Appendix H

Peer Review Comments and Responses

ASHBRIDGES BAY TREATMENT PLANT EMISSION STUDY - PEER REVIEW COMMENTS

A. Summary of Comments

#	Issue/Section	Comment	Reviewer	Action/Response
1	Report organization	The report is thorough and well-organized. It follows logical, generally accepted steps and seems to base all its assumptions on reasonably sound assessments of the information that is readily available.	J. Brook	Acknowledged
2	Process description	The report does not describe in detail all the processes and their associated production and/or activity levels (*i.e.* volume of sludge processed per time) for the reader to make a critical assessment of the scenarios.	B. Van Heyst	Acknowledged
3	Process diagrams	Better diagrams of the plant and other diagrams (e.g. flow diagrams for the four scenarios with discharge points marked) would improve the clarity of the many steps involved.	J. Brook, B. Van Heyst	Block flow diagrams have been prepared by Earth Tech and are now found in Appendix A
4	Scope	Since the report states that the community is concerned about "past and current exposures to pollutants", the reviewer assumed that some form of cumulative effects analysis is the intended use of this report even though the report does not address questions of exposure or risk.	K. McDonald	Risk assessment is not within the scope of the study as reflected in the Letter of Understanding dated July 10, 2001 between the Commissioner of Works and Emergency Services, the Medical Officer of Health and the Signatories of the ABTP Environmental Assessment Mediation Agreement.
5	Section 1.1 statement about "perceived poor air quality".	It is not clear whether this is a documented perception or whether it is hearsay.	K. McDonald	The local airshed has included various industries which the local residents believe have impacted their air quality.
5	Emission scenarios	The four emission scenarios are reasonable analysis points in the time line of the industrial project.	K. McDonald	Acknowledged

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6	Emission sources	Appendix A lists 45 point sources and 15 area sources but gives no connection to the actual processes. In addition, although 12 primary clarifiers are identified in Section 2, only 3 are listed in Appendix A as area sources. Why were the other 9 primary clarifiers excluded? A similar situation exists for the primary aeration tanks in that 12 were identified but only 8 listed as area sources.	B. Van Heyst	Text has been added to report the number of sources on site. The source information has been moved to Appendix B with the Emission Inventory. Appendix A now provides process block flow diagrams. With respect to the Primary Clarifiers, three (3) are open area sources (i.e., Primary Clarifiers 7 to 9) while the remaining nine (9) sources are enclosed. With respect to the primary aeration tanks there are 11 aeration tanks which are covered. These cement covers develop expansion cracks and fugitive emissions have been calculated. Although there are nine tanks with cracks, the area emissions were associated with eight equal area sources covering the tanks. Under the 2010 Scenario (i.e., Scenario 4) these open area sources will be covered and process area treated via the Central Biofilter.
7	Emission inventory calculation	This is useful, but there is no error analysis associated with any of the calculations. The values inserted into the equations necessarily have error bounds (+/- levels) and this would translate into an uncertainty in the emission rate. Some of these numbers are quite large and it would be prudent to understand the uncertainty in these values particularly with those employing direct measurements.	K. McDonald	Error analysis can not be carried out on the data. The direct emission measurements from the incinerator were completed as per MOE requirements for source testing (i.e., 3 tests). The Zorix data were measured data for the odour assessment of the ABTP and were not originally intended to be used for the current study. The water data were based on annual measured values. The Project Team tended to use the maximum value in the measurements. This would tend to make our emission estimates conservative. The remaining emission inventory was developed from US EPA emission factors or other means. The US EPA Emission Factors have associated data quality which is listed in the emission inventory (Appendix B)

