Operational phase

Chapter 08

In this chapter we cover:

- Operations, monitoring and maintenance
  Frequency of follow-up visits
- Well standards
- Well head monitoring program
- Petroleum and gas flaring
- Noise, light and odour

Current as of April 2019
Operations, monitoring & maintenance

With commissioning and start-up, the construction phase is over and the landholder should look forward to less frenetic times.

The operational phase switches the resource company’s attention to safely operating and maintaining the infrastructure and equipment situated on your land.

Well production timeframes can vary but some have been known to keep producing for upwards of 30 years.

That’s a potentially lengthy business partnership, so a good working relationship is essential, particularly in light of the resource company’s responsibility to maintain and monitor their infrastructure for its operational life.

The resource company will need regular access to their assets located on your land for ongoing inspections and monitoring by trained field operators.

The resource company is obliged to contact the landholder in line with agreed access rules to notify of upcoming activities but comfort levels may get to a point where notification becomes unnecessary, as both parties understand and acknowledge each other’s business.

Exceptions might occur with major events such as mustering, field days or extended equipment workovers.

Ongoing maintenance schedules vary depending on the type of infrastructure used and the operator but you should reasonably expect a site visit pattern as per the next page.
Maintenance timeline

**Weekly**
Routine inspections and maintenance.

**Monthly**
Gas testing of surface facilities, weed trimming and control spraying around aboveground infrastructure.

**Six monthly**
Fencing checks, change out engines and generator.

**Quarterly**
Servicing of well site components (e.g. engines, generator, drive head), calibration of measuring equipment.

**Annual**
Pressure vessel inspections and safety checks, gas leak surveys, water and gas analysis.

**Workovers as required**
Well maintenance that could require a rig being brought on site.
Well standards

A Code of Practice overseen by the Petroleum and Gas Inspectorate in the Department of Natural Resources Mines and Energy ensures that all petroleum and gas wells and associated bores are constructed, operated and abandoned to a consistent acceptable standard to ensure safety through long-term well integrity.

The code identifies industry standards and good oilfield practice for well design. It complements the resource company’s internal risk assessment processes, operating standards and procedures by outlining a recommended process to ensure that:

- Risk to the public and workers is managed to a level as low as reasonably practicable
- Regulatory and applicable Australian and international standards/requirements, as well as the resource company’s standards, are understood and implemented where appropriate
- The life of a well or associated bore is managed effectively through appropriate design and construction techniques and ongoing well integrity monitoring
- The environment and groundwater resources are protected

Source: Code of Practice for the construction and abandonment of coal seam gas and petroleum wells, and associated bores in Queensland (Petroleum and Gas Inspectorate, Version 1, September 2018)

**Did you know...**

Increasingly, resource companies are using new technologies including remotely piloted small-scale aircraft systems (RPAS) or drones to inspect gas wells, pipelines and processing facilities in Queensland. The drones are helping to drive improvements in safety and reduce the industry’s environmental footprint.

**TECHNICAL NOTE: NATURAL GAS**

Natural gas is colourless and odourless but, like many fuels, is flammable. It’s important that safe work operating practices are established and followed when working near gas infrastructure. Contact your resource company first if you are planning any construction or any other significant activities near any gas facility.
Petroleum & gas flaring

Flaring involves burning off flammable substances that are unusable or present a safety hazard if not removed.

Flaring is commonly seen:
- At processing plants to safely remove stored gases in pipes, vessels and tanks during maintenance or emergency shut downs
- At drilling rigs to safely remove gases encountered when drilling
- On exploration and appraisal wells until a sufficient amount of information is gathered to prove the viability of the reserve

A flare is characterised by a vertical stack or pipe with a burner at the tip. Other components can be connected to the inlet of a flare and include valves, hoses, pipes regulators and connecting fittings.

FLARING IS COVERED BY PRODUCTION AND ENVIRONMENTAL REGULATIONS AND THERE ARE ADDITIONAL GUIDELINES FOR FLARING ACTIVITIES NEAR HOMES AND COMMUNITIES.

