



Resources Safety & Health
Queensland

Biogas Compliance Assurance Plan

FY2021/2022 to FY2022/2023

Petroleum and Gas Inspectorate

May 2021 | Final

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Executive Summary

This document outlines the two year plan for the regulation of biogas installations in Queensland. It details the focus of the proactive compliance assurance activities to be conducted by the Petroleum and Gas Inspectorate (the Inspectorate) on all activities associated with biogas installations over the next two financial years (FY2021/2022 to FY2022/2023).

Compliance assurance activities include:

- Audit
- Inspection
- Engagement

In addition to the above compliance activities the inspectorate is collaborating with Queensland Government's Safety in Mines, Testing and Research Station (Simtars) to conduct a qualitative assessment of the potential health risks for operators of biogas facilities.

Over the life of this plan 22 audits, 105 inspections and 8 health risk assessment will be undertaken to ensure biogas facilities in Queensland are operated safely, in line with the requirements of the *Petroleum and Gas (Production and Safety) Act 2004 (the Act)*.

1.0 Introduction

This plan details the number and focus of the compliance assurance activities to be conducted by the Inspectorate on all activities associated with biogas installations over the next two financial years (FY2021/2022 to FY2022/2023).

The safety and health of the biogas sector in Queensland is regulated under the Act. The legislation is administered by the Inspectorate within Resources Safety & Health Queensland (RSHQ).

As part of RSHQ, the Inspectorate is a risk based regulator. This means the Inspectorate apply their resources to the areas of greatest risk within the industry, and to the activities that will achieve the greatest safety and health outcomes.

2.0 Background

Biogas is a biofuel that is produced from the decomposition of organic waste. Biogas is primarily composed of methane, carbon dioxide and other non-methane contaminants such as hydrogen sulphide. As methane is combustible, biogas can be used as a fuel source similar to natural gas.

As a renewable, biogas has been gaining attention as an alternative source of energy. The number of biogas sites in Queensland has grown steadily over the past three years and currently there are 84 operating sites on the Inspectorate's database.

The following types of biogas are defined as both petroleum and fuel gas in the Petroleum and Gas (General Provisions) Regulation 2017.

- biogas. i.e. meat processing plants etc

- gas produced from a waste disposal tip.
- gas produced during the treatment of sewerage.

2.1 Previous compliance activities

Over 2019/2020, the Inspectorate performed the following proactive compliance and engagement activities:

Audits:

- Biogas: 3
- Waste treatment: 2

Inspections:

- Biogas: 13
- Waste treatment: 9

Engagements:

- Biogas: 4
- Waste treatment: 3

Health Risk Assessments:

- Biogas: 2
- Waste treatment: 2

3.0 Compliance assurance plan

The aim of the two year plan is to visit each existing site to conducted compliance activities to ensure biogas facilities in Queensland are operated safely, in line with the requirements of the Act.

Priority will be given to sites with complex operations, including new technologies, sites not previous visited, or sites where prescribed incidents have occurred in the past two years.

Biogas operators will be contacted by the Inspectorate to coordinate audit and inspections timeframes and details.

FY2021/2022

Audits:

10 audits are planned across biogas, waste disposal tips and sewage treatment plants for the year.

- Biogas: 4
- Waste disposal tips: 3
- Sewage treatment: 3

The audits will focus on the site's Formal Safety Assessment (FSA) as required in s675 (1)(e) of the Act. The Act requires that a formal safety assessment consisting of the systematic assessment of risk and a description of the technical and other measures undertaken, or to be undertaken, to control the identified risk for all sites.

When reviewing the FSA, the auditor will select various identified hazards and review the level of risk, current controls, additional mitigation implemented to reduce the level of risk and the operators review process. This review will be done in line with the principles contained in *AS ISO 31000:2018 Risk management – Guidelines*.

Inspections:

50 Inspections are planned across biogas, waste disposal tips and sewage treatment plants for the year.

- Biogas: 20
- Waste disposal tips: 15
- Sewage treatment: 15

The structured inspections will be conducted using the Inspectorates iAuditor based checklist. This checklist includes the following subjects:

- Emergency response
- Hazardous area exclusion zones
- Electrical equipment used within the hazardous area
- Use and maintenance of personal gas detectors
- Venting and over pressure protection measures
- Flare location and installation
- Use of flame arrestors, compatible with biogas. i.e. flaring sites
- Gas device approval i.e. gas engines, boilers, flares etc

FY2022/2023

Audits:

12 audits are planned across biogas, waste disposal tips and sewage treatment plants for the year.

- Biogas: 4
- Waste disposal tips: 4
- Sewage treatment: 4

The audits will be focussed on the following safety management system requirements under s675 of the Act:

- a training and supervision program containing the mechanism for imparting the skills, knowledge, competencies, and experience identified in the Skills assessment and assessing new skills, monitoring performance, and ensuring ongoing retention of skill levels.
- safety standards and standard operating and maintenance procedures applied, or to be applied, in each stage of the plant.

- control systems, including, for example, alarm systems, temperature and pressure control systems, and emergency shutdown systems.
- operator's health risk assessment (HRA) processes for noise, chemical exposure etc identified in the site's formal safety assessment

Inspection:

55 Inspections are planned across biogas, waste disposal tips and sewage treatment plants for the year.

- biogas: 20
- waste disposal tips: 15
- sewage treatment: 15

The structured inspections will be conducted using the Inspectorates iAuditor based checklist.

4.0 Health Risk Assessment

The Inspectorate is collaborating with Simtars to conduct a qualitative assessment of the potential health risks for operators of bio-gas facilities.

The assessments will take place at 8 biogas sites over the life of this plan and will include the following:

- initial site assessment and hazard characterisation
- qualitative HRA
- comprehensive review of occupational health and hygiene hazards.

Participating sites will receive a comprehensive report identifying any health related risks and will include recommendations to improve the health outcomes for employees on these sites. This plan may change subject to operational priorities of the Inspectorate.