

Practice Direction 5
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Version 1.3

Practice Direction Minerals and Coal Reporting

Activity, Final, Partial Relinquishment, Partial Surrender reports and Expenditure Statement

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Table of Contents

Purpose	1
Application	1
Lodging your report	1
Common requirements	2
1 Coal and Mineral report types	5
1.1 Activity Report – Exploration and Development.....	5
1.2 Activity Report – Coal or Oil Shale Mining Leases.....	6
1.3 Partial Relinquishment and Partial Surrender Reports	7
1.4 Final Report.....	9
1.5 Expenditure Statement.....	10
2 Report Structure	11
2.1 Executive Summary	12
2.2 Introduction.....	12
2.2.1 Resource Authority Information.....	12
2.2.2 Exploration Rationale	12
2.3 Work Program	13
2.3.1 Work Completed.....	13
2.3.2 Mapping.....	13
2.3.3 Results.....	14
2.3.3.1 Coal Quality	14
2.3.3.2 Drilling.....	14
2.3.3.3 Geochemistry	15
2.3.3.4 Geophysics (non-seismic).....	15
2.3.3.5 Remote Sensing.....	16
2.3.3.6 Seismic Survey.....	16
2.3.3.7 Water Observations.....	16
2.3.3.8 Other Activities	16
2.3.4 Coal Seam Gas Mined	17
2.3.5 Mine Workings.....	17
2.4 Conclusions.....	18
2.4.1 Resources and Reserves Statement	18
2.4.2 Hazard Information.....	18
2.4.3 Reason for Relinquishment or Surrender.....	18
2.4.4 Drillhole summary.....	19
2.4.5 Work Program Compliance Statement.....	19
2.4.6 Expenditure Statement.....	19

2.5	Appendices.....	20
2.5.1	Ancillary Reports	20
2.5.2	Maps: Geological Summary	20
2.5.3	Maps: Technical	20
2.5.4	Photos – Core	21
2.6	Data Files	21
2.6.1	Data – Ancillary Reports.....	24
2.6.2	Data – Drillhole Survey.....	24
2.6.3	Data – Drilling	25
2.6.4	Data – Geophysics (non-seismic)	25
2.6.5	Data – Hyperspectral Sampling.....	26
2.6.6	Data – Lithology	27
2.6.7	Data – Maps	28
2.6.8	Data – Remote Sensing	28
2.6.9	Data – Reserves and Resources	29
2.6.10	Data – Samples and Analysis (incl. Geochemistry and Coal Quality)	29
2.6.11	Data – Seismic Survey	30
2.6.12	Data – Surface Geology	30
2.6.13	Data – Water Observation	30
2.6.14	Data – Wireline Logs	31
3	Checklist.....	33
3.1	How to structure references	34
3.2	Definitions.....	34
3.3	Abbreviations and acronyms	35
4	Disclaimer	35
5	Authorisation	36

Purpose

This Practice Direction forms part of the practice manual maintained by the chief executive under section 202 of the *Mineral and Energy Resources (Common Provisions) Act 2014*. It contains directions to resource authority holders on the structure, content and format requirements of their reporting obligations under the *Mineral Resources Act 1989* and Mineral Resources Regulation 2013 (MRR).

Application

This Practice Direction provides further detail and specifications for the content and format of information to be lodged in the following reports.

Report Type	Resource Authorities			
	EPC	EPM	MDL	Coal ML* (including infrastructure)
Activity Report – Exploration and Development	x	x	x	
Activity Report – Production				x
Partial Relinquishment Report	x	x		
Partial Surrender Report			x	x
Final Report	x	x	x	
Surrender Report				**
Expenditure Statement	x	x	x	

* There are currently no prescribed reports for mining leases for minerals.

** There are currently no prescribed reports for the surrender of a lease, only a partial surrender.

This Practice Direction details the required report structure, format and content as follows:

- **Common requirements:** Outlines the common requirements which apply to all reports.
- **Section 1:** Outlines how to locate the report type and use the links in the contents list to quickly find information on how to complete each part of the report.
- **Section 2:** Outlines the details and formats required for each section of the report
- **Section 3:** Provides a reference checklist to ensure you have included all the required information in the required formats.