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8	Emission inventory calculation	It is noted that volatilization is assumed to be 100. The calculations often stipulate at 20°C, which is not the maximum expected temperature (i.e. summer conditions). Is this a valid temperature to use for the calculations? What is the error associated with these assumptions? Table 4-4 would be enhanced with an estimated uncertainty in the emission rates. What is the effect of increasing the temperature to a realistic maximum value on the emission rates of H_2S? May need to rerun CALPUFF if the emission rates are significantly different.	K. McDonald B. Van Heyst	The temperature of 20°C is the reference temperature of the air flow and not the process. This is a valid temperature since the underlying concentration data were reference to 20°C. The error associated with this assumption is likely insignificant. Kindly see #7 with respect to uncertainty. The Zorix report undertook measurements during 4 seasons. For the modeling we used the maximum emission rate which may or may not have occurred during the summer.
9	Emission inventory calculation	The daily wastewater flow rate appears to be an average value based on an annual quantity rather than a maximum possible daily value (this needs to be verified). Together with the temperature (20 °C) used for calculation, the emission inventory may not be a maximum potential emission inventory. This could directly contradict Conclusion #1 on page 72 and could have a significant impact on the concentrations of H_2S which is between 20% to 70% of its AAQC/POI.	B. Van Heyst	Daily wastewater flows were based on nominal average values as provided by the City. The increase in wastewater flow during a severe rain event would not likely increase emissions as there would be a significant amount of dilution of the wastewater from the sewers. As discussed in #8 the 20°C is a reference temperature for the exhaust air flow not the process. Conclusion #1 originally stated that the inventory was conservative. This has not changed with respect to generating emissions estimates.
10	Sample inventory calculation	Does the measured flux chamber data from the primary tanks 7-9 used in the report represent a maximum emission? There are no details on the flux chamber experiments (*i.e.* flushing flow rate, sludge and air temperatures, etc.) to determine if the measurements represent a maximum emission scenario.	B. Van Heyst	Zorix Consultants provided this information in the background reports. Zorix Consultants are reputable and well-known experts with respect to odour emission acquisition and analysis. The Project Team used the maximum emissions from the flux chamber results whether they occurred during the summer or not.

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11	Sample inventory calculation	The sample calculations for H_2S given in the report are incomplete in that they give a sample calculation for only one source per building. The sample calculations would be greatly enhanced if, for each building, the measured concentrations, flow rates, temperatures, and calculated emission rates were summarized in a table format as well as any other pertinent activity data for each building.	B. Van Heyst	The complete emission inventory as an Excel spreadsheet is provided in electronic form. These data are all available on the spreadsheet. Unfortunately there is no simple means to present the data as requested.
12	Sample inventory calculation (p. 19)	The concentration and emission flux given in the sample calculation (*Ci* = 192.427 μg/m^3 & *Eflux* = 1.68×10-2 g/s) do not match the data provided in the electronic inventory for sources 20A, 20B, and 20C (page: All Sources) as the report seems to imply. What source or combination of sources does the sample calculation represent?	B. Van Heyst	The example provided is for Source 19A, 19B and 19C and the values are correct.
13	Sample inventory calculation (p.20)	A daily wastewater flow rate of 700,000 m^3/day is given but no clarification is given whether this is an average or maximum value.	B. Van Heyst	The 700,000 m^3/day is the normal daily average flow of the ABTP.
14	Emission inventory	The results of emission calculation are highly dependent upon emissions measurements obtained earlier and mostly by another consultant or other approved groups. More information on these data is needed and should be attached in an appendix. A brief critical review of these data would also be valuable. The report also fails to convey how the various pieces fit together.	J. Brook B. Van Heyst	A detailed review of the emission measurements and techniques was outside the scope of work. These reports have been accepted by the MOE and/or the City. The reports are available for review.
15	Emission inventory for low volatility chemicals	The approach used for low volatility chemicals is quite weak. The appropriate fugacity calculation for these compounds could have been used. Otherwise, the results of the modeling are essentially not useful.	K. McDonald	The fugacity has been reviewed and it was determined that the approach taken by the Project Team was reasonable as it provides a conservative upper limit estimate of the plant's emissions. The PAH emissions estimates are the only ones that are problematic using this approach, and the estimates are unrealistic. Further discussion is provided in the report.

