



## Coal seam gas activities and air quality

### Introduction

The coal seam gas (CSG) industry in NSW is regulated by some of the toughest controls in Australia that cover the exploration, assessment and production of the state's vast natural gas reserves. This regulatory framework protects the environment and community in NSW.

The Environment Protection Authority (EPA) is the lead regulator of environmental and health impacts of CSG activities in NSW. It has regionally based staff across NSW and strong powers under the *Protection of Environment Operations Act 1997* (POEO Act).

The assessment and approval of new CSG proposals, or changes to existing approvals, is the responsibility of the Office of Coal Seam Gas (OCSG) or Department of Planning & Environment (DP&E), depending on the scale and nature of the proposed activity. As part of the assessment process, the EPA provides expert technical advice to either the OCSG or DPE. This advice is based on best practice operational standards and policy.

If the proposed activity is approved by the OCSG or DP&E, exploration, assessment and production activities require an environment protection licence issued by the EPA under the POEO Act. The licence is an important tool for the EPA to regulate the activities approved in the planning process. The licence includes legally enforceable conditions.

Copies of all EPA licences for CSG operations are available on the EPA website.

Along with the licence conditions, there are legislative requirements that companies must comply with such as the POEO Act, the POEO (Clean Air) Regulation and the POEO (General) Regulation. CSG activities are also subject to the EPA's load-based licensing (LBL) scheme, load calculation protocol and various policies and procedures for determining operational controls, limits and monitoring.

The environment protection licence, together with legislative framework and other requirements, gives the EPA a strong base to regulate the activities of CSG facilities and should not be considered in isolation of each other.

### NSW requirements for managing air emissions

#### Protection of the Environment Operations Act

The POEO Act provides the statutory framework for managing air emissions in NSW, including at CSG facilities. The Act requires that the operation of a CSG facility, maintenance work at the facility and dealing with materials are done in a proper and efficient manner (ss. 124–126). It also requires that activities are carried out using those practicable means that may be required to prevent or minimise air pollution (s. 128).

The broad objectives of the Act are to reduce risks to human health by preventing pollution, adopting cleaner production methods, reducing pollution to harmless levels, applying the waste management hierarchy, and continual environmental improvement and monitoring.

The POEO Act is supported by:

- the [Protection of the Environment Operations \(Clean Air\) Regulation 2010](#) (POEO Clean Air Regulation), which provides regulatory measures to control emissions from industry,

motor vehicles and fuels, domestic solid fuel heaters and open burning and sets emission standards.

- the [Protection of the Environment Operations \(General\) Regulation 2009](#) (POEO General Regulation), which gives effect to a licensing scheme for major industrial premises, the National Pollutant Inventory and provides economic incentives for licensed businesses and industry to reduce pollution, including emissions into the air.

Best management practice (BMP) is the guiding principle applied to meet the objects and air pollution requirements of the POEO Act and the Regulations.

### **POEO Clean Air Regulation**

The POEO Clean Air Regulation sets requirements for air pollutants discharged from commercial business and industrial premises, including CSG facilities.

Part 5 of the POEO Clean Air Regulation specifies requirements for plant and activities and, in particular:

- sets emission standards for activities and plant on both scheduled premises and non-scheduled premises. Emission standards include oxides of nitrogen, smoke, solid particles, volatile organic compounds, chlorine, dioxins, furans and heavy metals.
- imposes operational requirements for certain afterburners, flares, vapour recovery units and other treatment plant
- restricts the use of high sulfur content liquid fuel.

### **POEO General Regulation**

The POEO General Regulation establishes the fees for licensed activities through the LBL scheme. This includes an administrative fee and load-based fee.

The LBL scheme applies the 'polluter pays' principle and provides EPA licensees with an 'ongoing' economic incentive to control, reduce and prevent air pollution in NSW.

Under the LBL scheme, the annual licence fee for CSG facilities comprises of an administrative fee based on the scale of the licensee's activity, and a load-based fee based on the potential environmental impact. The lower the environmental impact, the lower the load-based fee. The total load of pollution emitted to water or air is calculated (in kilograms per year) and a fee formula is applied. The load-based fee is determined by the type and significance of the pollutant discharged, the amount emitted, location of the activity, its receiving environment and, for some pollutants, the season. Weighted factors are used to increase the fee payable for targeted pollutants in sensitive areas and seasons (e.g. oxides of nitrogen (NO<sub>x</sub>) and volatile organic compound (VOC) emissions in Sydney during summer).

The LBL scheme:

- sets clear minimum standards for environmental performance
- incorporates incentives for ongoing pollution reduction
- gives licensees flexibility to implement cost-effective pollution abatement methods
- increases regulatory transparency
- provides the infrastructure for emissions trading schemes
- enables the long-term tracking of emissions reductions.