“Resource Authority” in the Practice Direction refers to all Exploration Permits for Coal (EPC), Exploration Permits for Minerals (EPM), Mineral Development Licences (MDL) and Mining Leases (ML). There is also a list of abbreviations and acronyms at the end of the document for your reference.

Lodging your report

Further Information about lodging statutory reports and notices are available on the Business Queensland website at www.business.qld.gov.au. Reports, data templates and files must be lodged through the [GSQ Lodgement Portal](#).

For Assistance lodging reports you can contact representatives from the Geological Survey of Queensland at GSQOpenData@resources.qld.gov.au.

Common requirements

This section describes the common requirements which apply to all report types referred to in this Practice Direction.

Report content and structure

The format for Mineral or Coal reports consists of the prescribed data files and any appendices or other associated data, which can be lodged as separate files. The details of what is required is located in the specific report detail listed below.

For any report not listed below, the following elements must be included:

- 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, or activity start and end dates, 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 submission templates as per the Data Files section).

Ancillary reports

Any ancillary reports, including contractor reports, completed as part of the activity, must be included as appendices. These include the sections of analytical reports, which must adequately describe the methodologies and assumptions used in conducting the analyses for comparison with results from similar activities. The results must also be provided in the appropriate format as specified in this document. Any outstanding results must be submitted once they become available. See 'Ancillary Reports' (Appendices) and 'Data – Ancillary reports' in this Practice Direction for further information on this requirement.

Expenditure statements

The content and format for Expenditure Statements is outlined in Section 2.4.6

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.

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.

Digital standards

Acceptable digital standards for wireline logs are Log ASCII Standard (LAS) or Digital Log Interchange Standard (DLIS). 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).

Written reports

The written report must use the specified headings for each section and be submitted in a machine-readable file type (*.TXT, *.DOCX, or *.PDF in ISO19005-1 compliant (PDF/A) format).

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 with datum, projection and zone specified (*GDA2020 preferred*). Files must include metadata to describe its context and clearly identifies all component features.

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.

Further information on the requirements for spatial data submitted to the department is contained in the Geological Spatial Data Submission Standard (2020), available on the GSQ Open Data Portal. For definition of terminology and technical concepts refer to the GSQ vocabularies available in VocPrez at <https://vocabs.gsq.digital/vocabulary/>. Details on the use of persistent identifiers, the handling of spatial locations, data modelling, and system architecture is available on the GSQ GitHub repository at <https://github.com/geological-survey-of-queensland>.

Depth reference datum

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 all text, tables, figures, and attached data files. Elevation values must be relative to the Australian Height Datum (AHD). All depth measurements must state the measurement type (i.e. Measured Depth (MD) or True Vertical Depth (TVD)). Unless specified, all information pertaining to a well or drillhole, must be referenced to measured depth with respect to the depth reference datum.

Tabular data

Submission templates have been developed for the lodgement of key summary data in a standardised format. They follow the CoalLog and Government Geoscience Information Committee (GGIC) data templates for coal and minerals respectively and have been adapted for the purpose of this Practice Direction, where required. The templates are available in Microsoft Excel formats (*.XLS, *.XLSX, *.XLSM). All coal drillhole and analytical data must be provided in CoalLog data transfer format as a *.CSV file or in the DEPARTMENT OF RESOURCES data submission templates in the specified formats. It is preferred that data meets the CoalLog standard, which provides specified field names, specifications and dictionaries (CoalLog). All other data must be appropriately mapped to the standard data fields using the definitions provided, for lodgement. Submitted files must be provided with identical field (column) names to the templates and all mandatory fields populated. Non-mandatory fields and template information rows may be omitted.

Data submission templates may be submitted in Microsoft Excel formats (*.XLS, *.XLSX) or in standard comma-delimited ASCII formats (*.TXT, *.ASCII, *.CSV). For specific information on

lodgement and to download submission templates, please follow the links provided in the 'Lodging your report' section of this Practice Direction.

Further details on the submission requirements, applicable standards, and file formats for data files lodged with a report are contained within the relevant sections of this Practice Direction.

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, referenced to a specified coordinate system, projection and zone
 - geographic coordinates stated as latitude and longitude in decimal degrees, referenced to a specified datum with no less than six decimal place accuracy
- 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.
- Stratigraphic units must be listed as per the Australian Stratigraphic Units Database (ASUD).

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 accompanied by minimum levels of detection, precision, and accuracy of the testing equipment where available.

