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3 March 2009

Mr. Paul Stewart
Senior Planner
Development Services Department
City of Oshawa

Dear Mr. Stewart:

At your request SENES Consultants Limited has reviewed the following documents relating to potential air quality impacts from the proposed FarmTech Ethanol Facility to be located in the area of the Oshawa Harbour in Oshawa, Ontario:

1. Jacques Whitford (2008): Final Report – Screening-Level Air Quality Study – Proposed FarmTech Ethanol Facility, Oshawa, Ontario. Project Number 1032146, 23 January¹;
2. Jacques Whitford (2008): ESDM Report – FarmTech Ethanol Facility. Project Number 1039824, main body of report with no supporting appendices, 30 July²;
3. MOE (2007): Amended Certificate of Approval (Air) for Suncor Energy Projects Inc. Ethanol Production Facility, St. Clair Township, County of Lambton. Number 4678-72RLJW, issued 17 November;
4. Richard D. Lindgren (2008): Cover letter and comments from Friends of Second Marsh to MOE concerning FarmTech Energy Corporation: Application under Section 9 of the Environmental Protection Act for Certificate of Approval (Air and Noise), EBR Registry No. 010-4338, 10 September;
5. Joe Marion (2008): E-mail to Mike Leonard and Paul Stewart with subject line “files about ethanol”, 12 August at 12:34 AM;
6. Louis Bertrand (2008): E-mail to clerks with subject line “Application by FarmTech Energy for ethanol plant”, 17 June at 9:36 PM;
7. The Honourable David Crombie (2008): Recommendations for the Future of Oshawa Harbour. Downloaded from www.tc.gc.ca/programs/ports/crombie.htm, 21 February;
8. Mark Mattson (2008): Cover letter and comments from Lake Ontario Waterkeeper on EBR #010-4338 Application, 10 September;

¹ Superseded by a more recent version on February 28, 2008

² This peer review by SENES is based on this ESDM report, that was also submitted to support an Application for a Certificate of Approval to the Ministry of the Environment

9. Sections 2.15, 3, 4 and 38(A) of the City of Oshawa Zoning By-law outlining definitions of various land uses;
10. J.L. Richards & Associates Limited (2008): FarmTech Ethanol Plant Oshawa Ontario – Traffic Impact Study. Project Number JLR 22221-5.5, March;
11. Macaulay Shiomi Howson Ltd. (2005): City of Oshawa Harbour Road Land Use Study – Background Review and Analysis. Prepared in association with SENES Consultants Limited, Brook McIlroy Inc., R.V. Anderson Associates Limited and Hemson Consulting Ltd., November;
12. UMA Engineering Ltd. (2006): Environmental Screening Report – Oshawa Harbour Rail Spur. Section 3.3.2 Air Quality of a report dated 4 April;
13. OMB (1996): Decision re James Dick Construction Limited appeal under subsection 34(19) of the Planning Act, R.S.O. 1990, c. P.13 against Comprehensive Zoning By-law 60-94 of the City of Oshawa. File number R940316, 9 December;
14. Lori Podhorsky (2007): Summary of Literature Review of Potential Human Health Impacts of Ethanol Production Facilities in Populous Areas. Prepared by Managing Director of Protectors of Air and Water Resources, publication reference not stated in material, 28 September.
15. J.L. Richards & Associates Limited (2008): FarmTech Ethanol Facility Screening Level Environmental Assessment Report. Volume 1: Report, Section 4.4 Atmospheric Environment, pages 57-59, Project JLR 22221-08, 5 August; and
16. FarmTech (2008): Drawings L1, SP-1 and FP 1 dated August.

The documentation reviewed covers two significantly different areas – (1) an Environmental Assessment (EA) and (2) an application for a Certificate of Approval (Air) (C of A). The EA material was at a very high level with few details and the C of A is very detailed. The details in the C of A leave questions about things that were missed in the EA. These are commented on in each relevant section below.

SENES Consultants Limited has the following concerns and comments listed under three major headings – Further Analysis Needed, Further Clarification Needed and General Comments. In addition, in order for the municipality to make an appropriately informed decision on the proposed ethanol plant, the questions and issues raised below need to be addressed.