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16	Emission inventory determination for PAH	The emissions of PAHs are a significant weakness. The emissions measurements were below the analytical detection limits (DL) and thus assumed concentrations, set at the DL, were used. As well, some potentially unrealistic assumptions regarding PAH release (i.e., all 100% volatile) were used. As a result, the PAH results were discounted. This is where the reviewer has the most significant concern because the PAH air concentration estimates are higher than the pre-determined safe level. No amount of "discounting" is likely to detract from this result. The reviewer suggests revisiting the PAH work, to undertake a more-detailed examination of other possible assumptions for estimating PAH emissions (e.g., include more detail on a compound-by-compound basis, use of other information sources, etc.). Also, sensitivity analyses involving a series of model runs using different PAH emission estimates (e.g., assume PAH<DL concentrations equal ½ of the DL instead of the DL) could be valuable. These improvements could provide a more rigorous basis for conclusions regarding whether or not past, present or future PAH levels are a concern. Secondly, if this re-examination of the PAH emissions and sensitivity analyses do not lead to new model results that can convincingly be shown to be within safe limits by the 4th scenario, a new emissions measurement study should be considered. The latter option is likely unnecessary.	J. Brook	As we have reported the PAH emissions are believed to be overestimated given the assumptions the Project Team has made. The majority of PAH emissions (including B[a]P) were based on the Detection Limits (DLs), so by ½ the DL would also ½ the emissions and subsequently ½ the predicted concentrations. The emission inventory includes all PAH compounds and all compounds are found to be below DLs. As part of our conclusions and recommendations, the Project Team has recommended that PAHs continue to be measured with improved analytical equipment to achieve a DL of better than 2 µg/L of wastewater.
17	Non-detected chemicals	For chemicals below the detection limit, were there any sensitivity runs conducted at half the detection limit?	B. Van Heyst	Sensitivity analysis was not carried out on non-detect chemicals. The emissions are directly related to the detection limits (DL) so by ½ the DL, the emissions would also be halved and subsequently the impact.

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18	Emission inventory	Annual emissions are presented in Table 3-6 in kg/day but no process information is given to determine how the emission rates in g/s were scaled up.	B. Van Heyst	The annual emissions were calculated assuming all emissions occurred 24 hrs per day and 365 days per year. The daily emissions were calculated assuming the emissions occurred 3600 seconds per hour 24 hours per day.
19	Emission inventory	Table 3-6 gives the emissions of Dioxins and Furans on an individual congener basis but does not give the total in terms of I-TEQ (The reviewer is not sure what line #70 in the table means).	B. Van Heyst	This was an oversight and has been added to-Table 3-6.
20	Selection of contaminants of concern (COC)	It appears that the top ranked chemicals in table C-3 became the COC, with the exception of tetrachloroethene. Tetrachloroethene seems to be ranked high, has substantial emission rate and detectable concentration. It is not clear why tetrachloroethene is not included in the list of COC.	K. McDonald	The Project Team chose benzene over tetrachloroethene since the public is more familiar with the chemical name "benzene" and its potential toxic effects. Benzene is classified as a human carcinogen by all credible international agencies. On the other hand, there is no consensus on the evaluation of carcinogenicity for tetrachloroethene, which ranges from "unlikely to be carcinogenic to humans" by Health Canada to "probably carcinogenic to humans" by International Agency for Research on Cancer.
21	Selection of contaminants of concern	The screening methods used to select the contaminants of concern should include odour in the selection criterion. Any additional odiferous compounds (other than H_2S) that are ranked high should also be modelled to determine the impact in the surrounding community, as this effect will generate the most complaints from ABTP neighbours. The one-hour average, the shortest time period that CALPUFF can generate a prediction is too long to determine acute odour effects and may need to be prorated to a 10-minute or shorter averaging time.	B. Van Heyst	Odours were not included in the project scope of work Odour emissions have been addressed in previous work carried out by Zorix Consultants who have developed an odour mitigation plan for ABTP. This odour plan has been contracted by the City for implementation.