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

Information in Prior Reports

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

Historical required information

Historical required information resubmitted under MRR s 116 must be provided in accordance with the requirements of, and in the format required by, this Practice Direction. Without limiting this requirement, a supplementary report can additionally be provided in the same format as the original report containing the historical required information when it was first submitted, provided the supplementary report contains the relevant data as defined in MRR s 116.

Additional requirements under the Code of Practice

Recognised [Standard 10](#) and Guidelines 5: Mine Surveying and Drafting

Additional information

Further information on the requirements for geophysical surveys is contained in [Practice Direction Submission of geophysical survey data](#).

1 Coal and Mineral report types

The following outlines in tabular form the requirements that must be included in the following reports.

1.1 Activity Report – Exploration and Development

Legislative Reference	<p><i>Mineral Resources Act 1989</i></p> <ul style="list-style-type: none"> • Exploration Permits - section 178A and • Mineral Development Licences – section 231AA <p><i>Mineral Resources Regulation 2013</i></p> <ul style="list-style-type: none"> • Exploration Permits - section 13(1) • Mineral Development Licence – section 13(2)
Lodgement	Within 1 month of the anniversary day that the exploration permit or mineral development licence took effect.
Confidentiality Period	Report is confidential for 5-year period from date report was due.
Report Structure	
Table of Contents	Regulation (references)
Executive Summary	MRA s178A and 231AA MRR s13
Introduction Resource Authority Information Exploration Rationale	MRR s13(3)(f)
Work Program Work Completed Mapping Results <ul style="list-style-type: none"> • Coal Quality (For coal reports) • Drilling • Geochemistry (For minerals reports) • Geophysics (non-seismic) • Remote Sensing • Seismic Survey • Water Observations • Other Activities 	MRR s13(3)(a) MRR s13(3)(a) MRR s13(3)(a) MRR s13(3)(a) MRR s13(3)(a) MRR s13(3)(a) MRR s13(3)(a)
Conclusions Resources and Reserves Statement Work Program Compliance Statement Hazard Information Expenditure Statement (refer to 1.5)	MRR s13(3)(c) MRR s13(3)(b) MRR s13(3)(e) MRR s13(3)(d)
Appendices Ancillary Reports Maps: Geological Summary Maps: Technical Photos - Core	MRR s13(3)(a)
Data Files	MRR s13(3)(a)

Data – Ancillary Reports Data – Directional Survey Data – Drilling Data – Geophysics (non-seismic) Data – Hyperspectral Sampling Data – Lithology Data – Maps Data – Remote Sensing Data – Reserves and Resources Data – Samples and Analysis (incl. Geochemistry) Data – Seismic Survey Data – Surface Geology Data – Water Observation Data – Wireline Logs	
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1.2 Activity Report – Coal or Oil Shale Mining Leases

Legislative Reference	<i>Mineral Resources Act 1989</i> Activity report for mining lease - section 315 Mineral Resources Regulation 2013 Activity report for coal and oil shale mining lease - section 29A
Lodgement	On nominated day annually, or within 2 months of the anniversary day that the lease took effect.
Confidentiality Period	Report is confidential until tenure ends
Report Structure	
Table of Contents	Regulation (references)
Executive Summary	MRA s315, MRR s29A
Introduction Resource Authority Information	MRR s29A
Work Program Work Completed Mapping Results <ul style="list-style-type: none"> • Coal Quality (For coal reports) • Drilling (exploration and assessment) • Geochemistry (For minerals reports) • Geophysics (non-seismic) • Remote Sensing • Seismic Survey • Water Observations • Other Activities Mandatory report sections for coal and oil shale mining leases Coal Seam Gas Mined Subsidence	MRR s29A(2)(a), (d) MRR s29A(2)(b)

Mine Workings CSG wells to be reported as per the current Petroleum and Gas Practice Direction	MRR s29A(2)(c) MRR s29D-F
Conclusions Resources and Reserves Statement	MRR s29A
Appendices Ancillary Reports Maps: Geological Summary Maps: Technical Photos and Images	MRR s29A
Data Files Data – Ancillary Reports Data – Directional Survey Data – Drilling Data – Geophysics (non-seismic) Data – Hyperspectral Sampling Data – Lithology Data – Maps Data – Remote Sensing Data – Reserves and Resources Data – Samples and Analysis (incl. Geochemistry) Data – Seismic Survey Data – Surface Geology Data – Water Observation Data – Wireline Logs	MRR s29A

