



27 April 2011

Aamjiwnaang – Chippewas of Sarnia First Nation  
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Attention: Sharilyn Johnston, Environmental Officer

**Subject: Comments on the Plans for Combined Monitoring and Modelling Analysis for Various Sarnia area facilities.**

As requested, we have completed our review of the work plans to undertake a Combined Monitoring and Modelling Analysis (CAMM) for a number of Sarnia area industries.

In our work, we have reviewed the following specific CAMM plans and any attached MOE comments and discussion;

1. Plan for Combined Monitoring and Modelling Analysis of 1,3-Butadiene Emissions, Revision 2; September 2010, Lanxess and associated letters from MOE (Oct 2009) and MOE response 2010.
2. Draft Test Plan for Combined Modelling and Monitoring Program; Imperial Oil Sarnia Site; undated; Stamped Received by MOE Sarnia Office Nov 29, 2010.
3. Proposed Benzene and/or 1,3-Butadiene Air Sampling and Analysis Methodology for the Combined Ambient Monitoring and Modeling Program; Ortech; August 30, 2010.
4. Proposed Benzene Air Sampling and Analysis Methodology for the Combined Ambient Monitoring and Modeling Program; Ortech; August 30, 2010.
5. Plan for Combined Analysis of Monitoring and Modelling of Fugitive Benzene and 1,3-Butadiene Emissions; Nova Chemicals (Canada) Ltd. – Corunna Site; Nov 29 2010.

The overall purpose of the CAMM programs are to further refine or confirm emission estimates of key benzene and/or 1,3-butadiene emissions. CAMM is typically undertaken to assess sources that are difficult to measure directly (i.e. stack sample). Sources such as unloading/loading facilities, tank farms, and process areas with numerous fugitive sources are typical source types that are targeted by CAMM.

The primary focus of CAMM is to re-assess the estimated emissions from these types of sources, and once completed, provide a more site specific emission profile for an operation. It should be noted that these sources are already accounted for in the Emission Source and Dispersion Modelling (ESDM) reports for these sites. The CAMM program provides an approach to confirming or refining those emission estimates for difficult to measure sources.

As with the ESDM, the CAMM program is directly linked to point-of-impingement assessments for each facility. It will provide a more detailed and robust emission profile for the key industries in Sarnia. In fact, the concentration data for the CAMM program will not be directly comparable to background or other ambient data. Most of the CAMM data will be obtained on-site at the various facilities. This is done to provide the most accurate data for profiling the specific source areas targeted for the program. The concentration data is then used, along with very specific meteorological data, to back calculate the emission profile of the source. In combination with other source data and site data, the “new” source data is then used in the overall ESDM assessment for the site. The data obtained from the CAMM program will not be directly applicable to issues of background or cumulative effects in the Sarnia area.

The CAMM approach is currently under review by a task group formed with MOE and the Multistakeholder group. Aamjiwnaang First Nation (AFN) is a member of the Multistakeholder group. It is anticipated that there will be changes to the overall CAMM approach, but that these changes will predominantly occur in areas of data analysis and modelling. At present, the approach to gathering the necessary field data is not under discussion. As such, some of the discussions about modelling and data assessment found in these reports will need to be revisited once the CAMM working group has completed its assessment and provided suggested changes. As the ambient data collection is unlikely to change, we do not see any reason to recommend delaying the data gathering portions of these CAMM projects. Once the data is collected, we would suggest a re-assessment of the modelling approach in light of any findings of the CAMM working group.

Overall, the approach proposed by the industries is appropriate and will provide the necessary data to complete the CAMM work.

There are a few minor areas that would help strengthen or clarify some areas of the work and possibly avoid some issues after the data is gathered and submitted.

These are discussed below.

1. In the two Ortech reports on the proposed air sampling and analysis methodologies. The approaches that will be used are well established U.S. EPA methods. These are appropriate for the CAMM studies being undertaken.
2. We would recommend that the Field Sampling Logs in all the studies include more extensive weather observations at the site. Since the key to the CAMM is to obtain specific samples from very specific directions, we would recommend that over the 1-hour sample time, more frequent field observation (10-min or 15-min) records be maintained of wind direction. This would provide a more robust set of observations for the appropriate direction.
3. For all of the programs. Wind direction is obviously the most critical parameter w.r.t. capturing the appropriate sources. In each report it is also stated that specific wind speed criteria are also set. It is not clear what will constitute a valid sample if the wind speed varies from the criteria. We would recommend that the facilities establish a wind speed criteria as well for valid samples. Again, by doing this in advance, there will be less possibility of rejecting future data on the basis of wind speed variation or changes over the sample period.

4. For each of the programs. At an early stage of each program, there should be a comparison of field wind direction observations with the appropriate met station to be used for the modelling analysis. This would help confirm that the on-site and meteorological tower data are matching and appropriate. If this is not done, there may be future issues with field staff determining that they are downwind, but the meteorological station not exactly matching the “downwind” requirements for the sample. Some of the criteria for “downwind” (i.e. direction of valid winds) cover a very narrow range of directions. If there are differences, this needs to be resolved near the beginning of the field program and not at a later date, when sample validity may be questioned.
5. Laxness study. There is some confusion in the reporting section. It states that Laxness will submit preliminary data once approximately 10 to 15 sample hits have been obtained. Further in that section it notes that “as data is generated, it will be forwarded for Ministry review within two weeks of receipt of sample results”. Since it will take some time to generate 10 to 15 sample hits, it is unclear how waiting for that data set to be obtained can be reconciled with forwarding data within two weeks of receipt of sample results. This should be clarified.
6. Imperial Oil Sarnia. Imperial is proposing to use a downwind continuous monitor to measure benzene. This is an appropriate methodology. It is unclear in the report what will constitute an appropriate number of hits on a continuous monitor. In the report it is stated that 30 hits are considered appropriate. It is not clear if this is intended to be 30 distinct hours out of the continuous data set. If so, then there should be a requirement to space these out of a number of events or days. The range of conditions may not be sufficiently broad if all samples were to be obtained during 30 consecutive hours.

It is also stated that a valid hit occurs when 80% of the data during the sample is coming from the source being assessed and that the other 20% is not coming from other potential sources. We would recommend providing a very specific table of applicable wind directions for each source being assessed. This will eliminate future potential issues with data acceptability.

7. Nova Chemicals. Nova states that the data is valid only if the wind direction is within the specified wind sector for the sample. This may be more stringent than required. We would suggest that 80% or more of the hour with wind in the appropriate direction could constitute a valid sample. Of course, this would need to be assessed for each sample location to ensure that the other 20% was not coming from a significant confounding source. This could potentially increase the number of valid samples.

In Section 2.3 of the Nova program it is stated that “If...any of the sampling probes need to be moved....the reason for the change will be documented”. We would recommend that if any location changes are needed that Nova notify MOE immediately and obtain their agreement that the location change is appropriate. We are concerned that if a change is made during the program that MOE might not find the new location acceptable or appropriate and therefore not accept the data.

8. All reports. A number of reports (not all) indicate that samples would not be taken during rain events. We agree that this is appropriate and suspect that even in reports where the rain criterion is not specifically stated, that the restriction on sampling is intended. This should be confirmed and clarified for all programs.

9. As noted previously, we would recommend that upon completion of the field campaign, the industries and MOE reconvene to discuss the actual modelling and model data assessment approach. Each study follows the MOE's current approach, but there may be changes based on the Multistakeholder working group that need to be assessed before the intensive and detailed modelling analysis is undertaken.

We hope these comments help clarify and strengthen the proposed CAMM programs. If you have any questions or need expansion or further clarification, please let me know.



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