FURTHER ANALYSIS NEEDED

1. Cooling Towers, under certain meteorological conditions, produce visible plumes that can shadow, fog or interfere with sight lines and/or cause icing on nearby roads and structures. There has been no analysis of this particular impact on viewing lines for the Second Marsh or on local roads (including the major Highway 401). At a minimum, the Season Annual Cooling Tower Impacts (SACTI) model, or its equivalent, should be used to assess the shadowing, visibility reduction and icing potential of the cooling towers

- proposed as part of this facility. This was verified for the Sarnia Facility (one of similar size to the proposed FarmTech Facility in Oshawa) by Mr. Don Hayes, former MOE Environmental Officer for the Sarnia District, who reported that excessive water vapour could reduce visibility and create icing on nearby roads. *While emissions from the cooling towers have been dealt with extensively in the C of A application, the potential for fogging and icing has not been dealt with in the EA.*
2. There has been no assessment of the impact of trucks manoeuvring on site which according to the traffic study may be significant (18 trucks in or out per hour for a 16 hour working day – this is approximately one truck movement every 3 minutes). Add to this, approximately 50 employees and their vehicles means on average an additional 6 vehicles/hour for a grand total of 24 vehicles per hour or one vehicle movement every 2.5 minutes. If the trucks are scheduled to arrive over an 8-hour shift (as stated in the Traffic report), there will be on average a vehicle movement every minute of those eight hours. This source of PM fugitive emission must be added to the modelled assessment of the contribution to provide an assessment of cumulative impact. It does not appear that the proponent has analyzed the combined impact of particulate matter emissions from the proposed facility, onsite truck traffic, unloading and marine vehicle emissions at the port dock, the James Dick Aggregate Distribution Centre and the McAsphalt Facility all of which are located in the same area. In addition, the transboundary flow of PM from the USA across the lake will make up part of the background contribution. Data from the nearest MOE air quality monitoring station could be used as an estimate of the background levels. It is the author's opinion that one of the PM Ambient Air Quality Criteria might be marginally exceeded along the Nature Trail. Some perspective is needed on this as Highway 401 will also be a significant contributor to the PM loadings in this area. In general, the total dust loading onto the Second Marsh has not been assessed or put into perspective with respect to dust emission from Highway 401. One of the articles reviewed suggested that organic dust loading into Second Marsh from the operation may be an issue but this also has not been addressed. The reviewer believes that the use of AERMOD is appropriate for this assessment so long as all sources have been considered (which they have not to date). A C of A application only needs to address truck movements if there are metals present in the dust on the roads but the EA is required to look at the cumulative impact which includes the truck movements and background pollutant loadings. *The municipality needs to understand the impacts of dust and other airborne/aerosol contaminants on adjacent sites (e.g., the Second Marsh) containing existing and/or potential sensitive land uses, including cumulative impacts from all industrial/transportation activities associated with the proposed facility and surrounding area.*

3. FarmTech's Screening Level Noise Study (dated February 28, 2008) and the ESDM report (dated July 30, 2008) both reference various documents used to prepare the air quality reports. However, no reference is made to adherence to the *Environmental Assessment Guidelines for Screening Level Assessments of Ethanol Projects under the Canadian Environmental Assessment Act*, produced by Agriculture and Agri-Food Canada in April 2007. Considering that the subject lands are under the ownership of the Oshawa Harbour Commission (a federal body), and that various project components (ship unloading baghouse, silos, conveyors) are located on Crown lands at the Federal Oshawa Harbour Commission site, it is recommended that the federal guidelines should be used as a companion assessment document, in coordination with provincial guidelines and requirements.
4. For the purpose of assessing the impact through the use of pollutant dispersion modelling at discrete residential receptors, it is suggested that the receptor elevation be raised to a sufficient height to account for persons on decks/balconies or open second-floor windows of two-storey dwellings.
5. The MOE Land Use Compatibility Guideline, also known as Guideline D-1, is intended "to prevent or minimize the encroachment of sensitive land use upon industrial land use and vice versa due to possible adverse effects on sensitive land use created by industrial operations."