1.3 Partial Relinquishment and Partial Surrender Reports

Legislative Reference	<i>Mineral Resources Act</i> <ul style="list-style-type: none"> • Exploration Permits – section 178B • Mineral Development Licences – section 231AB • Mining Lease – sections 315A, 318EG, 315B¹ <i>Mineral Resources Regulation 2013</i> <ul style="list-style-type: none"> • Exploration Permits – section 16(1) • Mineral Development Licences – section 16(2) • Mining Lease for Coal – section 29B, 29C
Lodgement	Within 2 months of the day that the reduction took effect.
Confidentiality Period	<ul style="list-style-type: none"> • Partial relinquishment (EPM, EPC) -Open file upon submission • Partial Surrender (no higher tenure – MDL) - Open file immediately after the partial surrender took effect • Partial Surrender (Grant of ML over part of EPM/C or MDL) - Open file from 5 years after lodgement

¹ This report is only required where the holder of a coal mining lease has been directed to lodge a partial surrender application. There are no prescribed reports for other types of surrenders of a lease.

	<ul style="list-style-type: none"> • Partial Relinquishment Report (ML) – Open file immediately after lodgement. • Partial Surrender Report (ML) - Open file immediately after lodgement.
Report Structure	
Table of Contents	Regulation (references)
Executive Summary	
Introduction Resource Authority Information	MRR s16(3)(a)
Work Program Work completed Mapping Results <ul style="list-style-type: none"> • Coal Quality (For coal reports) • Drilling • Geochemistry (For minerals reports) • Geophysics (non-seismic) • Remote Sensing • Seismic Survey • Water Observations • Other Activities <p><i>Mandatory report sections for coal and oil shale mining leases. Applies only to relinquished or surrendered areas.</i></p> Results <ul style="list-style-type: none"> • Results sections as per above 	MRR s16(3)(f)
Conclusions Reason for Relinquishment or Surrender Drillhole summary Hazard Information	MRR s16(3)(c) MRR s16 (3)(d) MRR s16 (3)(e)
Appendices Ancillary Reports Maps: Geological Summary Maps: Technical Photos and Images	
Data Files Data – Ancillary Reports Data – Directional Survey Data – Drilling Data – Geophysics (non-seismic) Data – Hyperspectral Sampling Data – Lithology Data – Maps Data – Remote Sensing Data – Reserves and Resources	

Data – Samples and Analysis (incl. Geochemistry) Data – Seismic Survey Data – Surface Geology Data – Water Observation Data – Wireline Logs	MRR s16(3)(f)
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1.4 Final Report

Legislative Reference	<i>Mineral Resources Act 1989</i> <ul style="list-style-type: none"> • Exploration Permits – section 178C • Mineral Development Licences – section 231AC <i>Mineral Resources Regulation 2013</i> <ul style="list-style-type: none"> • Exploration Permits – section 17(1) • Mineral Development Licences – section 17(2)
Lodgement	Within 2 months of the final day of the tenure.
Confidentiality Period	<ul style="list-style-type: none"> • Final Report (EP/MDL) – tenure completely surrendered (no higher tenure) - Open file immediately after lodgement • Final Report (EP/MDL) - Tenure ends due to grant of higher tenure - Open file from 5 years after lodgement • Final Report (EP) – Conditional Surrender - EP surrendered in favour of a new EP - Open file from 5 years after lodgement • Final report (MDL) – Conditional Surrender - MDL surrendered in favour of a new MDL - Open file from 5 years after lodgement.
Report Structure	
Table of Contents	Regulation (references)
Executive Summary	
Introduction Resource Authority Information	MRR s17(3)(a)
Work Program Work completed Mapping Results <ul style="list-style-type: none"> • Coal Quality (For coal reports) • Drilling • Geochemistry (For minerals reports) • Geophysics (non-seismic) • Remote Sensing • Seismic Survey • Water Observations • Other Activities 	
Conclusions Expenditure Statement (refer to 1.5)	MRR s17(3)(b)

