

## **SUMMARY OF COMMENTS/RECOMMENDATIONS**

**PROPONENT:** Magellan Aerospace Limited  
**PROPOSAL NAME:** Manufacture of Aeroengine and Aerostructure  
Components and Assemblies Facility  
**CLASS OF DEVELOPMENT:** 1  
**TYPE OF DEVELOPMENT:** Manufacturing Plant  
**CLIENT FILE NO.:** 5121.00

### **OVERVIEW:**

On July 14, 2005, Manitoba Conservation received a Proposal for the construction and operation of a precision manufacture of commercial and military aeroengine and aerostructure components and assemblies facility located at 660 Berry Street, Winnipeg, Manitoba. The operations carried out at the facility include both dry and wet metal working and finishing as well as a wide range of finishing and treatment processes.

The Department, on July 25, 2005, placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Millennium Library, the Manitoba Eco-Network, and the St. James-Assiniboia Public Library. Copies of the Proposal were also provided to the Technical Advisory Committee (TAC) members. A notice of the Environment Act proposal was also placed in the Winnipeg Free Press on July 30, 2005. The newspaper and TAC notifications invited responses until August 30, 2005.

### **COMMENTS FROM THE PUBLIC:**

No public responses were received.

#### **Disposition:**

No action needed.

### **COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:**

#### **Canadian Environmental Assessment Agency**

Advised that the application of the *Canadian Environmental Assessment Act* will not be required.

#### **Disposition:**

No action needed.

## **Environment Canada**

The following comments were provided:

- In general, the Environment Act Proposal Form did not make any mention of related regulations under CEPA 1999. Specifically, the proponents should be aware of the requirements of a) Solvent Degreasing Regulations b) Proposed Hexavalent Chromium (HVC) Regulations c) Other Air Emissions related Concerns, e.g. Volatile Organic Compounds (VOCs) added to Schedule 1 of CEPA 1999 and d) the National Pollutant Release Inventory requirements.

### **Disposition**

The proponent is required to comply with all municipal, provincial, and federal acts and regulations. Clause 9 of the draft Environment Act Licence addresses chromium emissions and clause 15 addresses solvent degreasing by specifically limiting the use of trichloroethylene (TCE) as required by the Solvent Degreasing Regulation.

## **Health Canada**

The following comments were provided:

- The proposal should include an assessment of chemical and physical emissions that may impact the health of residents and workers in the proximity of the facility.
- The proposal should assess potential impacts to ground and surface waters from ongoing operations or accidental releases and review current/planned mitigation.
- The proposal should review past complaints regarding the operation of the facility and discuss mechanisms in place/planned to respond to future concerns from the residents, local businesses or regulators.

### **Disposition**

The proponent completed air dispersion modeling and an analysis of the results to address concerns related to air emissions. Clauses 32, 33 and 34 of the draft Environment Act Licence address concerns related to accidental spills.

## **Manitoba Industry, Economic Development & Mines – Petroleum Branch**

No concerns.

### **Disposition**

No action needed.

## **Manitoba Intergovernmental Affairs and Trade – Provincial Planning Services**

No concerns.

### **Disposition**

No action needed.

## **Manitoba Culture, Heritage and Tourism – Heritage**

No concerns.

### **Disposition:**

No action needed.

## **Manitoba Health**

No specific human health impacts were identified.

### **Disposition**

No action needed.

## **Manitoba Conservation**

The following comments were provided:

- a) While estimates are provided in the proposal on the anticipated air emissions from the facility, the significance of these emissions was not assessed. To assess the significance would require air dispersion modeling of all sources of air emissions from the facility and a comparison of the resulting environmental concentrations with available air quality criteria.
  - *The proponent responded by completing the necessary air dispersion modeling and analysis of results.*
- b) A map should be provided showing the facility and the surrounding area. Distances to the nearest off-site receptors should be included.
- c) Peak and average air emissions from each source should be provided and included in the air dispersion modeling of the facility.
- d) Vapour Degreasing:
  - It is stated that the use of trichloroethylene is expected to be expected to be reduced by 65% in 2007. What is the base year for this reduction?
    - *The proponent responds that the base year is the average TCE usage during the years 1997 – 1999.*

- Figure 1 shows an increase in trichloroethylene usage in 2004 compared with previous years. What was the reason for this increase? Is this larger usage indicative of future usage of trichloroethylene at the facility?
    - *The proponent responds that the increase was caused by a process error whereby the degreaser was occasionally running without being charged by metal parts.*
  - In the document, "Compilation of Air Pollutant Emission Factors (AP-42)" by the US EPA. The recommendation in "4.6 Solvent Degreasing" is that "Solvent consumption data will provide much more accurate emission estimates than any of the other factors presented." This would imply an emission factor of 1.0 tonnes released/tonne used rather than 0.93 tonnes released/tonne used. What is the basis for the reduction in the emission factor to 0.93 from 1.0?
    - *The proponent completed air dispersion modeling based on the 1.0 emission factor.*
  - The trichloroethylene releases estimated from the usage data and the emission factor of 0.93 do not match the releases reported by Bristol Aerospace to the NPRI for years 1996 to 2000. What is the reason for these discrepancies? Which data are more accurate?
    - *The proponent responds by stating that the air dispersion modeling was completed based on the worst case scenario using an emission factor of 1.0 for TCE releases.*
  - The type of ventilation is not indicated, is the area ventilated to ambient and if so how? Are there any controls on the exhaust stream and if so what? What type of containment is provided to control accidental spills in this area?
    - *The proponent responds that the area is ventilated to the outside. Work procedures are in place to minimize emissions, but there are no environmental controls on the exhaust stack. The degreaser is contained within a pit, which is designed to hold greater than 110% of the liquid used.*
- e) Abrasive Cleaning/Finishing
- Is there any potential for air emissions from this operation? If there are air releases, these should be included in the air dispersion modeling of the facility.
    - *The proponent responds that abrasive cleaning/finishing operations are negligible air emissions sources.*
  - Dry abrasive – is this conducted in a blast cabinet? Is the blasting cabinet/area ventilated to ambient and is so how? Are there any controls on the exhaust stream and if so what? What is the source of the chromium referenced under Environmental Considerations?
    - *The proponent responds that emissions from the blast room are controlled with dust collectors. Grit blasting is performed on stainless steel materials which contain up to 10% chromium metal.*
- f) Alkaline Cleaning
- Under "Environmental Considerations", it is noted that "All emissions are scrubbed to prevent environmental impact." What type of scrubber is used?

