Regulatory Statement: Regulation of LNG and other emissions

The Northern Territory Environment Protection Authority (NT EPA) supported by Authorised Officers under the *Waste Management and Pollution Control Act* regulates pollutants from both individual developments and the cumulative impacts of existing and proposed developments to protect and maintain air quality.

This regulatory statement provides clarity in relation to how potential and actual air pollution emissions from liquefied natural gas (LNG) processing activities and other sources are assessed and monitored in the Northern Territory (NT).

Air quality modelling and monitoring are the primary tools to assess and report air quality levels, to inform air quality risks and impacts from projects and to guide regulation to prevent or mitigate emitted pollutants. The National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM) is the primary measure against which ambient air quality monitoring and the effect of air pollution emissions from individual and cumulative project impacts are assessed.

Air quality monitoring

The NT Government has conducted particulate monitoring in the Darwin region since 2004. In late 2010 monitoring was expanded to include a full ambient air quality monitoring station located near Palmerston. Another station was installed at Winnellie in mid-2012, and a third station was installed at Stokes Hill in May 2017. In accordance with the AAQ NEPM each station houses the following instruments for monitoring air pollutants:

- Dichotomous Tapered Element Oscillating Microbalance (TEOM) particulate monitor to simultaneously measure particulates with aerodynamic equivalent diameters of 10 micrometres or less and 2.5 micrometres or less
- Carbon Monoxide (CO) analyser
- Oxides of Nitrogen (NO_x, NO and NO_2) analyser
- Ozone (O_3) analyser
- Sulfur Dioxide (SO_2) analyser.

All instruments used to measure the air pollutants comply with the Australian Standards stipulated in the AAQ NEPM. To assist in interpretation of the air quality data, meteorological data is also collected from instruments on the same site.

In general, the primary air pollutant in Darwin and Palmerston is particulates ($PM_{2.5}$ and PM_{10}) in smoke from distant and local vegetation burning during the Dry season. Other air pollutants - CO, NO_2 and SO_2 - all occur at very low levels compared to large cities in other parts of Australia, while O_3 occurs at moderate levels, typically due to natural processes.

The NT Air Quality Network website displays live and historical data from the three stations and is available for public access. This website also displays the Air Quality Index (AQI) calculated for each region in which the stations are located.

The AQI is a measure of how polluted the air is in that area (when compared against the relevant AAQ NEPM standard), and advises on which type of outdoor activities should be avoided during various pollution events.

Air quality can also be monitored with the AirRater app.

Regulatory requirements for LNG facilities

LNG facilities in the Northern Territory are regulated under the *Waste Management and Pollution Control Act (1998)*. Santos Darwin LNG (Santos) and the INPEX Ichthys Onshore LNG (Inpex) processing facilities are located on the Middle Arm peninsula.

Santos is regulated under Environment Protection Licence 217 (EPL217) and Inpex is regulated under EPL228. Authorised Officers from DEPWS monitor and ensure compliance with the licences in line with the regulator's Compliance and Enforcement Framework.

Environment protection licences in the NT regulate air emissions from LNG facilities at the point of release ("point source"). This is generally at the "stacks" of an LNG plant. Pollutant concentrations are highest at the stack and reduce with dispersion through the atmosphere.

To ensure pollutant levels are below safe health limits for human populations, air quality modelling is provided by the licensee (and assessed by officers for the NT EPA at the time of the licence application or if required in a formal Environmental Impact Statement) to estimate the dispersion and dilution of emissions away from the immediate emission site. This modelling provides estimates of suitable emission limits at the stack that will protect ambient air quality in the surrounding area. Where appropriate the NT EPA can obtain independent advice on modelling provided and pollution control technologies.

The NSW EPA's Approved methods for the modelling and assessment of air pollutants in New South Wales has compiled safe health limits for the criteria air pollutants (set in the AAQ NEPM) and for several toxic air pollutants. These limits are used for assessing modelling results.

Environment Protection Licences require the licensees to monitor and report their emissions at the point sources (the "stacks") to ensure compliance with licence emission limits.

Acid gas incinerators are a treatment method to reduce harmful emissions before release. The incineration involves using high temperatures to convert hydrogen sulphide (H_2S) and hydrocarbons left in the waste stream to CO_2, NOx, CO, SO_2 and water before being emitted into the atmosphere.

When acid gas incinerators are not operational (for example, due to maintenance requirements), hot venting is used as an alternative method of disposal. Hot venting ensures that emissions are released to the atmosphere at height, to maximise dispersion and minimise potential impacts to populations at ground-level. Emission limits at the point-source are the primary regulatory instrument used to protect air quality and apply at all times, regardless of the status of acid gas incinerators.

Air toxics concentrations were monitored at three NT Government air quality monitoring stations for two years following commissioning of the Inpex plant (2019-2020). Levels of air toxics were consistently well below safe health levels in all samples and in most cases below the limit of detection.

Ambient air quality monitoring at ground level is currently conducted (voluntarily) by Inpex at their site boundary and Frances Bay. Results provided to the NT EPA were well below health limits.

Information on monitoring frequency, licence limits and requirements for **Inpex** can be found within the EPL and attachment at: EPL228-05- environment protection licence - Ichthys

Information on monitoring frequency, licence limits and requirements for **Santos** can be found within the EPL and attachment at: EPL217-03 Santos NA Darwin Pipeline Pty Ltd licence

Ambient air quality data reports are published on the NT EPA website at: Ambient Air Quality reports | NTEPA

Cumulative impact assessment (Middle Arm Sustainable Development Precinct)

As part of the strategic environmental assessment of the Middle Arm Sustainable Development Precinct (MASDP), the Department of Infrastructure, Planning and Logistics (DIPL) is required to assess the cumulative impact of the MASDP proposal on Darwin's air quality.

This has involved development of an air quality impact assessment model (AQIA model) that simulates and assesses the dispersion of air pollutants from future industries and the impact of air pollutants in the Darwin region.

The MASDP AQIA model incorporates background air quality concentrations based on a comprehensive analysis of NT EPA air monitoring network data, plus the approved total licensed emissions from industry that operates at Middle Arm, to establish an air quality baseline for the region.

The model advances the ability to understand air quality impacts from development in the Darwin region. It is being used to assess the potential for future air quality to be affected by a range of development scenarios at Middle Arm, to understand potential air quality impacts from the development precinct and to inform decisions regarding maximum allowable emissions for the MASDP.

Regulatory compliance activities

The NT EPA and DEPWS release an annual Environment Regulation Division - Compliance Plan 2023-2024. The Plan complements the Compliance and Enforcement Policy and Enforcement Guideline, and provides transparency on where compliance efforts will be focused to protect the NT community and the environment.

Priorities in the Plan are determined using a range of data and information, including community complaints made through the Pollution Hotline, detected non-compliances and monitoring information. The Plan provides assurance that the regulator is focussing on the environmental risks that can cause the greatest harm.

Hydrocarbon processing facilities (e.g. LNG) are a continuing priority compliance area due to the potential for release of contaminants into water and air, including the Darwin Harbour and airshed.

The regulator is committed to ensure compliance of these facilities with granted licences by undertaking compliance audits and carrying out random inspection of premises at least annually.