Reason for Relinquishment or Surrender Drillhole summary Hazard Information	MRR s17(3)(c) MRR s17(3)(d) MRRs17(3)(e)
Appendices Ancillary Reports Maps: Geological Summary Maps: Technical Photos and Images	
Data Files Data – Ancillary Reports Data – Directional Survey Data – Drilling Data – Geophysics (non-seismic) Data – Hyperspectral Sampling Data – Lithology Data – Maps Data – Remote Sensing Data – Reserves and Resources Data – Samples and Analysis (incl. Geochemistry) Data – Seismic Survey Data – Surface Geology Data – Water Observation Data – Wireline Logs	

1.5 Expenditure Statement

Legislative Reference	<i>Mineral Resources Act 1989</i> <ul style="list-style-type: none"> Activity report – Section 178A, 231AA Mineral Resources Regulation 2013 <ul style="list-style-type: none"> Activity Report – section 13(4) Expenditure statement - section 14
Lodgement	As a separate document to the corresponding Activity or Final Report.
Confidentiality Period	Statement remains confidential
Report Structure	
	Regulation (references)
Expenditure Statement	MRR s14

2 Report Structure

The following Table lists the text items which should be provided where applicable and as described in the following sections. Note: Data files are only required where there is applicable data for the activity.

Report Item	Report Details
Title Page	Report Title including reporting period
Executive Summary	Simple summary
Resource Authority Information	Comprehensive Resource Authority Information e.g. date of grant
Exploration Rationale	Simple summary
Mapping	Simple summary
Results	Coal Quality - Simple summary
Results	Drilling - Simple summary
Results	Geochemistry - Simple summary
Results	Geophysics (non-seismic) - Simple summary
Results	Remote Sensing - Simple summary
Results	Seismic Survey - Simple summary
Results	Water Observations - Simple summary
Results	Other Activities - Simple summary
Coal Seam Gas Mined	Simple summary
Resources and Reserves Statement	Simple summary
Conclusions	Potential for Discovery - Simple summary
Conclusions	Work Program Compliance Statement
Appendices	Maps: Geological Summary
Appendices	Maps: Technical
Appendices	Photos - Core

2.1 Executive Summary

A brief review of activities and significant results from the current reporting period **must** be provided. This summary should be concise, provide context to the data provided elsewhere in the report and supply relevant data not otherwise captured.

Where relevant information is available, the following should be reported:

- results of the work program including the commodities assessed within the resource authority and the outcome of investigations
- a summary of key technical findings that have significant implications for the maturation of a resource, for the exploration strategy or for the ability to mine the commodity
- the implications of technical findings to the geological understanding of the project or geological model
- the exploration rationale, where relevant, and any significant changes due to results of the work program during the reporting period
- details of methods attempted to remedy impacts to planned operations referred to above and an assessment of their failure or success
- details of any learnings from unforeseen issues and relevance to future operations.

2.2 Introduction

2.2.1 Resource Authority Information

The key information describing the resource authority must be provided and must include the following information:

- the date of grant of the resource authority
- the term of the resource authority
- the date the relinquishment or surrender takes effect, where relevant
- the current resource authority holder(s)
- any transfers or assignments since grant including dates
- the area of the resource authority, described in blocks and/or sub-blocks for an Exploration Permit and either by sub-blocks and/or blocks or metes and bounds for a Mineral Development Licence, with area measured in hectares or square kilometres
- Resource Authority location map
- identification of any overlapping resource authority
- any group reporting approval with details of the tenements included.

Associated sections:	N/A
Associated data files:	Data - Maps

2.2.2 Exploration Rationale

For an Exploration Permit, a summary that describes the exploration rationale **must be provided** for the Activity Report. The summary for an Exploration Permit must include details on the following:

- the rationale for obtaining the area, which may include regional and local geology, a conceptual geological model, previous exploration and mining history, interpretations of geological datasets
- the rationale and objectives for proposed exploration activities
- significant changes to rationale and exploration activities and assessment, such as discovery of unanticipated mineralisation during assessment of the initial exploration target.

For a Mineral Development Licence, a summary that describes the purpose of the grant of licence and the activities to be undertaken **must be provided** for the Activity Report. The summary for a Mineral Development Licence must include details on the following:

- the reason for taking out the licence, e.g. retention for future development of a staged multi-licence project, further testing or feasibility studies, etc.
- a summary of the conceptual geological model upon completion of activities on the preceding resource authority
- information on any associated resource authorities or larger projects.