As outlined in the Guideline, adverse effects may be related to:

- (a) noise and vibration;
- (b) visual impact (only for landfills);
- (c) odours and other air emissions;
- (d) litter, dust and other particulates; and
- (e) other contaminants.

Guideline D-6, which is entitled *Compatibility between Industrial Facilities and Sensitive Land Uses*, is a direct application of Guideline D-1. Guideline D-6 classifies industrial facilities based on the nature of the activities that would be expected to occur.

In these Guidelines, the MOE defines sensitive land uses as:

"A building, amenity area, or outdoor space where routine or normal activities occurring at reasonably expected times would experience 1 or more 'adverse effects' from contaminant discharges generated by a nearby facility. The sensitive land use may be part of the natural or built environment. Depending

on the particular facility involved, a sensitive land use and associated activities may include one or a combination of:

(a) residences or facilities where people sleep (e.g. single or multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc. These uses are considered to be sensitive 24 hours a day;

(b) a permanent structure for non-facility related use, particularly of an institutional nature (e.g. schools, churches, community centres, day care centres);

(c) certain outdoor recreational uses deemed by a municipality or other level of government to be sensitive (e.g. trailer park, picnic area, etc.);

(d) certain agricultural operations (e.g. cattle raising, mink farming, cash crop and orchards); and

(e) bird/ wildlife habitats and sanctuaries”.

The use of the Trail along the Harbour and the Second Marsh fall within the specifications in this list.

The preferred approach for minimizing impacts between differing land uses is through the use of buffering and adequate separation distance between industrial facilities and sensitive land uses. Guideline D-6 specifies a minimum recommended separation distances and potential impact areas between industrial facilities and sensitive land uses, as presented in Table 1:

Table 1: Minimum recommended separation distances in Guideline D-6

| Industrial Class | Minimum Recommended Separation Distance to Sensitive Land Uses (m) | Potential Impact Area for Sensitive Land Uses (m) |
|-------------------------|---|--|
| Class I | 20 | 70 |
| Class II | 70 | 300 |
| Class III | 300 | 1000 |

These distances are typically measured from property line to property line. Mitigation measures may be employed to reduce the potential impact area and/or minimum recommended separation distances.

Figure 1 is SENES Consultants Limited’s assessment of the D-6 rank of FarmTech Ethanol based on our understanding of the process. This means that the suggested separation distance from sensitive uses should be between 70 and 300 metres. The proponent should indicate as part of their

Figure 1: Assessment of the D-6 Industrial Class of FarmTech Ethanol

Industrial Categorization

OVERALL Rank = 2

Overall Category Rank = 1

Overall Category Rank = 2

Overall Category Rank = 2

Overall Category Rank = 3

| OUTPUTS | | RANK | SCALE | | RANK | PROCESS | | RANK | OPERATION/INTENSITY | | RANK |
|------------|--|------|---------------|--|------|-----------|---|------|---------------------|--|------|
| Noise | | 2 | Storage | | 2 | Contained | | 1 | Time of Day | | 3 |
| 1 | none audible off property | | 1 | no outside storage | | 1 | self contained plant or building producing / storing packaged product | | 1 | daytime operations only | |
| 2 | occasionally audible off property | | 2 | outside storage permitted | | 2 | open process with periodic outputs of minor annoyance | | 2 | shift operations permitted | |
| 3 | frequently audible off property | | 3 | outside storage of raw and finished products | | 3 | open process with frequent outputs of major annoyances | | 3 | daily shift operations permitted | |
| Dust/Odour | | 1 | Production | | 3 | Fugitives | | 3 | Movement Frequency | | 3 |
| 1 | infrequent and not intense | | 1 | small production levels | | 1 | low probability | | 1 | infrequent movement of products and/or he trucks | |
| 2 | frequent and occasionally intense | | 2 | medium level of production allowed | | 2 | medium probability | | 2 | frequent movement of products and/or he trucks but most during daytime hours | |
| 3 | persistent and/or intense | | 3 | large production levels | | 3 | high probability | | 3 | continuous movement of products and employees | |
| Vibration | | 1 | Physical Size | | 2 | | | | | | |
| 1 | no ground-borne vibration on plant property | | 1 | small | | | | | | | |
| 2 | possible bround-borne vibration on property but not off | | 2 | medium | | | | | | | |
| 3 | ground-borne vibration perceived frequently off property | | 3 | large | | | | | | | |

