

SUMMARY OF COMMENTS / RECOMMENDATIONS

PROPONENT: Motor Coach Industries Limited
PROPOSAL NAME: Motor Coach Industries
CLASS OF DEVELOPMENT: CLASS 1
TYPE OF DEVELOPMENT: Manufacturing Plant
CLIENT FILE NO: 4777.00

OVERVIEW:

A proposal, prepared by Morrow Environmental Consultants Inc., was filed May 27, 2002, by Mr. Kevin Smith of Motor Coach Industries Inc., for expansion to and continued operation of an existing development located at 1475 and 1499 Clarence Avenue in the City of Winnipeg. A request was made at this time, for the issuance of a Preliminary Steps Environmental Act Licence.

The development involves the manufacturing and finishing of motor coaches. Production processes involve motor coach frame manufacture and assembly, application of coatings for corrosion protection, motor coach frame/body assembly, undercoating, application of finish coatings, installation of drive trains and engines, testing of power systems, and road testing of finished motor coaches. There is a potential for emissions of particulate matter; primer and base/top coating vapours and particulates; solvent vapours; and noise. Normal operation will be from Monday through Friday with some processes operating 24 hours per day. There is a possibility of extended hours of operation depending on increased demand for product.

The Department provided the Technical Advisory Committee with information on the Proposal and made public notification in the Winnipeg Free Press. The closing date for comments was June 14, 2002.

STEP 1

COMMENTS FROM THE PUBLIC

No comments were received from the public.

No response necessary.

Disposition: No action needed.

RELEVANT COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

1. Manitoba Culture, Heritage & Citizenship – Historical Resources Branch – has no concerns.

No response necessary.

Disposition: No action needed.

2. Manitoba Industry, Trade and Mines – Petroleum Branch – have no concerns.

No response necessary.

Disposition: No action needed.

3. Manitoba Industry, Trade and Mines – Industry & Trade – did not respond.

No response necessary.

Disposition: No action needed.

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4. Manitoba Intergovernmental Affairs – did not respond.

No response necessary.

Disposition: No action needed.

5. Manitoba Conservation – Sustainable Resource Management Branch – Environmental Stewardship Division – has no comments/concerns regarding the proposal at this time. They wish to review additional information as it is submitted.

Disposition: No further action required.

6. Canadian Environmental Assessment Agency – responded that the application of the *Canadian Environmental Assessment Act* with respect to the project will not be required.

No response necessary.

Disposition: No action needed.

7. Manitoba Agriculture – Soils and Crops - Soil Resource Section – did not respond.

No response necessary.

Disposition: No action needed.

8. Manitoba Highways and Transportation - Highway Planning and Design – has no concerns with this project.

No response necessary.

Disposition: No action needed.

9. Manitoba Health - Public Health - Environmental Unit – Winnipeg Regional Health Authority – responded that depending on the the additional information to be submitted and reviewed, there could be potential concerns regarding the air quality, noise levels, and potential increased traffic volume in a park and residential area, and the potential to release hazardous materials.

No response necessary.

Disposition: As additional information is submitted by the proponent, it will be forwarded for review and comment.

PUBLIC HEARING:

Public Hearings were neither requested nor convened.

RECOMMENDATIONS:

A Licence considering the above relevant concerns as well as those of the Approvals Branch be prepared and issued. Responsibility for enforcement of the Licence be retained by Approvals Branch.

ACTION:

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Preliminary Steps Environment Act Licence No. 2561 PS was issued on July 11, 2002.

STEP 2

Additional information regarding the Development was submitted December 24, 2002.

The Department provided the Technical Advisory Committee with the additional information on the Proposal and made public notification in the Winnipeg Free Press. The closing date for comments was February 10, 2003. The following summarizes the responses:

COMMENTS FROM THE PUBLIC

No comments were received from the public.

No response necessary.

Disposition: No action needed.

RELEVANT COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

1. **Manitoba Culture, Heritage & Citizenship – Historical Resources Branch** – has no concerns.

No response necessary.

Disposition: No action needed.

2. **Manitoba Industry, Trade and Mines – Petroleum Branch** – have no concerns.

