

Queensland Resources Reporting Lodgement Guideline GSQ Data Portal

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1 Introduction

The Geological Survey of Queensland (GSQ) within the Department of Resources (DoR) has implemented a new geoscience data repository termed the GSQ Open Data Portal. This repository replaces the former QDEX system, and is designed to be consistent with the principles of the Queensland Government Open Data strategy.

The GSQ Open Data Portal is the umbrella term used to describe three core elements of the new data repository system:

- An **Open Data Portal**, which stores and makes available for access all public geoscience data.
- A **Confidential Data Portal**, which stores all geoscience data held confidential by government (either for a defined period or permanently)
- A **Lodgement Portal**, which is for use by industry participants required to submit geoscience data as a condition of holding mineral or energy resources tenure in Queensland.

Data must be submitted via the Lodgement portal in digital form.

Data submitted for petroleum and gas and mineral and coal reports must meet the standards for content and file formats in either the Petroleum Reporting Practice Direction or Minerals and Coal Reporting Practice Direction. In most cases data lodgement uses standardised submission templates, designed to guide the user in assembling data, and to ensure consistency with the defined data formats and standards.

Reports that do not meet these standards will not be accepted.

Reports for Greenhouse gas storage permits and Geothermal permits should use this guideline for data formats and standards. There are no standardised templates designed as yet.

2 Confidentiality

Data confidentiality and security are key features of the GSQ Open Data Portal. Submitted data will be held in the Confidential Data Portal. In cases where that data passes a defined confidentiality period it will be moved programmatically to the Open Data Portal where it will become publicly available, often referred to as “open file”. Note that some data will remain permanently in the Confidential Data Portal where it will be accessible only by authorised users within the Queensland Government.

Reports and data are required for DoR to build up comprehensive databases of exploration and production data, and make those databases available to the minerals, coal, petroleum, geothermal and greenhouse gas industries. Refer to the tables 3 and 4 for the lodgement and confidentiality periods for each Resource Act.

3 Submitting Data

The underlying methodology of geoscience reporting in Queensland has been revised to place greater emphasis on component data rather than preparation and submission of traditional reports. However, for simplicity of communication and linkage to legislative and regulatory requirements, the term reports is maintained to describe the assemblages of data required to be submitted.

Generally most reports should be submitted via the GSQ Lodgement Portal (Portal). Some reports are required to be lodged through MyMinesOnline including the petroleum Production report and the Expenditure report for minerals and coal.

The following documents set out the content and format requirements for each report:

- For Minerals and Coal - the Minerals and Coal Reporting Practice Direction
- For Petroleum and gas related reports- in the Petroleum and Gas Reporting Practice Direction
- For Geothermal reports - section 8 of this Guideline; and
- For Greenhouse gas reports – section 9 of this Guideline.

The Lodgement Portal has no upper limit in terms of file size that can be accepted. However, in practical terms for extremely large file transfers (multiple gigabytes or terabytes) it is preferable that other mechanisms are discussed with the Department, for example to utilise direct file transfer from the Amazon Web Services cloud.

Any additional information, support or requests relating to lodgement of data should be directed to GSQOpenData@resources.qld.gov.au.

4 Digital Reports

The file formats for submission of reports and associated data are as set out in Section 2.6 of both the Minerals and Coal reporting practice direction, and Petroleum reporting practice direction.

5 Publication of reports and data

Once any confidentiality period expires, DoR may publish reports and data as follows:

- in a journal published by the department or under the Minister's authority
- in another publication considered appropriate by the chief executive
- on the DoR web site on the internet
- in a publicly available database
- on a map that is made available to the public for inspection or purchase
- by displaying it on a notice that is available to the public for inspection at:
 - the head office of DoR
 - other places the chief executive considers appropriate
- by telling it to another person or presenting it to the person in a visual form.

6 Spatial data

The department has prepared a guideline for how spatial data should be provided. Refer to the Spatial Data Guideline for detail about naming conventions, scales and format type.

Mapping data can be submitted via .pdf format in exceptional circumstances, and where prior consultation with the Department via GSQOpenData@resources.qld.gov.au.

7 Common Reporting Contents

The following requirements must be included for every report type for Geothermal or Greenhouse Gas Storage. For Petroleum and Minerals and Coal refer to practice directions on DoR website.[link](#).

7.1 Report content and structure

Until templates are created for GHG and Geothermal reports, the reports can be lodged in PDF accompanied by any data files, appendices or other associated data, which can be lodged as separate files.

Each report needs to also include the following elements:

- the main report including:
 - title page
 - report name
 - project name
 - resource authority (tenure) type and number
 - name of the resource authority holder
 - name and affiliation of the report author
 - name and affiliation of the report submitter
 - the report period in day-month-year format
 - the report date in day-month-year format
 - table of contents
 - report sections
 - references
 - associated maps, images and cross-sections (in jpg, tif, or png formats)
 - appendices (where applicable as separate associated documents)
 - data files (as separate original data files and/or data templates as per the Data Files section of the Practice Directions)

The format for Expenditure Statements, Production and Resource/Reserve information consists of data files and any appendices or other associated data, which can be lodged as separate files.

7.2 Ancillary reports

Any ancillary reports, including contractor reports, completed as part of the activity, must be included as appendices. These include analytical and interpretation reports, which must adequately describe the methodologies and assumptions used in conducting the analyses or interpretations for comparison with results from similar activities. The results tables must also be provided in a digital native format as supplied by the party which conducted the work (i.e. the contractor). Any outstanding results must be submitted once they become available. See 'Ancillary reports' (Appendices) and 'Data – Ancillary reports' in the Practice Directions for further information on this requirement.

7.3 Consistency

In order to ensure confidence in the information provided, the detail contained within each report section must be consistent throughout the report. Any inconsistencies in the detail of information provided in the main body of the report and any appendices or data files must be explained. This includes where corrections have been made and incorporated into the final report. All reports and appendices are to be written and submitted in English.

7.4 Data formats and standards

Detailed information must be provided in a digital form to allow efficient capture and validation of data submitted on report lodgement. As such, it is important that standards and formats for data submission are in place and enforced.

7.4.1 Digital standards

Acceptable digital standards for wireline logs are Log ASCII Standard (LAS) or Log Information Standard (LIS). Seismic data should be submitted as per the Society of Exploration Geophysicists (SEG) standard, being SEG-Y or SEG-D formats for processed and acquisition data, respectively. Geophysical surveys provided should be compliant with the Australian Society of Exploration Geophysicists (ASEG) standard in either general data format (ASEG-GDF2) or format for exchange of electrical survey data (ASEG-ESF).

7.4.2 Written reports

Written sections of the report must use the specified headings and be submitted in a machine readable file type (*.TXT, *.DOCX, or *.PDF in ISO19005-1 compliant (PDF/A) format).

7.4.3 Spatial data

Spatial data must be provided in a standard GIS file format such as ESRI shape (*.SHP) file format or MapInfo tab (*.TAB) file format. Data may comprise linear, point, or polygonal features in GDA2020 datum with the projection and zone specified. The file must include metadata to describe its context, key attributes, and identity. Tabular data must be provided as *.ASCII, *.CSV or *.XLSX or *.TXT format.

Where files are composite sets all associated files must be submitted (e.g. shape files must be submitted as a *.ZIP including a *.SHP, *.SHX, *.DBF, *.PRJ, and *.XML file set as a minimum).

Dates must be specified in DD-MM-YYYY format with standard calendar days spanning from 00:00:00 to 23:59:59 hours.

Stratigraphic units must be listed as per the Australian Stratigraphic Units Database (ASUD).

All spatial references and azimuthal measurements (e.g. strike, directional downhole surveys, etc.) must be referenced to True North, with magnetic declination, corrections, and conversions detailed where relevant.