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22	Particulates	Much recent work on secondary particulate matter has focused on the chemistry of the $PM_{2.5}$ rather than simply the mass. Is the $PM_{2.5}$ in the area dominated by sulphur or nitrogen? Does it contain organic compounds or metals? This affects the total exposure and cumulative health risk due to $PM_{2.5}$.	K. McDonald	The $PM_{2.5}$ concentrations include direct emissions from the combustion equipment and secondary aerosols formation from SO_2 and NOx concentrations. The $PM_{2.5}$ emissions include all carbon and metal compounds as well as sulphates and nitrates.
23	Particulates	Why was road dust excluded from the inventory?	B. Van Heyst	Road dust represents a very small fraction of the emission inventory. The roads at ABTP are paved and there are very few trucks per day at ABTP. These emissions are significantly less than emissions generated from road traffic along Lakeshore Blvd.
24	Ammonia	How was the assumption for background ammonia concentration at 10 ppb selected? The local concentration of NH_3 could be substantially enhanced due to sources within the wastewater treatment facility and the surrounding area. Since NH_3 is a precursor gas to ammonium sulphate and ammonium nitrate similarly to $PM_{2.5}$, it could also be included in the list of COC. Also the possible higher level of ammonia affects the oxidation rates of other chemicals and production of secondary particulate matter.	K. McDonald B. Van Heyst	The 10 ppb of NH_3 is a default value for CALPUFF which is on the high side. Literature data shows that ambient concentrations of NH_3 range between 2 to 6.5 ppb in an urban environment. The ABTP is not a significant source of NH_3 (< 6 kg/day). The higher the value of NH_3 the greater the generation of ammonium sulphate and ammonium nitrate. In addition, CALPUFF does not reduce the amount of NH_3 available in the atmosphere for acid aerosol formation which will also force the formation to its maximum potential
25	Air quality model	The CALMET and CALPUFF application is the current state-of-the-science and is the best model for modeling over the distance scales considered and when in close proximity of a large body of water. The receptor grid selected likely provides representation of the region of interest. It is noted that the treatment of terrain and lake effects is included in the calculation.	K. McDonald B. Van Heyst	Acknowledged

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26	Meteorology	The climatology of the single year (1996) was selected. There is no comparison with the climate normals to demonstrate how 1996 was unique or different from other meteorological years. Were the annual wind roses in Figure 6-1 similar to the climate normals or was 1996 particularly odd in some way? Selection of a single year for modeling is adequate with some preliminary investigation of the climate; otherwise, a larger set of meteorology (5 years for example) would be prudent.	K. McDonald	A five year data meteorological dataset in the ISCST format was available and reviewed as part of the Zorix Consultant reports. Comparison between the 1996 and the five-year period (1996-2000) shows that the 1996 is comparable to the five-year data set with respect to wind conditions. The year 1996 was selected for modelling as data were already available from a previous project carried out for the City of Toronto A single year of modelling was selected because a single year of gridded CALMET data provides significantly better information on meteorology than other meteorological pre-processors models such as AERMET or PCRAMET. CALMET carries out data assimilation to adjust winds according to local conditions.
27	Meteorology	Was the 1996 meteorological year chosen only because of the existing MM5 data runs or is it deemed a representative meteorological year? Since only one year of meteorological data was used, it is extremely important to understand how 1996 was unique and/or different from other meteorological years in interpreting the predicted concentrations around ABTP, especially during episodic events.	B. Van Heyst	The 1996 year was selected as it was representative of a five year data set (1996-2000) and because MM5 data was available for that year from a previous project.
28	Meteorology	Was the 1996 MM5 run used to interpolate and extrapolate the measured meteorological data from the 5 surface and 2 upper air stations? Very little data is given in the report regarding the generation of the 3-D meteorological wind fields for the chosen year of 1996. Details on how the meteorological field was generated using the MM5 runs at a 108 km grid resolution and 23 pressure (sigma) levels down to a 1 km grid resolution and 8 vertical distance levels using the measured data is not presented in the report and cannot be assessed.	B. Van Heyst	The MM5 data were used as the initial guess of the meteorological fields for the CALMET. CALMET subsequently corrects the meteorological fields based on available local conditions and surface data. Detailed information on the 3-D meteorology was not provided, as the information is voluminous. The application of MM5 with CALMET can be found in the CALMET Users Guide.