No response necessary.

Disposition: No action needed.

3. **Manitoba Industry, Trade and Mines – Industry & Trade** – did not respond.

No response necessary.

Disposition: No action needed.

4. **Manitoba Intergovernmental Affairs** – did not respond.

No response necessary.

Disposition: No action needed.

5. **Manitoba Conservation – Sustainable Resource Management Branch – Environmental Stewardship Division** – has the following comments/concerns regarding the proposal. The comments were forwarded to the proponent. The responses are summarized. The commentator was satisfied with the responses.

- 1) It is indicated that the emissions from the “burn off oven” will consist of carbon dioxide and water vapour. The burning of the vented off gases is unlikely to be 100% efficient so there will likely also be unburned volatile organic compounds (VOC's) and products of incomplete combustion in the exhaust gas stream as well. The “burn off oven” is also apparently used to incinerate the waste paint filters. Since the oven was not designed for incineration, how are the filters handled to

ensure that they are incinerated properly with no excessive generation of particulate matter and other pollutants? Does burning the filters cause any operating problems with the oven?

The proponent replied:

During preparation of the information for the EIA, it was determined that MCI submitted a proposal to Manitoba Conservation in 1998 to obtain a licence to operate the heat-cleaning oven for the treatment/disposal of the spent filters however a written licence had not been issued. Upon determining that a written licence was not issued, MCI contacted Manitoba Conservation and through guidance received by Mr. Adrian Jackson Environmental Engineer, Municipal, Industrial Approvals, has submitted a request for approval under The Dangerous Goods Handling and Transportation Act to operate the oven for this purpose. This submission contains information regarding the acceptability of using the oven to treat/dispose of the filters and is reiterated below for your review.

In 1998, MCI purchased an Armature Coil Equipment Inc (ACE) Model 260 R - Heat-Cleaning Oven. MCI installed a heat-cleaning oven to remove cured paint from electrostatic paint-line hanging fixtures (racks and hooks). The installation and use of the oven enabled MCI to clean the hanging fixtures without the use of solvents or physical abrasion. Upon installation of the heat-cleaning oven, MCI decided to expand the use of the oven to include disposal of spent spray booth filters associated with the coating spray booths in Department 43.

The unit, which consists of two natural gas fired burners, a water suppression system and an afterburner, located prior to a dedicated exhaust stack, was installed by Advanced Finishing Systems of Winnipeg Manitoba. In general, the unit is designed to remove various types of combustibles (including epoxy, varnish, paint, grease, oil, rubber, etc) from heat cleanable parts. The parts to be cleaned are loaded in the oven and the burners uniformly heat the chamber to a preset temperature in an oxygen-free environment. The programmed "time-temperature controller" and "water suppression system" work together to suppress combustion of highly combustible loads and to ensure the desired pre-set temperature required to decompose the combustible hydrocarbons is maintained. The chamber temperature is controlled by a thermocouple in the main chamber. When required, water mist is sprayed into the chamber of the oven. The water vaporizes and the resulting steam displaces any oxygen in the chamber and therefore reduces the potential for combustion (flames). The oven unit is equipped with an afterburner, designed to provide excess air for complete combustion of the emissions associated with the oven. The temperature of the exhaust travelling through the afterburner reaches 1000°C, and the resulting emissions (carbon dioxide and water vapour) are discharged through a dedicated stack.

The heat-cleaning oven can be programmed to operate over a number of settings allowing the operator to control the length of burn time and temperature of burn needed to ensure complete decomposition of the hydrocarbons. The settings will depend on the size of the load into the oven and the material being cleaned.

At the time of the installation, test runs were conducted by ACE to determine the settings required to remove the paint from the hanging fixtures and for treatment/disposal of the spent filters and ensure complete decomposition of the volatiles in the paint to an ash that falls to the oven floor for disposal. The setting used by MCI for the treatment/disposal of spent filters consists of eleven cycles and reaches a final temperature of up to 427°C in the oven. The bake times vary depending on the load, but can take up to eleven hours per load.

