Coal seam gas activities and flowback water

Introduction

The NSW Environment Protection Authority (EPA) is the lead regulator of environmental and health impacts of all gas exploration, assessment and production activities in NSW. This includes all conventional gas, coal seam gas (CSG), tight gas and shale gas activities.

All gas facilities in NSW require an environment protection licence issued by the EPA. These licences include legally enforceable conditions in order to prevent pollution and safeguard the environment. Along with the licence conditions, there are legislative requirements that companies must comply with, including the *Protection of Environment Operations Act 1997* (POEO Act).

The 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 gas reserves.

The NSW Government has introduced an Aquifer Interference Policy and Codes of Practice for CSG Well Integrity and Fracture Stimulation to protect water resources. The codes outline requirements for fracture stimulation, the protection of aquifers, well design and construction, and well monitoring and maintenance. This regulatory framework protects the environment and community in NSW.

Flowback water

Flowback water is water that is returned to the surface after fracture stimulation has been undertaken. It is defined in the Code of Practice for Coal Seam Gas Fracture Stimulation Activities (2012) as the initial flow of water returned to a well after fracture stimulation.

During the fracture stimulation or fracking process, fracking fluid (typically containing sand, water and additives) is injected under pressure into the coal seam to open up cracks in the seam to create an improved path for gas to flow back to the surface. Once fracture stimulation is complete, the injected fracking fluid, mixed with groundwater from the coal seam, is pumped back to the surface and contained for appropriate disposal. This water is referred to as flowback water.

Flowback water is different from produced water. Produced water is groundwater that is already present within the coal seam and is pumped from the coal seam to the surface. Pumping groundwater from a coal seam reduces the pressure that keeps the gas in place. This allows the gas and water to flow up to the surface. Once on the surface, the gas is separated from the water. The water is then contained for disposal or treatment and recycling.

Requirements for disposing of flowback water

Under the POEO Act, flowback water is defined as a "liquid" waste.

The EPA is responsible for the regulation of waste in NSW. Just like other industrial activities in NSW, liquid and other wastes from CSG activities must be properly and lawfully managed, stored, transported and disposed of in a way that protects the environment and community and in accordance with the POEO Act and licence requirements.

Requirements for CSG facilities

Further, all CSG facilities are required to comply with the Code of Practice for Coal Seam Gas Fracture Stimulation Activities. The code outlines the best practice framework for hydraulic fracturing, covering the fracturing process, use of chemicals and the source and protection of water. To protect groundwater, surface water and the environment, the NSW Government has banned the use of harmful BTEX chemicals.

The code also requires that CSG facilities develop a Fracture Stimulation Management Plan (FSMP) as part of the application process for the project. The FSMP must outline the management storage and disposal of flowback water.

The EPA requires that flowback water must be appropriately stored and transported to a facility that is licensed by the EPA to take that type of waste. All CSG facilities must also keep detailed records of their liquid waste, including:

- the classification of the waste
- the amount of waste
- how it has been stored
- how it was transported and by whom
- where it was disposed.

Requirements for waste facilities

The EPA is responsible for regulating the managing, storing, transporting, processing, recovering and disposing of waste in NSW through the POEO Act.

To ensure that appropriate controls are in place, waste management facilities are required to hold an environment protection licence issued by the EPA. The licence outlines the types of waste that the facilities can accept and conditions for discharges and emissions from the facilities.

Once an appropriately licensed waste management facility receives CSG flowback water, the water must be treated in accordance with its environment protection licence conditions and the POEO Act.

Following treatment, the water must be tested and classified in accordance with EPA Guidelines and properly disposed of or recycled. Discharges to sewer are controlled by the local sewerage authority and are subject to the requirements of that authority.

Penalties

Legislative requirements and environment protection licence conditions are legally enforceable. Failure to comply with requirements will result in a regulatory response.

The EPA's Compliance Policy provides details of 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 practices including the compliance policy and prosecution guidelines.

Further information

For more information on the NSW Government Aquifer Interference Policy and CSG Codes of Practice visit the resources and energy website.

For further information on the EPA's regulation of CSG and waste visit the EPA website or contact the EPA Environment Line: phone 131 555 or email: info@environment.nsw.gov.au

All Environment Protection Licences and the conditions these impose are available on the EPA's public register.

Environment Protection Authority
Website: www.epa.nsw.gov.au
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