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29	Meteorology	The report should obtain meteorological data from one or more of the official observing sites (e.g., Buttonville, Toronto Is.) as the 'on site' data are of questionable quality due to siting. The present comparison of the modelled annual wind pattern and the observed mainly focused quite broadly on the wind direction, and is not highly convincing. A quick glance at the two plots suggests that the model produce stronger winds. How do stronger winds impact upon the predicted ground-level concentrations?	J. Brook	The CALMET model used the Toronto Island and Buttonville station data as part of the data assimilation processes. Comparison to these stations would be biased towards the model. The data at the ABTP were not used in the meteorological modelling and would provide a different data set for comparison. The ABTP data are not suitable for a robust comparison but do offer some confidence that the wind pattern generated by CALMET is reasonable. Upon further review, the wind speeds are consistent when the ABTP winds speed summaries are rotated to the same degree as the wind direction summaries.
30	Meteorology	Validation of the generated 3-D wind field seems to be limited to a comparison of an annual wind rose measured on site (Figure 6-1, page 53). In addition, the measured onsite meteorological data did not meet the quality assurances to include in the meteorological modeling (see second last paragraph on Page 52) and, by the same measure, should not be used to validate the modeled meteorological fields. As the dispersion of any contaminant predicted by CALPUFF is a strong function of the meteorological data, it would be prudent to conduct a more thorough QA/QC exercise of the predicted wind fields.	B. Van Heyst	The Project Team agrees that the onsite meteorological station does not meet the requirements and was not used as part of the meteorological processing. The ABTP onsite station was used as a means of comparison that on an annual average the CALMET model has generated a wind field which is consistent with local conditions.
31	Dispersion modelling	The report should include the details of how the emissions were actually input into the model. For example, how many points of emission were included? What where their heights of emission? How were they placed spatially within the Ashbridges property for the model runs?	J. Brook	These data are provided in Appendix B (previously Appendix A) including UTM coordinates, heights, diameters, exit velocity and temperature.
32	Dispersion modelling results	Is there no fence line monitoring data (as part of a condition of a Certificate of Approval –Air) for some of the modeled contaminants that could be used to assess the model's performance?	B. Van Heyst	Ambient air monitoring is not a condition of the Certificate of Approval. There was no locally measured data for the time periods of interest which would provide suitable information.

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33	Dispersion modelling results	Isopleths of compound concentrations are only given for the 24-hour averaging time. It would be interesting to compare how the 1-hour and 24 maximum isopleths compare.	B. Van Heyst	The presentation of hourly contours was not part of the scope of work. The focus of the study was on health related concerns which require the determination of 24-hr average concentrations rather than an hourly acute concentration.
34	Dispersion modelling result inconsistency	The model results appear to have some inconsistencies that need to be checked carefully and fixed or explained. In general, they are not likely to have a major impact upon the overall conclusions, but they raise some doubt about the modelling effort and the care taken in proof reading the report. Inconsistencies need to be corrected. Where they are real results they need to be explained (i.e., why) as they may shed some light on the weaknesses of models for the uninitiated.	J. Brook	The inconsistencies have been addressed below. These inconsistencies result in a change from the emission profile of the ABTP as well as the addition of structures which influence the transport and dispersion of emissions. The "inconsistencies" are a true reflection of the subtle changes in the wind flow and dispersion around the ABTP.
35	Dispersion modelling result inconsistency	How could NO_x ambient concentrations increase from scenario 3 to scenario 4 (Tables 7-1 and 7-2 and mentioned in the last paragraph of page 68) when Table 3-6 shows identical emissions and the meteorology was identical.	J. Brook	The NOx emissions did not change from Scenario 3 to Scenario 4. The NOx emissions are from the Pelletizer Plant and the Natural Gas Boiler, respectively. In 2004, additional structures were erected which would influence the transport and dispersion of substances around the plant. The change is also apparent in Appendix F when comparing the Scenario 3 and 4 contours. In addition, the receptor grid used in the communities is not regular and changes in the dispersion pattern will generate differing results.
36	Dispersion modelling result inconsistency	In Table 7-1 total PAHs declined from 24 hr to 1 yr for scenarios 1-3 by approx. a factor of 10 more than any of the other COC's listed. In scenario #4 it is in the same "ballpark". In Table 7-2 (South Riverdale) this inconsistency in total PAHs from 24 hr to 1 yr summary statistics is not evident. However, in this table it appears that the columns have been mis-labelled	J. Brook	The PAH emissions are associated with the wastewater which are either directly emitted into the atmosphere (i.e., Scenario 1 to 3) or captured, treated (via biofilter) and released via the stack. The CAC emissions are associated with combustion sources (i.e., boiler). The Beaches community is directly adjacent to the ABTP and will be impacted by low elevation sources more severely and often than the South Riverdale for Scenario 1 to 3. Once the emissions are released via the stack, the impacts are of similar magnitude and consistency.