7.4.4 Tabular data

Tabular data must be provided in Microsoft Excel formats (*.XLS, *.XLSX) or standard comma-delimited ascii formats (*.TXT, *.ASC, *.CSV). Tables must include a header row that describes the content of the data column. Where practical and applicable, tabular files should be based on the data submission templates for Petroleum and Gas Reporting Practice Direction available from <insert link or reference>. Files should be provided with identical field (column) names to the templates where equivalent fields are available and equivalent mandatory fields should be provided where available to ensure a valid dataset.

There is further detail on the submission requirements and file formats for data files lodged with a report within the relevant sections of the associated Practice Direction.

7.5 Depth reference datum

The all downhole depths must be referenced to a common datum at Ground Level (GL). The reference datum for any other activity (e.g. airborne geophysical surveys must be reported. The

reference datum must be consistent throughout the report: within text, tables, figures, and attached data files. Elevation values must be relative to the Australian Height Datum (AHD). All downhole depth measurements must be in Measured Depth (MD) or Downhole Depth, unless otherwise stated.

7.6 Units of measure

For the following measurements, 'standard reporting units' are mandatory, unless specified otherwise in this Practice Direction, as follows:

- depth and depth intervals (thickness) must be stated in metres
- All spatial coordinates must be reported as either:
 - projected coordinates stated as easting and northing in metres, and including meta-data to describe the coordinate reference system, projection and zone specified (noting that GDA 2020 is the preferred coordinate reference system).
 - geographic coordinates stated as latitude and longitude in decimal degrees, and including meta-data to describe the coordinate reference system and datum (noting that GDA2020 is the preferred coordinate reference system) with no less than five decimal place accuracy with coordinate system specified.
- All ore and coal quantification must be reported as quantity and grades in SI units or appropriate units of measurement. Any quantification of resource that is not compliant with the JORC Code must be clearly stated as such.

All other numeric values must be reported in their original unit of measure with units stated. This is particularly important for engineering components e.g. casing, which are manufactured to a standard such as the American Petroleum Institute (API). Significant figures must be reported as per the original measurement, unless specified otherwise in this Practice Direction. Assay data must be reported in the original units of measure as provided by the testing laboratory. This must be accompanied by minimum levels of detection, precision, and accuracy of the testing equipment.

7.7 Information in Prior Reports

Information stated in previous reports should not be repeated. References to previous reports should be included where relevant.

8 Reporting for Petroleum Licences and Water Reports

The requirements for reports for petroleum resource authorities under the Petroleum and Gas (General Provisions) Regulation 2017 are contained in the Petroleum and Gas Reporting Practice Direction with exception of the Petroleum Licence and Petroleum Facility Licence Annual Report and the Non-Associated Water report – contained in this guideline.

Reports for mineral and coal resource authorities are contained in the Minerals and Coal Reporting Practice Direction with the exception of the Associated Water Reports contained in this Guideline

8.1 Report Types

Report Type	Relevant Provision:	Lodgement Due Date	Open Filing Due Date
Pipeline licence and Petroleum facility licence annual report	Section 13 -P&G Regulation Section 552(2) - P&G Act	Within two months after each of its anniversary days	5 years after the last day of the period to which the report relates
Reporting of Non-associated water	<u>Section 56 – P&G Regulation</u> <u>Section 186(4) - P&G Act</u>	Within 20 business days of reporting period, 30 June and 31 December, Otherwise on the day the tenure expires or is surrendered.	There is no confidentiality period however the department does not release these reports.
Annual Associated water volume report	Section 31B(2) MRR Section 334ZP(5)(b) MRA	Within 1 calendar month after end of reporting period, which is 31 October	There is no confidentiality period however the department does not release these reports.
Associated water closure report	Section 31B(3) MRR 334ZP(5)(b) MRA	On the day the licence or lease expires or is surrendered.	There is no confidentiality period however the department does not release these reports.

8.2 Pipeline Licence and Petroleum Facility Licence Annual Report

For each reporting period for a pipeline licence or petroleum facility licence the holder must, within 2 months after the anniversary day, lodge a report containing the following¹:

- a description of the authorised activities for the tenure carried out in that part, and the results of the activities
- *tenure information* - Tenure and general information for the resource authority must be provided and include the following information:
 - the licence number
 - the licence holder name
 - the day the licence was granted, and the term of the licence
- *location map* - A location map must show the relevant licence and any area where activity may be occurring, at a scale that provides useful context. Features specific to the activity or area must be provided and may include sample locations, survey line locations, physical transects, and survey areas. Every map must have title, coordinates, scale, legend (legible), datum, projection, and zone stipulated. The map must be to standard base-10 scale e.g. 1:10,000, 1:250,000, 1:1,000,000. Location map images must be at a sufficient image resolution so that all features and text are legible at the scale of the image.
- *Activities summary* - the authorised activities for the pipeline licence or petroleum facility licence carried out during the period to which the report relates must be provided and include:
 - a description of the location of the pipeline or facility, and access to the pipeline or facility
 - the details of all maintenance carried out on the pipeline or facility during the period of the licence.
- *Proposed Activities summary* - a statement of the authorised activities proposed to be carried out under the licence during the next 12 months.

¹ Section 13 P&G Regulation

8.3 Non-Associated Water Report

For each reporting period the following information is required²:

- the total volume of non-associated water taken in the area of the tenure during the reporting period; and
- for non-associated water extracted from a bore in the area of the tenure—
 - the volume of non-associated water extracted from the bore during the reporting period; and
 - the source geological formation from which the non-associated water was taken; and
 - whether the source geological formation is artesian or subartesian; and
- the authorised activity for the tenure for which the non-associated water was used; and
- if, during the reporting period, the holder uses an alternative method under section 55(3) for the first time—an explanation of the alternative method.

A water volume report template is provided on the DoR website to assist with reporting requirements.

8.4 Associated Water Reports

The holder of a mineral development licence or mining lease may take or interfere with underground water during the course of carrying out an authorised activity³.

Where a mining lease or mineral development licence takes associated water, the holder must report the volume or estimated volume of associated water taken as prescribed in the regulation⁴.

Refer to the table at section 8.1 of this Guide for reporting periods and lodgement timeframes.

Details about how to measure associated water can be found in the Guideline - Quantifying the volume of associated water taken on a mining lease or mineral development licence

8.4.1 Annual Associated water volume report

For each reporting period, the holder must report if the total volume of associated water taken in the area of the licence or lease during the reporting period is 2ML or more⁵—

- the total volume of associated water taken in the area; and
- if dewatering of a surface mine or an underground mine is achieved using bores—
 - the volume of associated water extracted from each active bore field during the reporting period; and
 - the source geological formation from which the associated water was taken; and
 - whether the source geological formation is artesian or subartesian; and
- if, during the reporting period, the holder uses an alternative method under section 31A(3) for the first time—an explanation of the alternative method.

Reports should be lodged using the Associated water volume report template available on the [Water reporting for coal and mineral activities | Business Queensland](#) webpage.

² Section 56 P&G Reg

³ Section 334ZP(1) MRA

⁴ Section 334ZP(5)(b) MRA

⁵ Section 31B(2) MRR

8.4.2 Associated water closure report

If the licence or lease expires or is surrendered, the holder must also report, for each surface mine in the area of the licence or lease⁶—

- the relationship between the horizontal area of any pit associated with the mine and the elevation from the bottom of the pit based on survey data for the pit; and
- a prediction of the long term annual, steady state entry of underground water into any pit/area of the mine that is rehabilitated; and
- an explanation of the method the holder used to make the prediction.

Reports should be lodged using the Closure report template available on the [Water reporting for coal and mineral activities | Business Queensland](#) webpage.

9 Reporting for Geothermal Resource Authorities

The type and frequency of statutory requirements for reporting, data submission and operational notification for EPGs and GLs are detailed in Chapter 5, Part 1 of the [Geothermal Energy Regulation 2012](#) (for authorities administered under [Geothermal Energy Act 2010](#)).