Flaring is the one of the safest and most environmentally friendly processes for burning unusable combustible vapours and liquids.
Noise, light & odour

In Queensland, resource companies are subject to strict environmental assessment processes and must be issued an environmental authority (EA) by the Department of Environment and Science (DES) before they can begin operations on your land.

An environmental management plan must be submitted to identify and manage the potential impacts of noise, light and odour.

Environmental authority conditions require companies to not cause environmental nuisance from noise at a sensitive receptor (a place where noise is measured to investigate whether impacts are occurring) or from dust, odour, light or smoke at a sensitive place (including for example a dwelling, library, childcare centre, medical centre, or a public park).

There is provision for alternative arrangements between a resource company and landholder. This is a written agreement about the way in which a particular nuisance impact will be dealt with at either a sensitive place or

Case study
INNOVATION AND IMPACT REDUCTION

Focus on community impact is essential early in the piece, when opportunities can be taken to design the field and facilities in a way that reduces impact. Origin, as operator of the APLNG upstream facilities, made the decision to use electric-driven compressors, which drove the extension of the Queensland electricity network further west into the Surat Basin and allowed for the use of more efficient compressors which make materially less noise and emissions than gas-driven compressors. Ground flares were also chosen to reduce the noise and visual impact of flaring events.

Noise

An EA will identify the acoustic values of the area where the proposed activities are to be carried out.

These acoustic values include:
- Health and biodiversity of ecosystems
- Human health and wellbeing, including ensuring a suitable acoustic environment for individuals to sleep, study or learn, and be involved in recreation, including relaxation and conversation
- The amenity of the community

Assessing the implications of the above, DES will usually impose conditions in the EA for the protection of the acoustic environment. Noise management plans can also be required to address how activities will be carried out, according to best practice noise management principles.
Air quality

Environmental values relevant to air quality may include protecting:

- The health and biodiversity of ecosystems
- Human health and wellbeing
- The aesthetics of the environment, including the appearance of buildings, structures and other property
- Agricultural use of the environment

Companies are required to provide background air quality monitoring data and in certain instances, undertake air quality modelling to demonstrate that the air quality objectives are being maintained.

Resource companies must ensure that the release of dust, light, odour or any other airborne contaminants resulting from their activities do not cause an environmental nuisance to any sensitive receptor.

Environmental authorities also include a suite of monitoring requirements for point source contaminant releases to air in order to demonstrate that companies are complying with their requirements.

Case study

AIR QUALITY IN THE SURAT BASIN

A three year study completed in 2018 by CSIRO’s Gas Industry Social and Environmental Research Alliance (GISERA) investigated the influence of coal seam gas activities on air quality.

Data from the study is available online via the Department of Environment and Science website and shows good ambient air quality around the towns of Condamine, Miles and Chinchilla.

The air quality monitoring found low concentrations of volatile organic compounds in these areas, typical of other rural regions in Australia.

These compounds in the air around Chinchilla were attributed to vehicle exhaust, as well as domestic and commercial sources within the town.

The study found that CSG activities did not contribute to elevated concentrations of fine particles which exceeded air quality objectives.

Other activities that typically affect air quality in rural areas include bushfires, wind-blown dust, dust from cattle movements and vehicles driving on unsealed roads.

Ratios of benzene/toluene from woodsmoke/fire, vehicle exhaust, urban and rural areas

Graph source: CSIRO’s GISERA 2018
LANDHOLDER TIP:
It is in the interest of resource companies to establish and maintain good working relationships with landholders. Staff and contractors work to strict guidelines and standards of behaviour but your best insurance is always effective and regular communication with your assigned land access/liaison officer.

TECHNICAL NOTE: WORKOVERS
Just like cars need servicing, gas wells need periodic workovers to ensure they continue operating efficiently and safely.

Well workovers involve bringing a rig or wireline onsite to clean, check, repair and/or treat the infrastructure inside the well.

Where necessary, workovers can involve replacing the pump, well tubing or rods, reperforating the well, removing any loose rock or even changing the downhole configuration of the well by deepening or sidetracking.