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37	Dispersion modelling result inconsistency	Emissions for B[a]P in Table 3-6 were estimated to go from 1.4 to 0.35, 0.35 and 0.14 from scenarios 1 to 4. Why aren't Figures 7-2 and 7-3 identical given that the same meteorology was used? How do concentrations increase over areas like the whole northern half of South Riverdale and beyond towards the north? Such changes need to be explained as it could be real due to the emissions being the same or less, but coming from a different location/height at the plant. Figure 7-3 to 7-4 when the emissions decreased by more than a factor of 2?	J. Brook	The dispersion patterns between Scenario 2 and 3 are different because the addition of the Pelletizer Building in Scenario 3 influenced the flow and dispersion conditions around the plant. The Pelletizer Building is a large additional building to the ABTP which has a large radius of influence on sources. The influence was included via the Building Processor Input Program (BPIP) which accounts for building wake effects on elevated sources. The Pelletizer Building has increased the mechanical mixing around the site and increased the rapid spread of substances around the plant. The larger pattern is the result of this change in building configuration.
38	Dispersion modelling result inconsistency	In the Appendix the contour plots for scenario 1 and 2 for hexachlorobutadiene look identical (pages F-23 and F-24) and then in scenario 3 (page F-25) the concentrations increase considerably. The emission changes among the scenarios are not consistent with this.	J. Brook	The hexachlorobutadiene contour plots for Scenario 1 and 2 are different. The change in Scenario 3 is due to the influence of the Pelletizer Building on the local flows and dispersion patterns.
39	Dispersion modelling result inconsistency	For H_2S, when the emissions were the same, the contour plots look the same (page F-27 and F-28), yet for other pollutants (like B[a]P), this was not the case.	J. Brook	The contour plots for H_2S between Scenario 1 and 2 are the same because the configuration of the sources did not change as well as the emissions. Similarly for PAH and cadmium where the emissions are similar and the source configurations have not changed.
40	Dispersion modelling result	The information in Tables 7-1 and 7-2 need more explanation, as they are important. Describe each of the column headings and how these summary statistics were obtained. For example, what is the maximum predicted concentration for a whole year? Is this the concentration at the location with the highest? Are these columns summarizing spatial and temporal variations?	J. Brook	Further information is provided in the text to address this point.