As noted above, the oven unit is equipped with an afterburner, designed to provide excess air for complete combustion of the emissions associated with the oven. The temperature of the exhaust travelling through the afterburner reaches 1,000°C, and the resulting emissions, carbon dioxide and water vapour, are discharged through a dedicated stack.

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To ensure the unit operates as intended, Black & McDonald Ltd conduct maintenance on the unit on a monthly basis. In addition to the monthly maintenance schedule, which includes a review of heat-cleaning oven burners, water suppression system and seals, and the stack afterburner, every three months Black & McDonald remove, clean and re-install a complete burner assembly and do an operational check on the unit. However, your question regarding the efficiency of the afterburner to remove products of incomplete combustion during treatment/disposal of the spent filters cannot be verified without stack testing. As such, MCI intends to conduct stack testing to determine the amount of any particulate matter and other pollutants generated. Upon completion of the stack testing MCI will forward the results to you.

Disposition: No further action required.

- 2) The fume capture efficiency of the Overhead Dust Collection Systems on the EGJ line is estimated to be 60%. What is the basis for this estimate?

The proponent replied:

In Section 6.2.2.1 Frame Welding on page 26 of the EIA, in Section 7.2 Welding Process Modifications on page 43 of the EIA, and in Section 2.3.2.1 Frame Welding on page 10 of the Air Dispersion Modelling report, the efficiency of the Overhead Dust Collection Systems is stated as 60%. However, in Section 4.2.1 Welding (under Section 4.2 Emission Factors) on page 27 of the Air Dispersion Modelling report, the efficiency is stated as 65%, as reported by the manufacturer (Air Flow Systems Inc.). On review of the documents received from the manufacturer of the Overhead Dust Collection Systems, the minimum capture efficiency was confirmed to be 65%.

Disposition: No further action required.

- 3) The criteria cited are acceptable but only short-term criteria (i.e., 24 hours was the longest averaging period) were listed with no long-term criteria provided. A source of long-term criteria, both Reference Concentrations for non-carcinogens and Unit Risk Factors for carcinogens, is the U.S. EPA Integrated Risk Information System (IRIS) at www.epa.gov/iris/.

The proponent replied:

Thank you for the information provided in this comment. These criteria will be used in future assessments. The applicability of these criteria to the current assessment is addressed in the next comment.

Disposition: No further action required.

- 4) Three of the compounds modelled are listed in IRIS as carcinogens (i.e., hexavalent chromium, methylene chloride, and propylene oxide) with associated unit risk factors (i.e., 12 per mg/m³, 0.00047 per mg/m³, and 0.0037 per mg/m³, respectively). Of these, only the annual ambient concentration of hexavalent chromium presents more than a one-in-a-million risk of developing cancer (risk is 4 in 100). This highlights the need to do further assessment of potential mitigation measures for the welding fumes.

The proponent replied:

Following the submission of the Environment Act Licence Proposal, a Welding Emissions Study has been initiated to evaluate welding processes and review pollution prevention and Best Available Technology options available for the reduction of welding fume emissions at Motor Coach Industries. The status of the Welding Emissions Study as well as the scope of work for the Study were presented to Manitoba Conservation in a letter dated January 31, 2003. As a result of this comment, the Study will use the criteria provided in your comment as a target for hexavalent chromium emissions from welding.

Disposition: No further action required.

- 5) Long-term Reference Concentrations (RfC) are available from IRIS for 17 of the compounds assessed. Of these, the RfC for 1,6-hexamethylene diisocyanate ($0.01 \mu\text{g}/\text{m}^3$) and manganese ($0.05 \mu\text{g}/\text{m}^3$) were exceeded by the estimated annual concentrations. Further assessment of these compounds should be undertaken.

The proponent replied:

As manganese is emitted as a component of welding fume only, it will be addressed as part of the Welding Emissions Study. The Study will use the criteria provided in your comment as a target.

Hexamethylene diisocyanate is present as an activator in some of the coatings used at Motor Coach Industries. The activator is used both within booths as well as outside of the booths.

