Environmental risk analysis – air quality, noise and greenhouse gases

Air Quality Risks

Risks to air quality associated with the construction and operation of the WIPS Management facility include the following

- Construction emissions predominantly consisting of dust due to clearing and earthworks and small volumes of vehicle exhaust
- The WIPS manufacturing process involves stages with the potential to emit vapours and particles including
  - Methylene Diphenyl Isocyanate (MDI)
  - Polyol compounds including catalysts
  - Pentane (known to form secondary particulate pollutants in the atmosphere)

Impacts on air quality from the WIPS Management manufacturing process were assessed by SKM (2007) and results indicated that all pollutants would be well within relevant air quality criteria and the operations were predicted to present negligible adverse air quality impacts in the HEZ and surrounding areas.

Noise and vibration

Noise and vibration may impact adversely on the environment due to the following.

- Equipment used during construction of the WIPS Management facility and infrastructure may generate significant noise emissions.
- Operating industrial plant may generate significant noise emissions.
- Traffic generated by the WIPS Management facility may result in increases in noise and vibration on existing and future roadways.
- Operating industrial plant may generate significant vibration.

The majority of noise sources are anticipated to be indoors and the total noise and vibration emissions from the site would be small. Impacts on noise and vibration were assessed by SKM (2007) and results indicated that noise from the construction and operation of the facility would not be audible at the nearest sensitive receivers located in excess of 5 km from the site. In addition, the increase in road traffic on existing roads was conservatively predicted to lead to imperceptible noise increases.

In addition, effective use of the tools provided in the Noise, Vibration Electrical Interference and Lighting (NoVEL) Strategy will help to minimise the impact on surrounding receivers and reduce

the levels to which noise must be attenuated. With appropriate noise control including site layout and design, equipment specification, effective enclosures and operational processes, the impacts on sensitive receivers should be maintained at a practical minimum. The Noise and Vibration impact assessment procedures outlined in the NoVEL Strategy provide methods for consistent assessment and subsequent management of residual noise impacts.

Greenhouse Gas Risks

Climate change is currently a major environmental challenge facing all industry and is widely known to be caused by the combustion of fossil fuels during direct and indirect energy consumption. Risks associated with the combustion of fossil fuels and generation of greenhouse gases (GHG) from the WIPS Management facility may include the following.

- Direct emission of GHG from on site combustion of fuel (all types).
- Indirect emission of GHG by consumption of electricity from the NSW grid, which is generated by coal- or gas-fired power stations.
- Fugitive GHG emissions associated with the storage and use of chemicals.
- Emission of GHG resultant from transportation of materials and personnel, including public road access to the HEZ developments, water pumping, rail.
- Use of synthetic and refrigerant gases.
- Clearing of native vegetation.
- Construction using materials with entrained energy (e.g. steel, masonry, glass).
- Generation and storage of solid waste.

GHG emissions are likely to result from the WIPS Management operation via the consumption of grid supplied electricity. The magnitude of the impact of GHG emissions (direct or indirect) on the environment are proportional to the amount of fossil fuels consumed.

SKM (2007) estimated that the facility will emit 7875 t/year (CO2-e) of GHG. The total facility emissions are interpreted in the context of total national GHG emissions. In this context, the WIPS Management facility is predicted to equate to 0.001 % of total national GHG emissions (CO2-e).

Reference should be made to the Energy Efficiency and Management (EE&M) Strategy for guidance on the reduction of energy consumption on a facility and estate basis, including carbon trading programs, the use of efficient or low emissions technologies, participation in energy reduction programs, preferential use of “green” energy and offsets such as Research and Development and revegetation.