## Approved methods for modelling

The [Approved Methods for the Modelling and Assessment of Air Pollutants in NSW](#) (Approved Methods for Modelling) details the methods that are to be used to model and assess emissions of air pollutants from stationary sources in NSW.

This document covers:

- the preparation of emissions inventory data, meteorological data and the methods for accounting for background concentrations
- dispersion modelling methodology – AUSPLUME is the EPA's approved model for dispersion modelling in most simple, near-field applications in NSW. Applications where AUSPLUME is specifically not approved for use are also detailed, together with the factors to consider when evaluating whether or not to use a more sophisticated model
- how to interpret dispersion modelling results, including EPA impact assessment criteria
- modelling of chemical transformation.

## Approved methods for sampling

The [Approved Methods for the Sampling and Analysis of Air Pollutants in NSW](#) (Approved Methods for Sampling) details the methods that are to be used to sample and analyse air pollutant emissions from stationary sources (including continuous monitoring); pollutant emissions from motor vehicles; components in, and properties of, petroleum products; and pollutants in ambient air. It is referred to in Part 5 (Air Impurities Emitted from Activities and Plant) and Part 6 (Control of Volatile Organic Liquids) of the POEO Clean Air Regulation and the POEO General Regulation. It may also be referred to in conditions attached to statutory instruments such as environment protection licences or notices issued under the POEO Act.

## Duty to report pollution incidents

Any company in NSW must respond to and report pollution incidents to the EPA under section 148 of POEO Act. A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which material harm to the environment is caused or threatened.

The maximum penalty for failing to report a pollution incident posing material harm to the environment is \$2 million for corporations or \$500,000 for individuals.

## National requirements

### National Pollutant Inventory

The EPA implements and enforces the [Environment Protection \(National Pollutant Inventory\) Measure](#) in Chapter 4 of the POEO General Regulation. It establishes reporting requirements for industrial facilities in NSW and also prescribes the offences for which penalty notices may be issued. This includes failure to lodge a report when due and failure to keep and produce records.

CSG facilities are required to report air emissions as part of the [National Pollutant Inventory \(NPI\)](#). In July 2013, the NPI [Emission Estimation Technique Manual for Oil and Gas Extraction and Production](#) was updated to enable CSG companies to provide more reliable estimates of emissions.

### Environment protection licence conditions

Environment protection licences require CSG activities to be conducted in a way that prevents pollution, including air pollution.

To assist the EPA to develop environment protection licence conditions for CSG facilities and to inform ongoing regulatory programs for the industry, the EPA conducted a review of CSG activities in NSW. This enabled the EPA to develop credible, rigorous and responsive licence conditions that are appropriate for each coal seam gas activity.

CSG licence conditions regarding air quality take into account current operational practices, legislative requirements, available monitoring methodology, emission outputs and the receiving environment. The EPA also considers the environmental risks associated with air emissions from CSG activities, as it does when assessing any industry type. As a result, each CSG licence is site specific and reflects the level and nature of activity occurring at each premises at that point in time.

As operations change or technology improves or new air quality standards come into effect, the environment protection licence conditions may be varied by the EPA to reflect the level of activity and set the environment protection parameters for that activity. Licence conditions are outcome-based and licences can be varied by the EPA at any time to reflect changes in operating circumstances or environmental impact.

All environment protection licences are available on the EPA's [public register](#).

### **Load-based licensing scheme**

Under the EPA's load-based licensing (LBL) scheme each environment protection licence requires the CSG companies to report to the EPA on the type and quantity of prescribed air pollutants emitted from the premises. These pollutants include benzene, benzo(a)pyrene, fine particulates, hydrogen sulfide, nitrogen oxides, sulfur oxides and volatile organic compounds from activities listed in Table 34 of the [Load Calculation Protocol](#). The assessable air pollutants are included within the LBL scheme due to the potential release of the pollutants when a facility produces, processes or stores oil and gas.

This information is recorded in the company's annual report which is available to the public on the EPA's website.

### **Leak detection and repair program**

Environment protection licences for CSG also require licensees to undertake a Leak Detection and Repair (LDAR) program to monitor for process leaks. These conditions are designed to assess and detect methane leaks from operating plant and equipment and ensure that repairs are conducted in a timely manner to reduce emissions.

### **Penalties**

Legislative requirements and licence conditions are legally enforceable. Failure to comply with requirements will result in a regulatory response. The EPA's Compliance Policy provides details about the regulatory tools used by the EPA, including formal warnings, clean-up and prevention notices, penalty notices, legally binding pollution reduction programs and for serious cases, enforceable undertakings or prosecution.

The EPA regularly inspects industry sites to assess environmental performance, check compliance with licence conditions and legislative obligations.

Find out more about the EPA's regulatory practice including the [compliance policy](#) and [prosecution guidelines](#).

### **Who to contact with any queries or concerns**

EPA Environment Line: phone 131 555 or email: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)