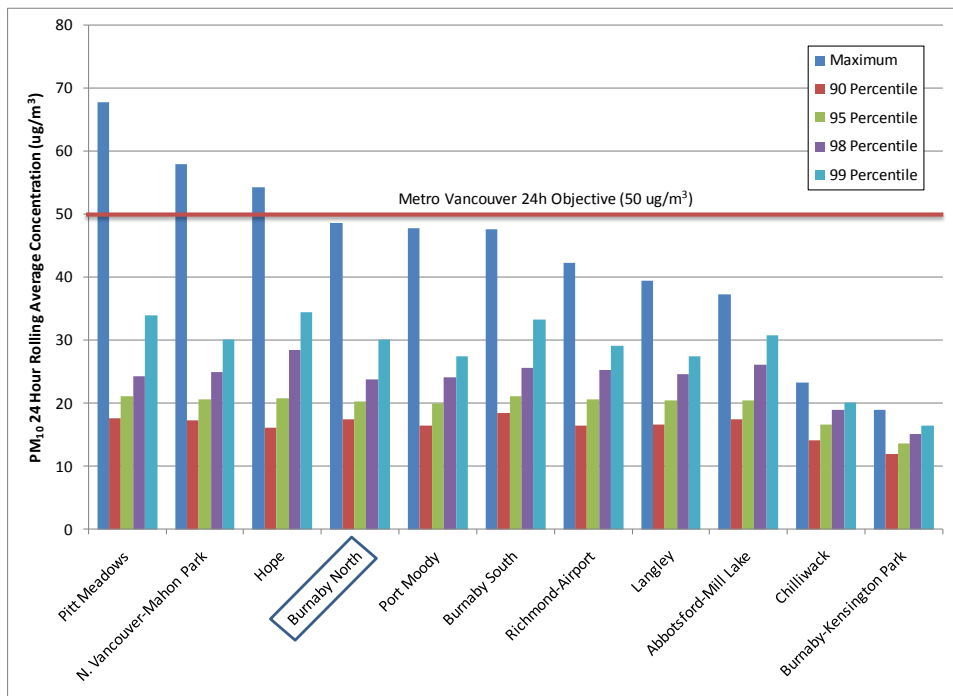


Figure 2: Rolling 24 hour PM<sub>10</sub> Maximum and Percentiles Concentrations from June 11, 2010 to April 30, 2011.

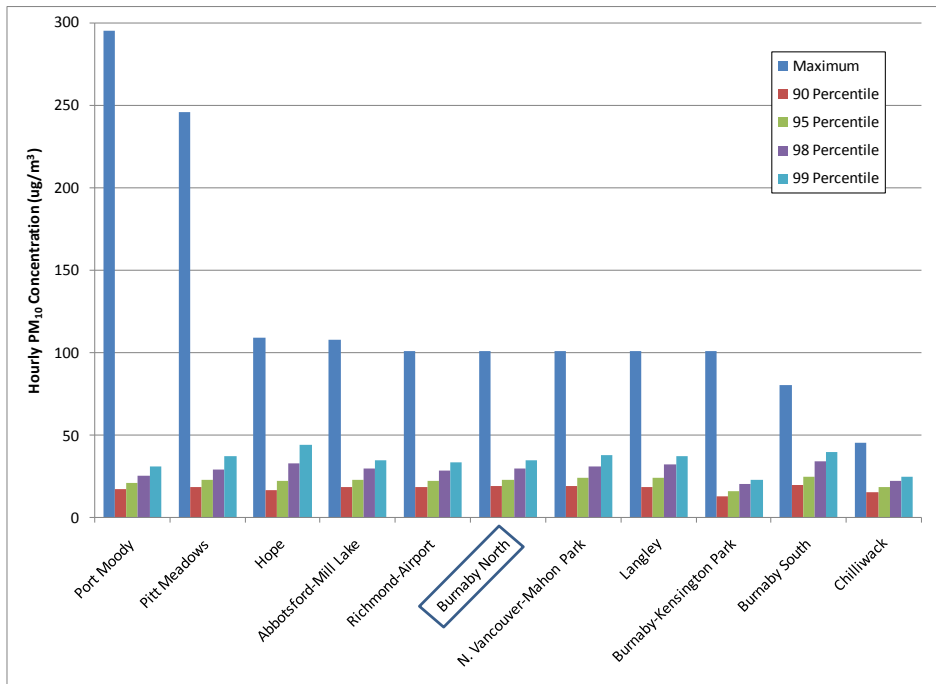


Figure 3: Hourly PM<sub>10</sub> Maximum and Percentiles Concentrations from June 11, 2010 to April 30, 2011.

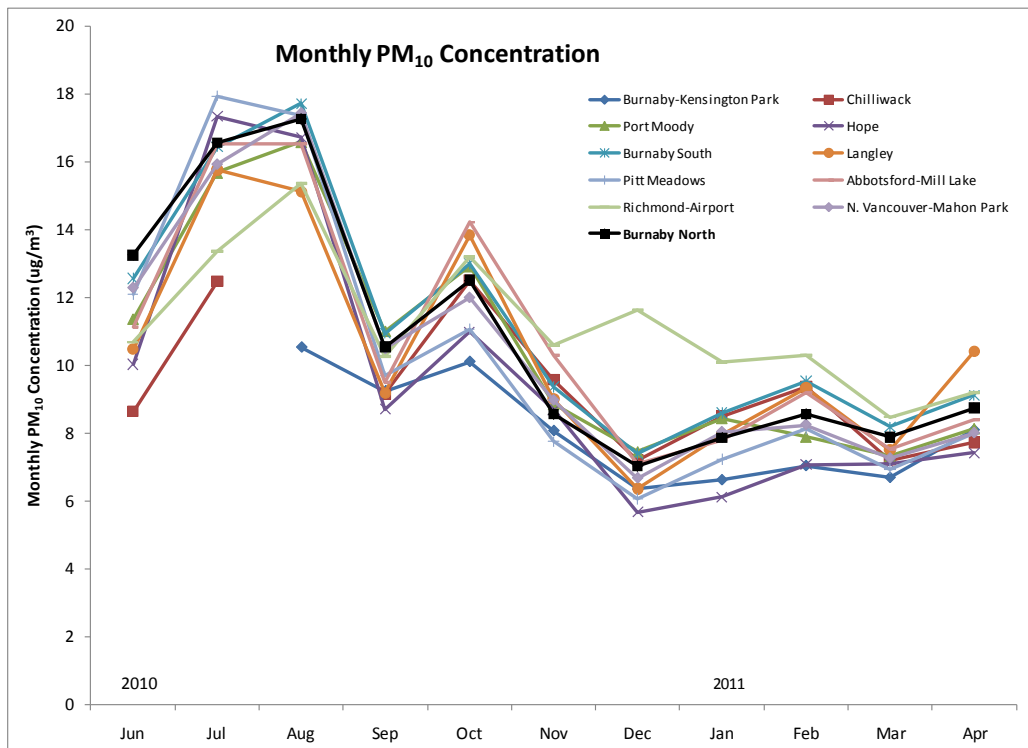


Figure 4: Monthly PM<sub>10</sub> Concentration from June 11, 2010 to April 30, 2011.