| |
|------------------|
| SOURCE NAME |
| FarmTech Ethanol |



submission how the compatibility issues, between this industry and sensitive uses around the facility, are being addressed. This should have particular reference to the Second Marsh (a Provincially Significant Wetland [PSW] and Area of Natural and Scientific Interest [ANSI]) which abuts the land to the west.

6. In light of the discussion under Item 5 above, it is recommended that other types of sensitive, non-residential existing and permitted land uses in proximity to the subject lands be assessed as receptor locations (e.g., other trail segments within the Second Marsh, the segment of the Waterfront Trail running along the unopened Harbour Road right-of-way, surrounding sites that permit churches, day care facilities and/or recreational uses, and the marina basin (particularly in light of the fact that marinas can be host to seasonal or year-round residential occupation on boats)) in order to gauge potential 'adverse effects' on such uses.
7. As the Wind Rose Plot (Figure 5-11 of the ESDM Report dated February 28, 2008) demonstrates, almost one third of winds have an easterly component, in the direction of the city. Therefore, an analysis of impact of an ammonia or chemical release should be undertaken to assess the risks to the residential areas to the west of the proposed facility and south of the city.

FURTHER CLARIFICATION NEEDED

1. It appears that the proponent has not properly analyzed the impact of odour on the Nature Trail in that the points selected (POR7, POR8, POR9 and POR1) appear to be west of the actual trail location. However, even had they been located correctly, it is the authors opinion (based on worst case odour modelling using the SCREEN3 Model) that the conclusions reached would be no different on the actual trail itself since the closest receptor appears to be about 300 metres from the sources of odour. There remains, however, some confusion in the documentation as Figure 7-4 of the ESDM Report shows odour to be above 1 OU/m³ for a significant portion of the Trail as it passes north of the proposed site. It is important for the municipality to understand any and all potential impacts when assessing the planning application.
2. A discussion with Mr. Don Hayes, former Environmental Officer for the MOE's Sarnia District, suggests that some more information is needed about how red dogs (skin from corn cobs) will be handled as they can accumulate, rot and generally create a nuisance impact for neighbours.

3. Some of the documents reviewed refer to contaminated soil in the general area of the proposed development. The possibility of encountering contaminated soils and their contribution to air quality loadings within the Second Marsh during construction needs to be clarified.
4. The Traffic Study mentions that a conveyor system is planned for along the South Access Road connection between the Oshawa Harbour and the proposed Ethanol Plant. There is no documentation on the use of dust control at drop points along this conveyor between the grain storage silos located on the Harbour site to a grain receiving building on the proposed Ethanol site. Nor do emissions from such a facility seem to have been considered in the dust analysis presented. *Again while this does not need to be part of the C of A for the FarmTech property, it does need to be considered as part of the cumulative impacts in the EA documentation to assist in understanding all relevant impacts when assessing the planning application.*
5. The ESDM Report has used the MOE screening level regional meteorology for its assessment. The concern expressed by Friends of Second Marsh about the applicability of this regional data set to a shoreline location has some merit in that one might expect a larger proportion of land-lake flows due to the water-land interface driving summer lake breeze flows. While this difference in frequency of winds may lead to slightly different modelling results, it is doubtful that any significant changes in the predicted short term air quality impacts would be found. It would be useful, however, if the proponent could assess the possible changes in wind direction frequency that would occur near the lake in order to assess the long term loading of dusts to the Second Marsh.
6. The ESDM Report claims that fugitive road dust and fugitive PM process emissions are insignificant but the documentation offers no proof for that statement. Some proof needs to be documented to support this claim. Adding up all of the PM emissions (excluding background and truck plus other sources) gives 42 tonnes per year (mostly from the baghouses and dryers) and this is significant. *This applies to both the EA and the C of A application.*
7. Under the 'Executive Summary' of the ESDM report (and Table 7-3, Odour Emission Summary), Receptor 7 is the location having the maximum predicted ground-level concentration for odour (at 0.95 OU/m³). As Receptors 1, 8, 9 and 7 are all clustered northwest of the subject lands, with Receptor 7 being the furthest away yet apparently having the highest ground-level concentration for odour, it is requested that an explanation be provided

by the proponent to account for this result, when it is expected that the furthest of a cluster of receptors to have the least concentration of odour.