The emission rates used in the air dispersion modelling were generated differently for the booths than for the air outside the booths that is discharged through general fans. Within the booths, the transfer efficiency of the spray guns was taken into account (25% for conventional guns and 65% for electrostatic guns, as stated in Section 2.3.1.3 Parts Painting, page 6 of the Air Dispersion Modelling report). For coatings used inside the booths, the emissions were reduced by the amount transferred to the coach. Also, the air leaving the booths is filtered before discharge from the building. The overspray removal efficiency of the filters is 99.6%, as stated in Section 2.4.1 Particulate Emissions from Paint Products, page 16 of the Air Dispersion Modelling report. The transfer efficiency and the filtration that were considered for the booths resulted in a reduction of the emission rates of hexamethylene diisocyanate used in the air dispersion modelling.

For the coatings sprayed outside the booth, the modelling was conducted with no reduction based on transfer efficiency. As well, the modelling was conducted assuming that the air discharged by the general fans is not filtered.

Further analysis of the modelling results indicated that 97% of the hexamethylene diisocyanate emissions can be attributed to air discharged by general fans, with the remaining 3% attributed to filtered air from the booths. Based on discussions with personnel in the Surface Coating department at Motor Coach Industries, a transfer efficiency of 25% can be expected for surface coating that occurs outside of the booths. If this transfer efficiency is taken into account, the emissions of hexamethylene diisocyanate from the general fans will be reduced by 25%. Based on internal discussion at Motor Coach Industries, an additional 45% reduction of emissions can be achieved by moving the coach and/or parts being sprayed into a booth with filtration prior to spraying with coatings containing hexamethylene diisocyanate. This 45% reduction in hexamethylene diisocyanate emissions due to a reduction in the amount of spraying being conducted outside the booths, coupled with the transfer efficiency of the coating, should result in compliance with the RfC provided in IRIS.

Disposition: No further action required.

- 6) Background levels of the volatile organic compounds (VOCs) and particulates were not incorporated in the maximum concentrations. For several of the VOCs on the list, as well as particulates, background levels have been measured in Winnipeg. These VOCs include: acetone, chlorodifluoromethane, cyclohexane, ethyl benzene, heptane, isobutane, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, n-hexane, propane, styrene, 1,2,4-trimethyl benzene, toluene and xylene. Adding these background concentrations to the maximum concentrations is not likely to change the conclusions but in the future, the consultant should include background concentrations for completeness. For the information of the consultant, the latest air quality monitoring data are found in the document: B.P. Krawchuk, 2002. *Manitoba Ambient Air Quality Annual Report for 1997, 1998 and 1999*. Report No. 2002-08

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The proponent replied:

Thank you for the information provided in this comment. As requested, in future assessments background concentrations will be included for parameters for which they are available.

Disposition: No further action required.

- 7) The choice of model (Aermod), receptors (discrete plus receptor grid), meteorology, surrounding land use (urban) and terrain (flat) were appropriate. While the ambient air quality particulate matter monitoring at Ellen Street may not be completely representative of the levels in the vicinity of Motor Coach Industries, the data are all that are available and should have been used as background concentrations. In addition to PM₁₀ monitoring, data have also been published for PM_{2.5} for the year 1999

The proponent replied:

Thank you for the information provided in this comment. As requested above in comment 5 for the EIA, in future assessments background concentrations will be included for parameters for which they are available

Disposition: No further action required.

6. Canadian Environmental Assessment Agency – did not respond.

No response necessary.

Disposition: No action needed.

7. Manitoba Agriculture – Soils and Crops - Soil Resource Section – did not respond.

No response necessary.

Disposition: No action needed.

8. Manitoba Highways and Transportation - Highway Planning and Design – has no concerns with this project..

No response necessary.

Disposition: No action needed.

9. Manitoba Health - Public Health - Environmental Unit – Winnipeg Regional Health Authority – did not respond.

No response necessary.

Disposition: No action needed.

PUBLIC HEARING:

Public Hearings were neither requested nor convened.

RECOMMENDATIONS:

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A Licence considering the above relevant concerns as well as those of the Approvals Branch be prepared and issued. Responsibility for enforcement of the Licence be transferred to Regional Operations.

PREPARED BY:

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April 2, 2003**

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