NOTE the following is simplified and abbreviated from the relevant sections of the geothermal legislation and is intended as a guide only. If in any doubt as to meaning, refer to the legislation.

Table 1 – Geothermal report types, lodgement requirements and open filing details

Report Type	Relevant Provision:	Lodgement Due Date	Open Filing Due Date
Relinquishment Reports	Section 15 - Regulation Section 190 - Act	Six months after relinquishment	Immediately
End of Tenure Reports	Section 16 - Regulation Section 191 - Act	Six months after the tenure/authority ends	Immediately
Daily Drilling Reports	Section 17 - Regulation	5pm following working day	Appraisal and exploration wells: two years from lodgement due date Development wells: five years from lodgement due date
Well Completion Reports	Section 20 - Regulation	Within six months after the rig release day	Appraisal and exploration well: two years from lodgement due date Development wells : five years from lodgement due date
Well Abandonment Reports	Section 29 - Regulation	For a well that is plugged and abandoned before the rig release day for the well - with the well	Appraisal and exploration wells: two years from lodgement due date

⁶ Section 31B(3) MRR

Report Type	Relevant Provision:	Lodgement Due Date	Open Filing Due Date
		completion report for the well (within six months after the rig release day); or otherwise - within two months after the completion day.	Development wells: five years from lodgement due date (except where on coal or oil shale mining tenement)
<u>Annual Geothermal Reserves Reports</u>	<u>Section 35 - Regulation</u>	Within 40 business days after the last day of each year for the tenure	Six months after the last day of the period to which the report relates
<u>Production Testing Reports</u> Geothermal Permit	<u>Section 36 - Regulation</u>	Within 40 business days after the testing period ends	Two years after the last day of the period to which the report relates
<u>Production Testing Reports</u> Geothermal Lease	<u>Section 36 - Regulation</u>	Within 40 business days after the testing period ends	Five years after the last day of the period to which the report relates
<u>Injection Testing Reports</u>	<u>Section 39 - Regulation</u>	Within 40 business days after the injection testing period ends	
<u>Production Reports</u>	<u>Section 42 - Regulation</u>	Within 40 business days after the end of each year for the tenure	Six months after the last day of the period to which the report relates
<u>Injection Reports</u>	<u>Section 43 - Regulation</u>	Within 40 business days after the end of each year for the tenure	
<u>Hydraulic Fracturing Activities Completion Reports</u>	<u>Section 44 - Regulation</u>	Within two months after completion of the activities	Five years after lodgement due date
<u>Surrender Report for Geothermal Tenures</u>	<u>Section 49 - Regulation</u> <u>Section 302(2) - Act</u>	Accompany surrender application for a geothermal tenure administered under the Geothermal Energy Act 2010	Immediately
<u>Geophysical Survey Reports</u>	<u>Section 50 - Regulation</u>	Within six months after the completion day for the survey	Two years after lodgement due date
<u>Scientific or Technical Survey Reports</u>	<u>Section 53 - Regulation</u>	Within six months after the completion day for the survey	Two years after lodgement due date

* A 6 month period means a following period in a year during which, for all or part of the period, the relevant geothermal tenure or authority is in effect:

- (a) 1 January to 30 June;
- (b) 1 July to 31 December.

9.1 Report Types

The various report types and their requirements which should be included in the body of the report are listed below:

9.2 Relinquishment Report

If the area of a geothermal tenure is relinquished its holder must, within six months after the relinquishment date, lodge a report containing the following:

- a description of the authorised activities for the tenure carried out in that part, and the results of the activities
- *tenure information* (for the definition of ‘tenure information’ see below)
- *general area information* (for the definition of ‘general area information’ see below)
- the geological model of the relinquished part of the area of the tenure, and an assessment of the potential for geothermal discovery in the area
- a summary of the results of all authorised activities carried out in the relinquished area since the tenure took effect, and the conclusions drawn by the holder based on the results
- an index of all reports lodged, as required under the Act, in relation to the authorised activities carried out in the relinquished area
- *hazard information* (for the definition of ‘hazard information’ see below)
- the volume of geothermal energy water produced from each geothermal well or bore in the relinquished area for each year since the tenure took effect
- the reason the holder has relinquished the area.

General area information means:

- a location map showing the area of the geothermal tenure immediately before the relinquishment, and the relinquished part of the area of the geothermal tenure
- a map showing the location in the relinquished area of:
 - each geothermal well drilled under the tenure; and
 - each seismic line used for a seismic survey carried out under the tenure
- a structure contour map showing the seismic horizons (seismic reflectors) in the relinquished area
- a map showing the leads and prospects in the relinquished area
- a general description of the topographical features of the previous tenure area and the relinquished area, including, for example, access to the areas.

Tenure information means:

- the day the geothermal tenure was granted
- the day the relinquishment takes effect
- the period of the work program for the tenure
- the blocks or sub-blocks comprising the relinquished part of the area of the tenure.

Hazard information means:

- a summary of all significant hazards to future safe and efficient exploration and production of geothermal energy under the tenure that, under section 706 of the 2004 Act or under the Regulation, are required to be reported
- for each hazard mentioned in the summary, a reference to the report that contains details of the hazard.

9.3 End of Tenure Report

Within six months after a geothermal tenure ends, the person who held the tenure immediately before it ended, must give the chief executive a report that includes all of the following for the geothermal tenure:

- the tenure information

- the general area information
- a description of the geological model for the geothermal reservoirs in the area of the tenure
- a summary of all authorized activities for the tenure carried out for the tenure since it took effect
- a summary of the results of the activities
- an analysis of the conclusions drawn from the results of the authorized activities carried out in the area since the tenure took effect
- an index of all reports given as required under the [Geothermal Energy Act 2010](#) for the activities
- a summary of all significant hazards created to future safe and efficient mining that under the P&G Act safety provisions, are required to be reported by the person
- for each hazard mentioned in the summary, a reference to the report containing details of the hazard
- any information required to be reported under the [Geothermal Energy Act 2010](#) that has not been previously reported
- an estimate of the total mass flow of geothermal fluid produced from each geothermal well in the area for each year since the tenure took effect
- other information prescribed under a regulation.

The general area information, for an end of tenure report for a geothermal tenure, means each of the following:

- a map showing:
 - the location of the area of the tenure; and
 - the location in the area of the tenure of all:
 - geothermal wells drilled under the tenure;
 - seismic lines used to carry out seismic surveys of the area of the tenure and the range of the numbered stations on each line; and
 - sites used to carry out geophysical surveys, other than seismic surveys.
- a structure contour map of:
 - the seismic horizons (seismic reflectors) in the area of the tenure; and
 - values measured during geophysical surveys, other than seismic surveys, in the area of the tenure;
 - a general description of the topographical features of the area of the tenure, including, for example, access to the areas.

Tenure information, for an end of tenure report for a geothermal tenure, means each of the following:

- the day the tenure was granted
- the period of the work program or development plan for the tenure.

9.4 Daily Drilling Report

A geothermal tenure holder must, for each day on which drilling of a geothermal well is carried out in the area of the geothermal tenure, give the chief executive a report about the drilling of the well not later than 5:00pm on the next business day after the day's drilling.

The daily drilling report must include the following information on its first page:

- the type and number of the geothermal tenure

- the name and postal address of the operator of the geothermal well
- the identifying name of the well
- the name of the geothermal tenure holder
- a map showing the location of the well
- the name of the author of the report
- the name of the person submitting the report
- the date of the report, in day-month-year format.