8. Section 1.3, Description of Products and Raw Material, of the ESDM report indicates that wet cake is an interim process condition, and would only accumulate as a result of an upset condition when the drying equipment is not functioning. The wet cake would be transferred to an outdoor concrete storage pad referred to as the wet cake pad, where it is intended to accumulate for no longer than 72 hours in order to minimize potential odour emissions.

However, Section 2.2, Process Description, of the Acoustic Assessment Report indicates that the facility will produce ethanol and both wet and dry distillers grains as a by-product. Accordingly, the question arises as to whether wet cake is in fact intended to be shipped out as a by-product, or FarmTech retains this option open should there be an identified market demand for wet cake. If so, then use of the wet cake pad for storage purposes could be anticipated as a regular occurrence. In light of the fact that that truck deliveries are scheduled for only 4.5 days/week (as indicated in Section 4.0, Trip Generation, of the January 2008 Traffic Impact Study), accumulations of wet cake over the remaining 2.5 days could be expected. It is equally conceivable that some portion of the stored wet cake might remain on the wet cake pad in excess of 72 hours before being shipped.

In light of the above, it is suggested that clarification be provided in this regard. Should wet cake be proposed as a by-product to be shipped out, further odour analysis should be undertaken. In addition, an explanation is requested as to why 72 hours is used as a specific threshold number for the storage of wet cake, beyond which it is implied that wet distillers grains become particularly noisome in terms of odour.

9. The facility proposes to use anhydrous ammonia to elevate the pH of the slurry. Is FarmTech going to follow the new May 2008 Anhydrous Ammonia Code of Practice?
10. Table 6-1, Modelling Source Summary, contained in the ESDM report identifies the heights of various process components. However, for certain components, the March 2008 Planning Report indicates different heights (e.g., 13.72 m for the cooling tower as per the Planning Report, but only 9.5 m as per the ESDM report). Confirmation as to the actual heights of the various process components is required, together with any necessary updates to the ESDM report.

GENERAL COMMENTS

1. Based on a review of public comments from the MOE for other Ethanol Facilities across Ontario, it appears that the public have more concerns with the perceived potential air quality and noise impacts but that those complaints are significantly reduced when such facilities apply to expand. Ethanol production processes vary in their noise, odour emissions and control measures. Suncor Energy Products, an ethanol production facility near Sarnia that has a similar process and capacity to the proposed FarmTech Plant, did not receive any major noise or odour complaints since its commissioning nor when they applied for an extension in 2007.
2. A discussion with Mr. Don Hayes, former Environmental Officer for the MOE's Sarnia District indicates that there have not been public complaints about the Sarnia Plant (which is similar in size and technology to the proposed FarmTech Facility) and that the odour management there has been very good. He advised keeping the design and location of equipment flexible so that they could be moved to improve sound abatement. It should be noted that the proposed ethanol plant in Oshawa is similar to the plant in Sarnia as they both use a dry mill process, whereas the plant in Collingwood (which has caused some public concern) uses a different wet mill process.
3. The Lake Ontario Waterkeeper submission raises "coastal fumigation" as an issue not covered by FarmTech. This concern has also been raised by Friends of Second Marsh. While it is true that coastal fumigation was not addressed by FarmTech and that coastal fumigations can and do occur, a pre-requisite for impacts from such a fumigation requires that a plume be emitted into the stable air coming from the lake and then, while blowing inland, intersect the Thermal Internal Boundary Layer (TIBL) created by the shoreline. If this happens the unstable air beneath the TIBL will rapidly bring pollutants in high concentrations to ground level. A preliminary calculation by the reviewer indicates that stacks with emission plumes are located about 500 metres in from the shoreline. At that distance the height of the TIBL would range in height from 61-125 metres. Since the tallest stack identified in the FarmTech submission is 9 metres and even assuming a doubling of that for heated lift of the plume, all emissions from the proposed Ethanol facility will be well within the TIBL and be subject to unstable to neutral stability mixing quickly diluting the emissions plume. It is the reviewer's assessment that "coastal fumigation" will not affect the plumes from the proposed Ethanol Plant.
4. Based on our professional experience with the Certificate of Approval process and having reviewed the Sarnia plant documentation, it appears that the MOE is capable of being quite diligent in addressing community concerns by