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41	Dispersion modelling results - B[a]P	The selection of B[a]P for the example to include in the main body of the report (Figures 7-1 to 7-4) is surprising. This only serves to draw attention to the weaknesses of its emissions data and the reliability of the results. It would seem to make more sense to show H_2S given that it was the focus of the emissions calculations example.	J. Brook	B[a]P figures have been changed to H_2S figures.
42	Dispersion modelling results - B[a]P	It is not clear why benzo[a]pyrene was selected as the chemical to present in Figures 7-1 through 7-4. As described in the text, the model was handling this chemical very poorly due to some assumptions made. Nonetheless, there is no discussion of these figures in the report itself. The reader is left to develop the conclusions rather than being guided to observe what the authors wish to demonstrate.	K. McDonald	B[a]P figures have been changed to H_2S figures. Additional explanation of the change in contours has also been provided.
43	Dispersion modelling results - B[a]P	Page 68 provides some reasonable evidence that B[a]P predicted for the area around the Ashbridges Bay plant is too high. This is based upon its concentrations at the available observing sites in Toronto, which are all lower than what the model predicted. However, none of the observation sites were near the plant and thus, it is not possible to, beyond a doubt, based upon these data, discount the high predictions. More data from other locations in Ontario that are known to be impacted upon by B[a]P sources may help build this case. As well, other improvements regarding the PAH results, that were discussed above, need to be considered.	J. Brook	Recommendations for future work includes improved testing for B[a]P and PAH's in the various air exhausts using more refined techniques. The measurements at the source will definitively prove whether PAHs are released and at what quantities.

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44	Dispersion modelling results	The full pictorial representations of the modeled concentrations are provided in Appendix F, but there is no discussion of the patterns of dispersion. Rather the discussion focuses completely on the predicted maxima in comparison with guidelines. If there is a need to consider cumulative effects of impacts then the patterns of dispersion and overlaps of those patterns between synergistic chemicals are more valuable in assessing risk than just the maximum point from the combination of inputs selected.	K. McDonald	This has been addressed in the text. A discussion on the dispersion pattern has been provided in revised text.
45	Dispersion modelling results	Those chemicals with graphics only in the appendix are not discussed at all. There is not an adequate discussion of the results of this work and the conclusions about the differences between the locales are not fully supported without such a discussion.	K. McDonald	This has been addressed in the text. A discussion on the dispersion pattern has been provided in revised text.
46	Conclusions	It is not a surprise that the concentrations are lower than the measured levels since other emission sources were not included in the calculations. However, the human receptor is exposed to the sum total of the chemical in the environment and the contribution of the plant to this total has not been fully assessed for either the past or the future within this report.	K. McDonald	Where measured data were available, these data were summed. Table 7-6 and 7-7 present the sum total of 10 of the 17 COCs for Scenario 1 and 2. As the emissions are shown to decline in the future, the exposure of communities to emissions from the ABTP is also expected to decline.

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47	Conclusion #2	The PAH results showing that concentrations are above the Health Benchmark for scenario #4 cannot be simply discounted based upon what is said in this conclusion. Due to this controversial result, a more in depth analysis to produce very solid evidence as to why the PAH results should not be believed, is needed. This also raises an important point: If the PAH results are totally unreliable and/or meaningless, as stated several times in the conclusions alone, then perhaps it would be wise to remove them entirely from the report. Otherwise, unnecessary controversies will potentially arise from what is likely not an issue. If the PAH results are retained then improvements in the report are recommended.	J. Brook	All relevant PAH information has been shown to be below detection limits of instruments. This also includes specific chemical compounds. Recommendations for future work includes improved testing for B[a]P and PAH's in the various air exhausts using more refined techniques. The measurements at the source will definitively prove whether PAHs are released and at what quantities. PAHs can not be removed from the report. PAH/B[a]P were found to be at the top of the COC's and, although the Project Team believes these predicted levels to be ultra-conservative, they cannot simply be erased.
48	Conclusion #4	The depth with which the modelled meteorology is evaluated is not sufficient to state unequivocally that predicted and measured were in agreement.	J. Brook	The comparison between the predicted meteorology and the on-site data was not meant to "unequivocally" show agreement. The information was provided as a means to illustrate some comfort in the predicted wind values.
49	Conclusions	No conclusions are drawn regarding ABTP's changing air emissions with time (going from Scenarios #1 to #4). For example, emissions of H_2S increase from Scenarios #1 to #3 but are drastically reduced in Scenario #4.	B. Van Heyst	The conclusion is that the City's proposed Biofilter project would be an effective means of reducing H_2S emissions as well as other chemicals at the ABTP.

LAST PAGE