The daily drilling report must include the following details about the drilling of the geothermal well:

- the well's depth in metres at the end of the day
- the type of drilling rig used to drill the well
- the bit record for the well
- the drilling fluids and additives used during the day's drilling
- a summary of the drilling operations carried out during the day's drilling
- diagrams showing the hole sizes of the well at the end of the day's drilling
- the depth in metres of the top and bottom of any geothermal feature intervals identified in the well during the day's drilling
- a description of:
 - all surveys, test and measurements carried out during the day's drilling including the results of the surveys, tests or maintenance;
 - all cores or cutting samples taken during the day's drilling;
 - all casing and cementing activities carried out during the day's drilling; and
- all surface observations made about the geothermal feature intervals identified in the well during the day's drilling.

9.5 Well Completion Report

A geothermal tenure holder, must, within six months after the rig release day for a geothermal well, give the chief executive, a report about the completion of the well.

The well completion report must include the following information on its first page:

- the type and number of the geothermal tenure
- the name and postal address of the operator of the geothermal well
- the identifying name of the well
- the name of the geothermal tenure holder
- a map showing the location of the well
- the name of the author of the report
- the name of the person submitting the report
- the date of the report, in day-month-year format.

The well completion report must include the following details about the drilling of the geothermal well:

- the well's total depth in metres
- the type of drilling rig used to drill the well

- the bit record for the well
- the drilling fluids and additives used to drill the well
- the ground level in metres for the well
- the kelly bushing level in metres for the well
- diagrams showing the hole sizes of the well
- information about the path of the well
- the day drilling of the well started
- the day the total depth of the well was reached
- the rig release day for the well
- a description of:
 - the alteration type of the rock surrounding the well;
 - the stratigraphy of the rock layers that the well intersects;
 - each geological sample taken during the drilling of the well; and
 - all surveys, tests and measurements carried out during the drilling of the well including the results of the surveys, tests and measurements.
- the depth in metres of the location of each sample taken from the well.

The well completion report must include the following details about the casing and other equipment, including prescribed equipment, inserted into the geothermal well:

- the features of the casing and equipment, including, for example:
 - the size and type of casing and equipment
 - the characteristics of the casing and equipment that may cause a hazard
 - diagrams showing the location of the casing and equipment
 - the location of all perforations made to the casing of the well
 - the depth in metres of the top and bottom of each perforation interval made to the well.

The well completion report must include the following details about all squeeze cementing or cement plugging carried out in the geothermal well:

- the type of cement and additives used in the well
- the depth in metres of the top and bottom of each cemented interval in the well
- any losses of cement caused by seepage in voids or permeable strata in the well
- the method, materials and volume of cement used to cement the voids
- the method used to overcome losses of cement.

If stimulation of the geothermal well was carried out during the drilling of the well, the well completion report must include the following details:

- the depth in metres of the top and bottom of the geothermal feature intervals in the well over which stimulation was carried out
- a description of the equipment used to carry out the stimulation
- the rig release day for the well
- a description of:
 - the alteration type of the rock surrounding the well

- the stratigraphy of the rock layers that the well intersects
- each geological sample taken during the drilling of the well
- all surveys, tests and measurements carried out during the drilling of the well including the results of the surveys, tests and measurements
- the depth in metres of the location of each sample taken from the well.

The well completion report must include the following details about the casing and other equipment, including prescribed equipment, inserted into the geothermal well:

- the features of the casing and equipment, including, for example:
 - the size and type of casing and equipment;
 - the characteristics of the casing and equipment that may cause a hazard;
 - for the chemicals and other additives used in the fracturing fluid used to carry out the stimulation, the concentration of the chemicals and additives with time;
 - a copy of all records made about the stimulation by the person who carried it out;
 - any other details about the stimulation that are reasonably necessary to make a future assessment of the impact of the stimulation on the safety of the well.

The well completion report must also include the following information about the geothermal well:

- an assessment of:
 - the geothermal production potential of the well
 - the impacts the well may have on the future management of the geothermal reservoirs in the area of the geothermal tenure
 - the data obtained from geophysical (or wireline) logs run in the well
 - the status of the well on the rig release day for the well
 - identification of the geothermal feature intervals in the well that have the potential to produce geothermal energy
 - a description of the geological model for the well
 - the geothermal tenure holder's reasons for choosing the location of the well.

The well completion report must be accompanied by the following:

- a digital image of all core or cutting samples taken from the geothermal well
- a copy of:
 - the well card for the well
 - the well's drilling program
 - a schematic diagram of the wellhead installed in the well after its completion
 - a description of the geological model for the area of the geothermal tenure
 - a pie chart showing the time distribution of all drilling operations carried out for the well
 - a graph of the actual drilling time compared to the initial drilling program for the well
 - the raw data from each geophysical (or wireline) logs run in the well
 - a digital image of the graphic representations of the raw data.

If the geothermal well is a directional well, the well completion report must also state the position of:

- the stratigraphic units that the well intersects

- the bottom of the well
- any other geothermal wells that intersect the directional well.

The position must be express in relation to:

- the total vertical depth in metres of the well
- the horizontal plane of the well.

If the well is plugged and abandoned before the rig release day for the well, the report must be accompanied by a well abandonment report for the well.

9.6 Well Abandonment Report

If a geothermal well is plugged and abandoned, the geothermal tenure holder must give the chief executive a report about the abandonment of the well:

- for a well that is plugged and abandoned before the rig release day for the well, with the well completion report for the well, or
- otherwise within two months after the completion day.

The well abandonment report must include the following information on its first page:

- the type and number of the geothermal tenure
- the name and postal address of the operator of the geothermal well
- the identifying name of the well
- the name of the geothermal tenure holder
- the name of the author of the report
- the name of the person submitting the report
- the date of the report, in day-month-year format.

The well abandonment report must include the following details about the drilling of the geothermal well:

- the well's depth in metres
- the type of drilling rig used to drill the well
- the bit record for the well
- the drilling fluids and additives used to drill the well
- the position at the top and bottom, and the thickness of any of the following intersected by the well:
 - an alteration zone;
 - a geothermal reservoir;
 - an aquifer;
 - diagrams showing the hole sizes of the well.

The position at the top and bottom must be identified in relation to:

- for a directional well:
 - the total vertical depth in metres of the well
 - the horizontal plane of the well or the depth in metres.

The well abandonment report must include the following details about the casing and other equipment, including prescribed equipment, inserted into the geothermal well:

- the features of the casing and equipment, including, for example:
 - the size and type of casing and equipment; and
 - the characteristics of the casing and equipment that may cause a hazard
- diagrams showing the location of the casing and equipment
- the location of all perforations made to the casing of the well
- the depth in metres of the top and bottom of each perforation interval made to the casings.

The well abandonment report must include the following details about all squeeze cementing or cement plugging carried out in the geothermal well:

- type and cement and additives used in the well
- the depth in metres of the top and bottom of each cemented interval in the well
- any losses of cement caused by seepage in voids or permeable state in the well
- the method, materials and volume of cement used to cement the voids
- the method used to overcome losses of cement.

The well abandonment report must include the following information about the geothermal well:

- a description of:
 - all surveys, tests and measurements carried out during the drilling of the well including the results of the surveys, test and measurements
 - any other procedures used to abandon the well.
- If stimulation of the well was carried out before it was plugged and abandoned:
 - the depth in metres of the top and bottom of the intervals in the well over which the stimulation was carried out
 - a description of the equipment used to carry out the stimulation
 - a copy of any record made about the stimulation by the person who carried it out
 - any other details about the stimulation that would help a person to make a future assessment of the impact of the stimulation on the safety of the well
- any other details of the activities undertaken in relation to drilling, plugging and abandoning the well that would help a person in making an assessment of the potential risks to the safe and efficient operation of the well in the future
- a summary and history of the well
- a map showing the location of the well
- the day the completion report for the well was given to the chief executive.

9.7 Annual Geothermal Reserves Report

A geothermal tenure holder must, within 40 business days after the last day of each year for the tenure, give the chief executive a report about geothermal reserves for the tenure. The annual reserves report must include the following information in a form the chief executive considers appropriate:

- the type and number of the geothermal tenure
- for each geothermal reservoir in the area of the geothermal tenure:
 - the location, and estimated amount, of all proven and probable geothermal reserves identified on the first day and the last day of the year

- details of all material changes to the proven and probable geothermal reserves for the year.