- adding annual audits and checks as part of the CofA conditions. However, the experience of other ethanol facilities elsewhere in the Province (e.g., Collingwood) demonstrates that problems can still arise and the CofA process can benefit from the active involvement of the local municipalities by identifying issues and providing input (including in some cases additional expert opinions obtained through Peer Reviews).
5. Our review of Reference paper #14 shows no direct link to ethanol plants through measurements downwind but rather an impact of exposure to farm dusts. It is our opinion that the level of exposure (if any) will be significantly less at an ethanol plant as the unloading is proposed to be indoors under controlled conditions. It is highly unlikely that any dust or bioaerosols would be emitted and certainly would not reach levels experienced by grain handlers or farmers.

Until the issues raised in this letter have been addressed, we are unable to confirm whether or not the documentation submitted by FarmTech is sufficient to demonstrate that the proposed ethanol plant will have no negative air quality impacts on the surrounding area.

Report prepared by:

James W. S. Young, Ph.D., P.Eng.
Manager, Kincardine Office and Senior Air Quality Specialist
SENES Consultants Limited

Signed: _____



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15 March 2010

Mr. Tom Goodeve
Manager of Policy
Planning Services
City of Oshawa
50 Centre Street South
Oshawa, Ontario L1H 3Z7



Dear Mr. Goodeve:

At your request SENES Consultants Limited has reviewed the following documents relating to potential air quality impacts from the revised proposal for the Farmtech Ethanol Facility to be located in the area of the Oshawa Harbour in Oshawa, Ontario:

1. Application for a Certificate of Approval (Air and Noise) prepared by Stantec Consulting Limited, dated 27 November 2009. This documentation consists of the following parts:
 - a. Attachment 1 – Application for Approval (Air and Noise);
 - b. Attachment 2 – Supporting Information Worksheet Supplement to Application for Approval, EPA s.9;
 - c. Attachment 3 – Cost for EPA s.9 Applications Supplement to Application for Approval;
 - d. Attachment 4 – Supporting Administrative Information;
 - e. Attachment 5 – Acoustic Assessment Report;
 - f. Attachment 6 – Emission Summary and Dispersion Modelling Checklist and Report;
 - g. Appendix A – Zoning Maps and Site Plan;
 - h. Appendix B – Facility Source Sound Level Data and Manufacturer's Specifications;
 - i. Appendix C – Model (CADNA/A) Input and Output Data
 - j. Appendix D – Predicted Noise Contour Plots;
 - k. Appendix B1 – Process Description and Associated Figures;
 - l. Appendix A – Zoning Map for Site and Surrounding Area;
 - m. Appendix B – Process Information;
 - n. Appendix B2 – Key Process Equipment Description;
 - o. Appendix C – Assessment of Significance Supporting Information;