2.3 Work Program

2.3.1 Work Completed

A summary of the activities completed during the reporting period for the resource authority **must be provided**. This summary should be concise and reference the appropriate report sections, tables, figures, appendices, and data files to provide further detail of the activities.

Information in the summary must include, where relevant:

- a list of activities completed
- any information gathering objectives of the activities described
- references to the relevant sections of the report
- expected dates of completion for any activities initiated but not finished during the reporting period
- a map or maps identifying the locations of activities within the resource authority

The results of the activities listed in the summary must be provided in the sections below. Summaries should include a discussion of the success or failure to discover commodity accumulations, where applicable.

Associated sections:	Work Program – Mapping; Work Program – Results; Appendices – Maps: Technical; Appendices – Maps: Geological Summary
Associated data files:	Data – Maps; Data – Ancillary reports

2.3.2 Mapping

A summary of geology or resource mapping within the resource authority must be provided. Geological maps include, but are not limited to: surface geology, structure, stratigraphy, alteration, gossan, mineralisation (style/setting/paragenesis), mineralogy, morphology, texture, weathering, and Limit of Oxidation (LOX).

Information in the summary must include the following:

- type of mapping undertaken
- locations of samples and observations
- reference to sample results, including petrological descriptions, with sampling location.

Where the work described significantly changes or enhances the understanding of local geology an updated map should be provided as an appendix (See Appendices – Maps: Geological Summary and Appendices – Maps: Technical). Where relevant data is available, the following should be included in addition to standard map requirements:

- location of mapping activities
- indication of map as observation ('fact') or interpretive
- an additional index of symbols and abbreviations where complexity or breadth precludes incorporation into the map legend
- acknowledgement and referencing of all information presented that is not original work.

All data must be provided in a digital format. See Data – Surface geology, Data - Maps, or Data - Samples and analysis for direction on the submission of geological observations.

Associated sections:	Work Completed; Appendices – Ancillary reports; Appendices – Maps: Technical; Appendices – Maps: Geological Summary
Associated data files:	Data – Surface geology; Data – Maps; or Data - Samples and analysis; Data – Ancillary reports

2.3.3 Results

A summary of all technical work conducted within the resource authority **must be provided**. The summary must be concise and reference the relevant appendices and data files to provide further detail of the activity (see section 2.6). Information in the description **must** include the following:

- a statement of the objectives of the activity or activities
- a description of technique or operation, where relevant, that may include information on operational methods, sampling methods, sample preparation, analytical techniques and equipment, associated testing and evaluation (e.g. wireline logging) etc. or a reference to standard procedures where available
- a description of any quality control or data processing
- a summary of basic results of the activity including testing and evaluation outcomes, with significance to the project. Raw results must be submitted as digital data in separate components as outlined in the associated Data Files section.

Results of technical work may include the following activities and, in addition to the Common Requirements for all results sub-sections listed above, should include the associated information detailed below:

2.3.3.1 Coal Quality

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided:

Any historical data included in the results must be described where applicable.

A discussion of results should identify any key attributes that may affect the ability to mine or market the coal. Any normalisation of samples should be described. The locations of all samples must be provided as a data file. All specified Raw analytical results must be provided as a data file.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Samples and Analysis

2.3.3.2 Drilling

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided where applicable:

- Location and ownership of any core
- Information on any renumbering or changes in depth intervals for any samples, or changes to recorded spatial locations of the drillhole since first reported.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Directional Survey, Data – Drilling, Data – Lithology, Data - Samples and Analysis, Data – Wireline Logs

2.3.3.3 Geochemistry

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided where applicable.

Any historical data included in the results must be described with details of any recalculations or reprocessing.

A discussion of results must be provided and should identify any key attributes that may affect progression of the exploration target, or for more advanced projects, the ability to mine or market the resource. The methods used to determine anomalies and methods of statistical interpretation should be detailed. Relationships with geological and geophysical anomalies should be discussed, with the use of maps where appropriate. The locations of all samples must be provided as a map and as a data file. A brief statement detailing quality control information such as laboratory and field duplicates, standards and blanks must be included. All assay data must be provided as data files.