9.8 Production Testing Report

If production testing of a geothermal well is carried out under a geothermal tenure, the geothermal tenure holder must, within 40 business days after the production testing period ends, give the chief executive a report about the testing for the period. The production testing report must include each of the following on its first page:

- the type and number of the geothermal tenure
- the identifying name of the geothermal well
- identification of:
 - each geothermal reservoir in the area of the geothermal tenure identified by the production testing during the production testing period
 - the geological units that produced geothermal fluid in the area of the tenure during the production testing period
 - the geological units in the area of the tenure that were injected with disposal during the production testing period
- details of the wellhead pressure of the geothermal well measured during the production testing period.

The production testing report must include the following information about the production testing:

- the duration of the testing
- the type of testing methods used during the testing
- the specifications of the equipment used during the testing
- for any geothermal fluid produced during the testing:
 - the value of the specific enthalpy of the fluid
 - details of all changes to the specific enthalpy of the fluid
 - details of the chemistry of the fluid.
- details of:
 - the air-lifting program, if any, used to stimulate the well during the testing
 - all downhole surveys (pressure, temperature and spinner) undertaken during the testing
 - the calculations made of the well's productivity index, including the methods used to calculate the productivity index during testing
 - the location of any major and secondary feed zones made in the geothermal well during the testing
 - the wellhead pressure of the well's throttled discharges during the testing
 - the output characteristics of the geothermal well expressed as a function of the wellhead pressure of the well during the testing
 - any wellbore simulation modeling carried out during the testing.
- an estimate of the total mass flow of any geothermal fluid produced during the testing
- an estimate of the mass flow rate of all brine and steam separated during the testing
- changes in the steam separation pressure values during the testing.

9.9 Injection Testing Report

If injection testing of a geothermal well is carried out under a geothermal tenure, the geothermal tenure holder must, within 40 business days after the injection testing period ends, give the chief executive a report about the testing for the period. The injection testing report must include each of the following on its first page:

- the type and number of the geothermal tenure
- the identifying name of the geothermal well
- identification of the geological units that were injected with water or disposal during the injection testing period
- the wellhead pressure of the geothermal well measured during the injection testing period.

The injection testing report must include the following information about the injection testing:

- the duration of the testing
- the types of testing methods used during the testing
- the specifications of the equipment used during the testing
- for water or disposal injected during the testing:
 - the temperature of the water or disposal; and
 - the chemistry of the water or disposal
- details of:
 - all downhole surveys (pressure, temperature and spinner) undertaken during the testing
 - the calculations made of the geothermal well's injectivity index, including the methods used to calculate the injectivity index, during the testing
 - any changes in the wellhead pressure of the well measured during the testing
 - any wellbore simulation modelling carried out during the testing.

9.10 Production Report

A geothermal tenure holder must, within 40 business days after the end of each year for the geothermal tenure, give the chief executive a production report for the period for each geothermal well under the tenure. The production report must include all of the following information:

- the type and number of the geothermal tenure
- the identifying name of each geothermal well in the area of the tenure
- identification of:
 - each geothermal reservoir in the area of the tenure
 - each geological unit in the area of the tenure that produced geothermal fluid during the period
- the total number of geothermal wells in the area of the tenure that produced geothermal fluid during the period
- the total mass flow of any geothermal fluid produced from a geothermal well in the area of the tenure during the period
- for any electrical and thermal energy produced in the area of the tenure during the period:
 - the total amount of electrical and thermal energy
 - the total amount of the electrical and thermal energy that was used for internal consumption during the period

- the total amount of the geothermal fluid released into the environment during the production of electrical and thermal energy in the period and the reasons for its release
- for each geothermal well that produced geothermal fluid during the period, the following details about the well:
 - any changes in the wellhead pressure of the well during the period
 - any scaling and corrosion problems met with during the period and the preventative measures taken to reduce the scaling and corrosion
 - The following details about any geothermal fluid taken from the well:
 - changes in the chemistry or chemical composition of the fluid during the period
 - changes to the fluid specific enthalpy of the fluid during the period.

9.11 Injection Report

A geothermal tenure holder, must, within 40 business days after the end of each year for the geothermal tenure, give the chief executive an injection report for the period for each geothermal well under the tenures. The injection report must include all of the following information:

- the type and number of the geothermal tenure
- the identifying name of each geothermal well in the area of the tenure
- identification of:
 - each geothermal reservoir in the area of the geothermal tenure
 - each geological unit in the area of the tenure that was injected with water or disposal during the period
- the total mass flow of:
 - all water or disposal injected into each geothermal well in the area of the tenure during the period
 - disposal reinjected into each geothermal well in the area of the tenure during the period
- the following details about each geothermal well in the area of the tenure that was injected with water or disposal during the period:
 - any changes in the wellhead pressure of the well during the period
 - any scaling and corrosion problems met with in the well during the period and the preventative measure taken to reduce the scaling and corrosion.

9.12 Hydraulic Fracturing Activities Completion Report

If a geothermal tenure holder completes hydraulic fracturing activities in the area of the geothermal tenure after the tenure takes effect, the holder must, within two months after completion of the activities, give the chief executive a report about the activities. The hydraulic fracturing activities completion report must include the following information on its first page:

- the type and number of the geothermal tenure
- the name and postal address of the person who carried out the hydraulic fracturing activities
- the identifying name of each geothermal well subject to the activities
- the day the activities for each well started
- the day the activities for each well ended
- the name of the author of the report
- the name of the persons submitting the report

- the date of the report, in day-month-year format.

The hydraulic fracturing activities completion report must include the following information about the hydraulic fracturing activities:

- an identification of each method of hydraulic fracturing activity carried out
- the depth in metres of the top and bottom of:
 - each interval of the geothermal well over which the activities were carried out
 - each geological interval in the well over which the activities were carried out and the name of each geological interval
- a summary of the operations carried out at each stage of the activities, including the volume and type of chemicals used at each stage
- an assessment of the impact of the activities on the future management of each geothermal reservoir in the area of the geothermal tenure
- for each stage of the activities – a graphic representation of the following:
 - the casing pressure with time
 - the calculated bottom hole pressure with time
 - the calculated bottom hole concentration with time
 - the rate at which hydraulic fracturing fluid was pumped into the geothermal well with time
 - the concentration of liquid chemicals and other additives used in the hydraulic fracturing fluid with time
 - the maximum surface treatment pressure reached during each stage of the activities
 - the estimated targeted fracture pressure for the activities carried out over each geological interval in the well.

The hydraulic fracturing activities completion report must include details of each of the following:

- the equipment used to perform and monitor the hydraulic fracturing activities
- the diagnostic techniques used to monitor the activities
- if known:
 - all geological connections between a geological interval in a geothermal well over which the activities were carried out and an aquifer
 - the distance between a geological interval in a geothermal well over which the activities were carried out and an aquifer
 - the total mass flow of hydraulic fracturing fluid, in tonnes, used in each geothermal well during each stage of the activities
 - if a known event relating to the hydraulic fracturing activities has caused material environmental harm, or serious environmental harm.

The hydraulic fracturing activities completion report must be accompanied by a document stating the following about the hydraulic fracturing fluid used to carry out the activities:

- the composition of the hydraulic fracturing fluid
- the quantity of each component of the fluid in kilograms, litres or tonnes (as appropriate)
- the concentration of each component in the fluid
- the name of all chemical compounds in the fluid.