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- p. Appendix D – Emission Rate Calculations and Supporting Information;
 - q. Appendix D1 – Emission Rates and Supporting Information Provided by ICM;
 - r. Appendix D2 – Emission Rate Calculations;
 - s. Appendix E – Receptor and Property Line Data;
 - t. ESDM Section 2 – Initial Identification of Sources and Contaminants;
 - u. ESDM Section 3 – Assessment of the Significance of Contaminants and Sources;
 - v. ESDM Section 4 – Operating Conditions, Emission Estimates and data Quality;
 - w. ESDM Section 5 – Source Summary Table and Site Plan;
 - x. ESDM Section 6 – Dispersion Modelling;
 - y. ESDM Section 7 – Emission Summary Table and Conclusions;
 - z. ESDM Section 8 – Additional Analysis;
 - aa. ESDM Section 9 – Conclusions;
 - bb. Appendix F – Sample BPIP Input and Output Files;
 - cc. Appendix G – Sample AERMOD Input File;
 - dd. Appendix H – Cooling Tower Visible Plume Calculation;
 - ee. Appendix I – Odour Management Plan;
 - ff. Attachment 7 – Supporting Information for maximum Ground-Level Concentration Acceptability Request; and
 - gg. Attachment 8 – Electronic Version of Application Package and Modelling Files; and
2. SENES Consultants Limited letter of opinion addressed to Mr. Paul Stewart, dated 3 March 2009. This letter addressed a number of areas requiring further analysis, clarification or comment in order that the municipality would have the required information to make an informed decision.

COMMENTS

The only document supplied to the city is the application for a C of A documentation listed above. This type of documentation does not consider the cumulative effect of adding this facility into an existing Airshed but rather the incremental impact that the particular facility will have. Since the City of Oshawa needs to make an informed decision based on the cumulative impacts of new facility along with existing industry and other uses, other supporting data is needed. The ESDM itself is not sufficient for the City to decide on the significance of the impact of the proposed Farmtech facility but is rather the last step in formal approval of the facility by the MOE.

1. Appendix B2 identifies the need for a Dust Management Plan for fugitive emissions but no plan is provided. This plan will be crucial in ensuring that dust from the operation is controlled. The Dust Management Plan is particularly important for on and off-site (cumulative) dust control.
2. Appendix B2 also states that the scrubber will operate 8760 hours/year or 365 days/year. This is in conflict with the design days quoted of 353 days/year (Acoustic Assessment

Report page 4 and Section 1.5 of the ESDM Report). Since the analysis was done for 365 days/year, this means that the emissions on the short term may have been underestimated since all of the emissions really occur in 353 days and not 365 days. This can be seen in Sections 4.2.4 through 4.2.5 of the report. Therefore all concentration values presented will be underestimates of the true values by 3-4%.

3. Appendix D1 uses the Buffalo NY average atmospheric pressure of 14.37 psia in the TANKS model simulation which is equivalent to 99.1 kPa. The closest airport observation is actually at Trenton ON where the average atmospheric pressure is 100.6 kPa. This will introduce a small but likely insignificant error in estimating emissions.
4. In Section 3.0, while 15 sources have been identified as insignificant using the MOE approach, if the VOCs, for example, from the tanks (1.6%), the fugitive sources (2.9%) the flare (0.9%) are combined, 5.4% of the VOC emissions have not been considered in the simulations. These small emissions will contribute to the overall cumulative impact.
5. Section 3.1.4, the MOE have recently been requesting that start up, shut down and emergency situations be considered when assessing a facility for contaminants that have a short term effect. It is not apparent whether this was taken into account and is not discussed in the document. This means that the worst case condition involving wet cake should be part of the sources considered.
6. Figures 7-1, 7-2 and 7-3 underestimate the actual concentrations of pollutants that will occur in the Airshed as no background concentrations were considered. This is particularly important for acrolein which according to Table 7.2 is at 80% of the ½ hour standard.
7. For particulate matter, the proponent has chosen to look at Total Suspended Particulate (TSP) which is a nuisance dust issue rather than PM₁₀ or PM_{2.5} both of which can impact health. While there is an O.Reg 419 standard only for TSP there are guidelines for both PM₁₀ and PM_{2.5}. It is vital that the concentration contour for one of these two parameters be calculated and plotted in a figure similar to Figure 7-3 so that the Municipality can make an informed decision based on true impacts. It is also interesting that Appendix D1 shows PM₁₀ emissions from this type of process are in the fine fraction with 51 out of 85 tons/year being PM₁₀. Since no calculation for road emissions is presented and the estimated TSP emissions are 40.22 tons/year, the PM₁₀ part of that is nominally 50%, or 20.11 tons/year, and not 7.85 tons/year as presented in Appendix D1. Correcting the total in Appendix D1 gives a total PM₁₀ emission rate of 63 tons/year. If we prorate the maximum modelled TSP concentration of 41 µg/m³ by 63/85 we get a maximum predicted value of 31 µg/m³ for PM₁₀. Add a typical 90th percentile background value of 20 µg/m³ for PM_{2.5} from the MOE 2005 measurements at the Oshawa, and double it to get a representative background PM₁₀ 90th percentile value, gives a maximum predicted