What is the volume of airflow through the emission control? If there are residual air releases, these should be considered in the air dispersion modeling.

- *The proponent responds that wet scrubbers are used. The air dispersion modeling report indicated that emissions associated with alkaline cleaning were insignificant.*
- What type of containment is provided to control accidental spills in this area?
  - *The proponent responds that each tank associated with alkaline cleaning is located within a containment area with capacity in excess of 110% of the volume of each individual tank.*

g) Solvent Cleaning

- The three solvents listed (methyl ethyl ketone, methanol and isopropyl alcohol) should be considered in the air dispersion modeling.
- Environmental Considerations – with reference to the adequate ventilation provided, what type of ventilation is provided, how is this vented, are there any controls on the exhaust stream? What type of containment is provided to control accidental spills in this area?
  - *The proponent responds that fumehoods are provided in various locations throughout the plant for use when solvent cleaning. Emissions from these sources are exhausted to the outside without any environmental control. Spill kits have been provided in areas where a significant amount of solvent cleaning takes place.*

h) Acid Anodizing – Chromic Acid Anodizing (CAA)

- What is the efficiency of the emissions scrubber for reducing hexavalent chromium emissions? The residual hexavalent chromium needs to be included in the air dispersion modeling.
  - *The proponent responds that the efficiency of the scrubber is 99%.*
- With reference to the areas being well ventilated how is this achieved and are there any controls on the ventilation systems for the sulphuric acid and phosphoric acid anodizing processes such as de-misters? What type of containment is provided to control accidental spills in all of the anodizing areas?
  - *The proponent responds that the acid emissions are scrubbed with roof located wet scrubbers. High density solid balls made of polyethylene are used to cover the surface of liquid chemicals in process tanks to reduce surface area and minimize vapour losses. All chemical tanks are located in bermed areas.*

i) Painting

- While the filters will capture particulate matter, the filters have no effect on the emissions of VOCs. Both the particulate matters and VOCs need to be considered in the air dispersion modeling.
- The emissions calculation for solids (Total PM) is not clear.
- The total VOC emissions are provided in Table 3. Of more relevance are the emissions of the constituent chemical species. Ambient air quality criteria are available for most individual chemical species, not for total VOCs as a group.

- Gun washing is not mentioned under this process; is the gun washing conducted in a dedicated area? If so is the area ventilated, are there controls on the exhaust stream, what solvent is used, is the solvent recovered/recycled? What type of containment is provided to control accidental spills in this area? Have VOC emissions from the gun washing been calculated?
    - *The proponent responds that Paint shop 109-4 is equipped with a pit for collection of spray water mixed with Turco 54369. Other paint shops have been provided with spill kits.*
- j) Sand and Fill
- The emissions of particulates and methyl ethyl ketone need to be considered in the air dispersion modeling assessment since the room is ventilated.
  - It is indicated that parts are filled with epoxy resins compounds that contain silica. Given that silica dust is a carcinogen, what is the percent of silica in the epoxy resin compounds? What is the capture efficiency of the dust collection system with respect to PM<sub>10</sub> and PM<sub>2.5</sub>?
    - *The proponent responds that silica is present in a maximum quantity of 1%, which in 2005 amounted to 0.58 kg of silica used. The capture efficiency of the dust collection system is 95% for particles 0.3 – 1.0 microns.*
- k) Welding and Brazing
- Since the area is ventilated, any air emissions of particulates as well as individual metal species should be considered in the air dispersion modeling of these operations.
  - Is stainless steel welding conducted in this area? With respect to ventilation how are the welding fumes ventilated and are there any controls on the exhaust stream?
    - *The proponent responds that stainless steel welding is done. Welding fumes are captured with flexible hoods and discharged outside with no control.*
- l) Plant Heating and Energy Supply
- The air emissions of NO<sub>x</sub> from the three natural gas boilers need to be considered in the modeling.

Disposition:

The proponent provided the italicized responses to address several specific concerns as listed above. The proponent completed air dispersion modeling that addressed the remainder of Manitoba Conservation's concerns.

**Manitoba Water Stewardship**

No concerns.

Disposition:

No action required.

**PUBLIC HEARING:**

A public hearing is not recommended.

**RECOMMENDATION:**

The Proponent should be issued a Licence for the operation of a precision manufacture of commercial and military aeroengine and aerostructure components and assemblies facility in accordance with the specifications, terms and conditions of the attached draft Licence. Enforcement of the Licence should be assigned to the Central Region of Manitoba Conservation.

A draft environment act licence is attached for the Director's consideration.

Prepared by:

Ryan Coulter, M.Sc., P.Eng.  
Environmental Engineer  
Municipal, Industrial, and Hazardous Waste Section  
January 10, 2008

Telephone: (204) 945-7023  
Fax: (204) 945-5229  
E-mail Address: ryan.coulter@gov.mb.ca