9.13 Surrender Report

A surrender report for a geothermal tenure, must accompany the must accompany the approved surrender form and contain the following:

- the day the geothermal tenure was granted
- a description of, and a map showing, the area that is being surrendered, a description or map of access points to the area
- a description of the methods used to produce geothermal energy in the surrendered area
- an estimate of:
 - the amount of geothermal energy produced from each geothermal well in the surrendered area for each year since the geothermal tenure took effect
 - the volume of water or disposal injected into each injection well in the surrendered area
- a description of the geological features of the proven and probable geothermal reserves in the surrendered area from which geothermal energy was produced
- an index of all reports given to the chief executive under the Geothermal Energy Act 2010, about all authorized activities carried out in the surrendered area
- a hazard information report for the surrendered area
- an annual reserves report for the surrendered area for the period starting on the day after the period covered by the last annual reserve report was given for the geothermal tenure and ending on the day the surrender report is given to the Minister
- the reason the geothermal tenure holder has applied to surrender all or part of the tenure's area
- a map showing the location, in the surrendered area, of:
 - the geothermal wells drilled under the geothermal tenure
 - the seismic lines used to carry out seismic surveys of the area of the geothermal tenure and the range of the numbered sites on each line
 - the sites used for carrying out geophysical surveys, other than seismic surveys
 - a structure contour map prepared for the surrendered area showing:
 - the seismic horizons (seismic reflectors) in the surrendered area
 - values as measured during geophysical surveys carried out for the surrendered area.

9.14 Geophysical Survey Report

If a geothermal tenure holder carries out a geophysical survey of the area of the tenure or reprocesses raw data obtained from a survey, the holder must, within six months after the day the survey is completed, give the chief executive a report about the survey. The geophysical survey must include the following information about the geophysical survey:

- a description of:
 - the location of the area surveyed
 - the type of survey carried out
 - how the raw data obtained from the survey was processed
 - each method used to acquire the raw data from the survey, including the equipment used to acquire the data and the techniques and equipment used to record and test the data
 - a map showing the location of the sites used to carry out the geophysics survey

- if the report is not accompanied by files for the area surveyed in digital form, details of:
 - the interpreted data for the area surveyed
 - the isopach map and depth to basement map obtained from the survey
- a summary of the geology of the area surveyed
- a summary of the objectives of the survey
- details about the activities carried out for the survey, including the days the activities were carried out
- an interpretation of the reprocessed data obtained from the survey
- an index of all previous geophysical surveys, of the same type as the survey for which the report was given, carried out under the tenure, and a summary of the survey results.

The geophysical survey report must be accompanied by each of the following in digital form:

- the raw data obtained from the survey
- the records made as the raw data was recorded (commonly known as the observer's logs)
- the location of the area surveyed, including the coordinates and evaluation of each site used to carry out the geophysical survey
- the processed and reprocessed data obtained from the survey
- a graphical representation of the processed or reprocessed data
- if an activity for the survey was carried out by a contractor of the geothermal tenure holder, a copy of all reports given to the tenure holder by the contractor about the activity.

9.15 Scientific or Technical Survey Report

If a geothermal tenure holder carries out a scientific or technical survey of the area of the tenure or reprocesses raw data obtained from a survey, the tenure holder must, within six months after the day the survey is completed, give the chief executive a report about the survey.

The scientific or technical survey must include the following information:

- a description of:
 - the location of the area surveyed
 - the type of survey carried out
 - how the raw data obtained from the survey was processed
 - each method used to acquire the raw data from the survey, including the equipment used to acquire the data and the techniques and equipment used to record and test the data.
- a summary of the geology of the area surveyed
- a summary of the objectives of the survey
- details of the activities, carried out for the survey, including the days the activities were carried out
- an interpretation of the processed or reprocessed data obtained from the survey
- details of all measurements made or samples taken during the survey
- an index of all previous scientific or technical surveys, of the same type as the survey for which the report is given, carried out under the tenure, and a summary of the survey results
- each of the following in digital form:

- the raw data obtained from the survey
- the processed or reprocessed data obtained from the survey.

10 Reporting for Greenhouse Gas Resource Authorities

The type and frequency of statutory requirements for reporting, data submission and operational notification for GHG Permits and GHG Leases are detailed in Part 4 of the [Greenhouse Gas Storage Regulation 2010](#) (for authorities administered under [Greenhouse Gas Storage Act 2009](#)). What follows relates primarily to reports that are added to the QDEX database, although other reports may be required by the Regulation.

NOTE: That what follows is simplified and abbreviated from the relevant sections of the greenhouse gas legislation and is intended as a guide only. If in any doubt as to meaning, refer to the legislation.

Table 2 – Greenhouse gas report types, lodgement requirements and open filing details

Report Type	Relevant Provision: Greenhouse Gas Storage Regulation 2010 Greenhouse Gas Storage Act 2009	Lodgement Due Date	Open Filing Due Date
Relinquishment Reports	Section 7 - Regulation Section 255(1) - Act	Within six months from relinquishment	Immediately
End of Tenure Reports	Section 8 - Regulation Section 256 - Act	Within six months after the tenure/authority ends	Immediately
Surrender Reports	Section 9 - Regulation Section 177(2) - Act	Accompany surrender application for a geothermal tenure administered under the Greenhouse Gas Storage Act 2009 .	Immediately
Daily Drilling Reports	Section 15 - Regulation	With the well completion report	See Well Completion Reports
Well Completion Reports	Section 16 - Regulation	Within six months after the rig release day	The second anniversary of the giving of the report
Well Abandonment Reports	Section 17 - Regulation	For a well that is plugged and abandoned before the rig release day for the well - with the well completion report for the well (within six months after the rig release day); or otherwise - within two months after the completion day.	The second anniversary of the giving of the report

Report Type	Relevant Provision: <u>Greenhouse Gas Storage Regulation 2010</u> <u>Greenhouse Gas Storage Act 2009</u>	Lodgement Due Date	Open Filing Due Date
Seismic Survey Reports	Section 18 - Regulation	Within 12 months after the completion day for the survey	The second anniversary of the giving of the report
Scientific or Technical Survey Reports	Section 19 - Regulation	Within six months after the completion day for the survey	The second anniversary of the giving of the report
GHG Storage Injection Testing Reports GHG Permit	Section 22 - Regulation Section 253(2) - Act	Within 40 business days after the GHG storage injection testing ends	The second anniversary of the injection testing
GHG Storage Injection Testing Reports GHG Lease	Section 22 - Regulation Section 253(2) - Act	Within 40 business days after the GHG storage injection testing ends	The fifth anniversary of the injection testing
GHG Stream Storage Capacity Reports	Section 23 - Regulation	*Within 40 business days after the last day of a six month period for the tenure	six months after the last day of the period to which the report relates
GHG Stream Storage Injection Reports	Section 24 - Regulation	*Within 40 business days after the last day of a six month period for the lease	Six months after the last day of the period to which the report relates
Monitoring Reports	Section 254 - Act	#Within two months after each of its anniversary days	

*A 6 month period means a following period in a year during which, for all or part of the period, the relevant geothermal tenure or authority is in effect:

#Anniversary day, for a GHG lease, means each day that is the anniversary of the day on which it took effect.

(a) 1 January to 30 June;

(b) 1 July to 31 December.

10.1 Report Types

The various report types are listed below.

10.2 Relinquishment Report

If the area of a GHG tenure is relinquished its holder must, within six months after the relinquishment date, lodge a report containing the following:

- a description of the authorised activities for the tenure carried out in that part, and the results of the activities
- tenure information (for the definition of 'tenure information' see below)
- general area information (for the definition of 'general area information' see below)
- the geological model of the relinquished part of the area of the tenure, and an assessment of the potential for GHG discovery in the area

- a summary of the results of all authorised activities carried out in the relinquished area since the tenure took effect, and the conclusions drawn by the holder based on the results
- an index of all reports lodged, as required under the Act, in relation to the authorised activities carried out in the relinquished area
- hazard information (for the definition of 'hazard information' see below)
- the volume of GHG water produced from each geothermal well or bore in the relinquished area for each year since the tenure took effect
- the reason the holder has relinquished the area.