PM₁₀ concentration in the community of 71 µg/m³ which is significantly above the MOE PM₁₀ Interim standard of 50 µg/m³.

8. SENES also notes that the 90th percentile background TSP concentration ranges from 45-74 µg/m³ on a 24-hour average according to Table 8-1. If we use the maximum predicted concentration of 41 µg/m³ (Table 7.2) this means that the TSP nuisance dust levels are at best going to double in the area and at worst going to be nearly at the standard of 120 µg/m³. Even the proponent's Table 8-2 shows an exceedance of the 24-hour TSP standard. And the proponent identifies 37 days over 5 years when this exceedance may occur, which is over 1 week per year or about 2% of the time. This assessment does not account for trucks and employee vehicle traffic which has been excluded from the calculations. As outlined in SENES' previous assessment, the combined effect of the new facility along with unloading and loading marine vehicles, the James Dick Aggregate Distribution Centre, McAsphalt and Highway 401 could easily put the TSP levels above the standard for a significant portion of the time. *Failing a proper analysis of the combined impact, SENES recommends that a monitoring program at three locations needs to be established for the period of one year to ensure that the TSP standard is being met.*
9. As pointed out in SENES' first review, Figure 7-4 shows two large areas that are in excess of the 1 OU/10-minute odour criteria along the Nature Trail. One of these areas is where the Trail passes along the northern border of the Farmtech property and the second is where the Trail crosses the north part of the Second Marsh. Although this was pointed out in SENES' first review, it has not been addressed in this report. The proponent's statement that "All predicted maximum concentrations are less than their applicable limits or screening levels" has not been demonstrated for odour.
10. In its first review SENES outlined the possibility that a visible plume might occur as a result of cooling tower emissions. The proponent has addressed this and their report indicates that any visible plume should stay on the property.
11. The odour complaint validation procedure seems to be arbitrary and at the plant personnel's whim at the moment. That is not an acceptable procedure.
12. While 1.5 metres has been added to the sensitive receptor heights to account for a person standing in those locations, no attempt has been made to simulate the impact at other reasonable points-of-impingement such as decks and/or balconies or open second storey windows of two-storey dwellings.
13. The MOE Land Use Compatibility Guidelines applies to uses along the Nature Trail but the proponent has not satisfied the requirement for either sufficient separation from the property line or proof that the people walking the Trail will not be affected. In fact the odour analysis shows two large areas on the Trail that exceed the odour and perhaps even the PM guidelines. The proponent has still not shown how these compatibility issues will

be addressed. The recommended approach that SENES outlined in its previous assessment has not been addressed.

14. There is no discussion of how “red dogs” will be handled by the proponent.
15. There is no discussion of how contaminated soil will contribute to air quality loadings.
16. The Traffic Study mentions that a conveyor system is planned for along the South Access Road connection between the Oshawa Harbour and the proposed Ethanol Plant. There is no documentation on the use of dust control at drop points along this conveyor between the grain storage silos located on the Harbour site to a grain receiving building on the proposed Ethanol site. Nor do emissions from such a facility seem to have been considered in the dust analysis presented. *While this does not need to be part of the C of A for the Farmtech property, it does need to be considered as part of the cumulative impacts in the EA documentation to assist in understanding all relevant impacts when assessing the planning application.*
17. There is still no discussion of the use of Anhydrous Ammonia and whether or not the May 2008 Code of Practice will be followed.

Until the remaining issues raised in this review have been addressed, we are unable to confirm that the documentation submitted by Farmtech demonstrates that the proposed ethanol plant will have no negative air quality impacts on the surrounding area.

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Signed: _____