General area information means:

- a location map showing the area of the GHG tenure immediately before the relinquishment, and the relinquished part of the area of the GHG tenure
- a map showing the location in the relinquished area of:
 - each g GHG well drilled under the tenure
 - each seismic line used for a seismic survey carried out under the tenure
- a structure contour map showing the seismic horizons (seismic reflectors) in the relinquished area
- a map showing the leads and prospects in the relinquished area
- a general description of the topographical features of the previous tenure area and the relinquished area, including, for example, access to the areas.

Tenure information means:

- the day the GHG tenure was granted
- the day the relinquishment takes effect
- the period of the work program for the tenure
- the blocks or sub-blocks comprising the relinquished part of the area of the tenure

Hazard information means:

- a summary of all significant hazards to future safe and efficient exploration and production of GHG under the tenure that, under section 706 of the 2004 Act or under the Regulation, are required to be reported
- for each hazard mentioned in the summary, a reference to the report that contains details of the hazard.

10.3 End of Tenure report

Within six months after a GHG tenure ends, the person who held the tenure immediately before it ended, must give the chief executive a report that includes all of the following for the GHG tenure:

- the tenure information
- the general area information
- a description of the geological model for the GHG reservoirs in the area of the tenure
- a summary of all authorized activities for the tenure carried out for the tenure since it took effect
- a summary of the results of the activities
- an analysis of the conclusions drawn from the results of the authorized activities carried out in the area since the tenure took effect

- an index of all reports given as required under the [Greenhouse Gas Storage Act 2009](#) for the activities
- a summary of all significant hazards created to future safe and efficient mining that under the P&G Act safety provisions, are required to be reported by the person
- for each hazard mentioned in the summary, a reference to the report containing details of the hazard
- any information required to be reported under the [Greenhouse Gas Storage Act 2009](#) that has not been previously reported
- an estimate of the total mass flow of geothermal fluid produced from each GHG well in the area for each year since the tenure took effect
- other information prescribed under a regulation.

The general area information, for an end of tenure report for a GHG tenure, means each of the following:

- a map showing:
 - the location of the area of the tenure
 - the location in the area of the tenure of all:
 - GHG wells drilled under the tenure
 - seismic lines used to carry out seismic surveys of the area of the tenure and the range of the numbered stations on each line
 - sites used to carry out geophysical surveys, other than seismic surveys.
- a structure contour map of:
 - the seismic horizons (seismic reflectors) in the area of the tenure
 - values measured during geophysical surveys, other than seismic surveys, in the area of the tenure
- a general description of the topographical features of the area of the tenure, including, for example, access to the areas.

Tenure information, for an end of tenure report for a GHG tenure, means each of the following:

- the day the tenure was granted
- the period of the work program or development plan for the tenure.

10.4 Surrender Report

A surrender report for a GHG tenure, must accompany the must accompany the approved surrender form and contain the following:

- the day the GHG tenure was granted
- a description of, and a map showing, the area that is being surrendered, a description or map of access points to the area
- a description of the methods used to produce GHG in the surrendered area
- an estimate of:
 - the amount of GHG produced from each GHG well in the surrendered area for each year since the GHG tenure took effect; and
 - the volume of water or disposal injected into each injection well in the surrendered area.

- a description of the geological features of the proven and probable GHG reserves in the surrendered area from which GHG was produced
- an index of all reports given to the chief executive under the [Greenhouse Gas Storage Act 2009](#), about all authorized activities carried out in the surrendered area
- a hazard information report for the surrendered area
- the reason the GHG tenure holder has applied to surrender all or part of the tenure's area
- a map showing the location, in the surrendered area, of:
 - the GHG wells drilled under the geothermal tenure;
 - the seismic lines used to carry out seismic surveys of the area of the GHG tenure and the range of the numbered sites on each line; and
 - a structure contour map prepared for the surrendered area showing:
 - the seismic horizons (seismic reflectors) in the surrendered area
 - values as measured during geophysical surveys carried out for the surrendered area.

10.5 Daily Drilling Report

A GHG tenure holder must, for each day on which drilling of a geothermal well is carried out in the area of the GHG tenure, give the chief executive a report about the drilling of the well not later than 5:00pm on the next business day after the day's drilling.

The daily drilling report must contain each of the following for the drilling carried out during the day:

- the identifying name of the well
- the tenure holder's name and the tenure under which the well was drilled
- the type of drilling rig used
- a summary of the drilling operations carried out
- the depth in metres of the well at the end of the day's drilling
- the size and type of drill bit used
- the drilling fluids and additives used
- the size and depth in metres of any casing inserted in the well
- the depth in metres of the top and bottom of each cemented interval in the well
- the results of any deviation surveys carried out in the well
- a description of any drill stem tests or other tests carried out in the well
- the type of any perforations in the well and the depth in metres of the top and bottom of the perforated intervals
- details of any squeeze cementing or cement plugging carried out
- a description of any cores or cutting samples taken.

10.6 Well Completion Report

A GHG tenure holder must, for each day on which drilling of a geothermal well is carried out in the area of the GHG tenure, give the chief executive a report about the drilling of the well not later than 5:00pm on the next business day after the day's drilling.

The daily drilling report must contain each of the following for the drilling carried out during the day:

- the identifying name of the well

- the tenure holder's name and the tenure under which the well was drilled
- the type of drilling rig used
- a summary of the drilling operations carried out
- the depth in metres of the well at the end of the day's drilling
- the size and type of drill bit used
- the drilling fluids and additives used
- the size and depth in metres of any casing inserted in the well
- the depth in metres of the top and bottom of each cemented interval in the well
- the results of any deviation surveys carried out in the well
- a description of any drill stem tests or other tests carried out in the well
- the type of any perforations in the well and the depth in metres of the top and bottom of the perforated intervals
- details of any squeeze cementing or cement plugging carried out
- a description of any cores or cutting samples taken.

10.7 Well Abandonment Report

If a GHG well is plugged and abandoned, the GHG tenure holder for the well must give the chief executive a report about the abandonment of the well - for a well that is plugged and abandoned before the rig release day for the well, with the well completion report for the well or within two months after the completion day.

The well abandonment report must include each of the following details:

- the type and number of the GHG tenure
- the name and postal address of the operator of the GHG well
- the identifying name of the well
- the name of the GHG tenure holder
- the name of the author of the report
- the name of the person submitting the report
- the date of the report, in day-month-year format
- a summary and history of the well, including a location map and the date on which a well completion report for the well was given to the chief executive.

The well abandonment report must include the following details about the drilling of the GHG well:

- the total depth in metres
- the position at the top and bottom, and the thickness, of any of the following intersected by the well:
 - a coal seam
 - a natural underground reservoir under the P&G Act
 - an aquifer.
- the depth in metres of any perforations in the casing of the well
- the type of drilling rig used to drill the well

- all surveys and measurements made in the well, including any detailed interpretation of a survey or measurement
- for the completion or abandonment of the well, each of the following:
 - details of the casing and equipment installed in the well, with diagrams showing their major dimensions and features of the casing and equipment
 - a full description of all equipment, including prescribed equipment, retained in the well, including, for example, the size and nature of the equipment and any features of the equipment that may cause a hazard to underground mining operations
 - the surveyed location of any prescribed equipment
 - the method of the cementing operations carried out in or on the well, including, for example, the location and type of plugs, the intervals covered, the volume and type of cement used, any losses of cement due to voids or permeable strata, and the methods used to overcome losses of cement
 - the method, materials and volume of cement used to cement voids
 - a description of any other abandonment procedures used for the well
 - any other details of the activities carried out in the drilling, completing or plugging and abandoning the well, and an assessment of their possible impacts, that would assist a person in making an assessment of potential risks to safe and efficient underground mining.

The position at the top and bottom of the coal seam, natural underground reservoir or aquifer must be expressed using:

- for a directional well:
 - the total vertical depth in metres
 - the horizontal plane or the depth in metres.

The position at the top and bottom must be identified in relation to:

- for a directional well:
 - the total vertical depth in metres of the well
 - the horizontal plane of the well or the depth in metres.

The well abandonment report must include the following details about the casing and other equipment, including prescribed equipment, inserted into the geothermal well:

- the features of the casing and equipment, including, for example:
 - the size and type of casing and equipment
 - the characteristics of the casing and equipment that may cause a hazard.
- diagrams showing the location of the casing and equipment
- the location of all perforations made to the casing of the well
- the depth in metres of the top and bottom of each perforation interval made to the casings.

The well abandonment report must include the following details about all squeeze cementing or cement plugging carried out in the geothermal well:

- the type and cement and additives used in the well
- the depth in metres of the top and bottom of each cemented interval in the well
- any losses of cement caused by seepage in voids or permeable state in the well
- the method, materials and volume of cement used to cement the voids

- the method used to overcome losses of cement.

The well abandonment report must include the following information about the geothermal well:

- a description of:
 - all surveys, tests and measurements carried out during the drilling of the well including the results of the surveys, test and measurements
 - any other procedures used to abandon the well
- if stimulation of the well was carried out before it was plugged and abandoned:
 - the depth in metres of the top and bottom of the intervals in the well over which the stimulation was carried out
 - a description of the equipment used to carry out the stimulation
 - a copy of any record made about the stimulation by the person who carried it out
 - any other details about the stimulation that would help a person to make a future assessment of the impact of the stimulation on the safety of the well
- any other details of the activities undertaken in relation to drilling, plugging and abandoning the well that would help a person in making an assessment of the potential risks to the safe and efficient operation of the well in the future
- a summary and history of the well
- a map showing the location of the well
- the day the completion report for the well was given to the chief executive.

10.8 Seismic Survey Report

If a GHG tenure holder carries out a seismic survey of the area of the tenure or reprocesses raw data obtained from a survey, the holder must, within 12 months after the day the survey is completed, give the chief executive a report about the survey. The seismic survey must include the following information about the geophysical survey:

- a description of:
 - a description of the location of the area surveyed
 - a geological summary of the area surveyed
 - an index of previous seismic surveys carried out under the authority within the area and a summary of the results of the surveys
 - the objectives of the survey
 - the activities carried out for the survey, including, for example, details of the seismic lines used and the days on which the activities were carried out
 - a description of each method used to acquire raw data, including:
 - the equipment used for positioning, surveying, navigation or other purposes
 - the techniques and equipment used for recording and testing the data
 - a description of how the raw data was processed or reprocessed
 - an evaluation of the processed or reprocessed data, including an interpretation of the seismic horizons (seismic reflectors) and any leads or prospects identified from the data
 - a map showing the location of the seismic lines used for the survey

- if the report is not accompanied by grid files for the area surveyed in digital form:
 - structure contour maps of seismic horizons (seismic reflectors) in the area surveyed
 - maps of the area showing variations in the thickness of stratigraphic units (isopach maps).

The report must be accompanied, in digital form, by each of the following:

- the raw data obtained from the survey and the record made as the data was recorded (commonly known as the 'observer's logs')
- a list of the seismic lines used and the range of the numbered stations on each line
- the surveyed location, including the elevation, of each seismic source and receiver point
- the processed or reprocessed data derived from each seismic line used for the survey
- a graphical representation of the data
- if an activity for the survey was carried out by a contractor of the authority holder, a copy of any report given to the holder by the contractor for the activity.

10.9 Scientific or Technical Survey Report

If a GHG tenure holder carries out a scientific or technical survey of the area of the tenure or reprocesses raw data obtained from a survey, the tenure holder must, within six months after the day the survey is completed, give the chief executive a report about the survey.

The scientific or technical survey must include the following information:

- a description of:
 - the location of the area surveyed; and
 - the type of survey carried out; and
 - how the raw data obtained from the survey was processed; and
 - each method used to acquire the raw data from the survey, including the equipment used to acquire the data and the techniques and equipment used to record and test the data;
- a summary of the geology of the area surveyed;
- a summary of the objectives of the survey;
- details of the activities, carried out for the survey, including the days the activities were carried out;
- an interpretation of the processed or reprocessed data obtained from the survey;
- details of all measurements made or samples taken during the survey;
- an index of all previous scientific or technical surveys, of the same type as the survey for which the report is given, carried out under the tenure, and a summary of the survey results;
- each of the following in digital form:
 - the raw data obtained from the survey;
 - the processed or reprocessed data obtained from the survey.

10.10 GHG Storage Injection Testing Report

If GHG storage injection testing for an underground geological formation or structure is carried out under a GHG tenure, the GHG tenure holder must, within 40 business days after the GHG storage injection testing period ends, give the chief executive a report about the testing for the period. The report must contain each of the following:

- the type and number of the tenure
- the identifying name of the GHG well used for the testing and the type of perforations in the GHG well and the depth in metres of the top and bottom of the perforated intervals; and the choke size used for the well
- an identification of each geological formation or structure into which a GHG stream or water was injected as part of the testing
- the duration of the testing
- details of the substance injected, including:
 - whether the substance is composed of GHG stream or water
 - if a GHG stream was injected – information about the composition of the GHG stream
 - the volume of the substance injected
 - the rate at which the substance was injected
- the observation migration pathway of the substance following injection
- the operations and techniques being used to monitor and verify the behaviour of the substance injected
- an assessment of risks to public health or the environment associated with the testing
- how the risks are being mitigated.

10.11 GHG Stream Storage Capacity Report

A GHG tenure holder must, within 40 business days after the last day of a six month period for the tenure, give the chief executive a GHG Stream Storage Capacity Report for the tenure for the period.

The report must contain each of the following:

- the type and number of the GHG tenure
- the identifying name of each GHG storage reservoir in which there is available capacity to store a GHG stream
- the estimated volume of storage capacity in each GHG storage reservoir within the area of the tenure worked out on the first day and last day of the period.

10.12 GHG Stream Storage Injection Report

A GHG lease holder must, within 40 business days after the last day of a six month period for the lease, give the chief executive a GHG stream storage injection report for the period.

The report must contain each of the following:

- the number of the lease
- an identification of each GHG stream storage site into which a GHG stream or water was injected under the lease for the six month period
- the volume of GHG stream injected into each GHG storage site within the area of the lease for the six month period

- for each GHG storage reservoir into which a GHG stream is injected under the lease—the number of GHG wells injecting a GHG storage stream into the reservoir
- the operations and techniques being used to monitor and verify the behaviour of the GHG streams injected into each GHG storage reservoir
- an assessment of whether there is a risk of a serious situation arising for any GHG stream storage site under the lease
- an assessment of any risks to public health or the environment associated with GHG stream storage under the lease
- how any risks are being mitigated.

10.13 Monitoring Report

A GHG lease holder must give each relevant chief executive a monitoring report for the 12 months that ended on the last anniversary day within two months after each of its anniversary days.

A monitoring report is a report about the expected migration pathway or pathways of GHG streams during and after injection into GHG storage reservoirs under the GHG lease.

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Owner:	Georesources Division
Date of this Version	February 2021
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Related documents	Petroleum and Gas Reporting Practice Direction Minerals and Coal Reporting Practice Direction Quantifying the volume of associated water taken under a mining lease or mineral development licence Spatial Data Guideline
Contact:	For help and information contact the following: For Portal support Email: PortalSupport@resources.qld.gov.au For technical support contact the MyMinesOnline Helpdesk. Telephone: (07) 3199 8133 Email: mines_online@resources.qld.gov.au 8.30am – 4.30pm (AEST) Monday to Friday on Queensland business days.