Any additional forms of geochemistry should also be reported, including results of handheld XRF analyses and isotopic analyses including geochronology.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Maps, Data – Samples and Analysis

2.3.3.4 Geophysics (non-seismic)

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided where applicable.

Discussion of the geophysical method and its relevance to the exploration rationale. With an operational synopsis including a description of the activities carried out, timeframe for the survey (start and end dates at minimum), and operational or technical specifications of the equipment and sampling density.

All maps and figures produced during acquisition including location maps, line location maps, survey station or sample location maps, and acquisition diagrams.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Maps, Data – Geophysics (non-seismic)

2.3.3.5 Remote Sensing

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided where applicable.

All remote sensing results must be provided where not otherwise supplied elsewhere within the report (e.g. airborne geophysics included in the Geophysics (non-seismic) section). Any non-copyright data or images must be submitted with a detailed description of each scene and metadata detailing image capture and processing of each image including: time and date of capture, atmospheric and other radiometric corrections, image enhancements, the remote sensing platform. Where images are supplied in false colour formats the displayed bands must be stated. Large images or groups of images may be submitted as an appendix with appropriate referencing.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Remote Sensing

2.3.3.6 Seismic Survey

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided:

A summary of the acquisition and processing of any seismic surveys completed must be provided. See the corresponding Seismic Survey sections in the [Petroleum and Gas Reporting Practice Direction](#) for further details on reporting requirements and associated data sections.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Seismic Survey

2.3.3.7 Water Observations

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided:

Any changes in ownership or responsibility of a drillhole or well, such as conversion of an observation or exploratory drillhole to a water producer for a landholder.

Comparison with previously reported observations and with any baseline studies conducted that intersect the area of the resource authority.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Water Observations

2.3.3.8 Other Activities

In addition to the results section detailed in 2.3.3 Results, the following additional information should be provided:

A summary of the raw results of any scientific or technical surveys not otherwise listed in the Practice Direction should be provided. The summary must provide sufficient detail to understand the results and any limitations of the activity or analysis.

These activities may include, but are not limited to, geotechnical surveys; hyperspectral analyses of core, cuttings and other samples; petrographic studies of key rock types throughout the exploration area; petrophysical studies (magnetic susceptibility readings, specific gravity), metallurgical studies, age determinations, chemical and physical assessment of industrial minerals etc.

Associated sections:	Appendices – Ancillary reports
Associated data files:	Data – Ancillary Reports, Data – Hyperspectral Sampling, Data – Maps, Data – Samples and Analysis

2.3.4 Coal Seam Gas Mined

For a coal or oil shale Mining Lease a summary of coal seam gas (CSG) mined must be provided and include the following:

- the location coal seam gas was mined from, and for each location:
 - the amount of coal seam gas mined
 - the amount of the following designated CSG products
 - pre-drainage gas
 - ventilation gas
 - goaf drainage gas
 - the percentage of methane in each designated CSG product mined
 - the amount of gas sold
 - the total amount of gas disposed of other than by sale
 - the methods of disposal of any gas other than by sale
 - for each method of disposal other than by sale, the amount of gas disposed of.

Associated sections:	n/a
Associated data files:	n/a

2.3.5 Subsidence

For a coal or oil shale Mining Lease, provide information about whether there was any subsidence and its nature.

2.3.6 Mine Workings

For a mining lease, submission of both a digital and image file of the current mining lease displaying the following is required:

- past mine workings for the mining lease;
- current mine workings for the mining lease;
- authorised activities for the mining lease associated with the processing, transportation, storage of mine product.

2.4 Conclusions

2.4.1 Resources and Reserves Statement

A statement and a summary table of any resources and reserves identified must be provided. The data presented in the table must be as described in the Data - Resources and Reserves section.

The statement should contain the following **minimum** information:

- project or mine name
- subproject name where applicable
- the percentage of company interest in the project
- mine type (e.g. open pit, open cut, underground, dredging operation)
- potential product type (e.g. Cu, Au, Fe, Gypsum, Thermal Coal, Metallurgic Coal).

For the first estimation of resources or reserves, and any subsequent revisions that significantly vary from prior editions, a discussion of key criteria should be provided. Minor revisions and updates may be included in the summary table.

The estimate must be prepared in accordance with the JORC 2012 Code for ASX listed companies.

Non ASX listed companies may report resources and reserves under any other code accepted by a National Reporting Organisation (NRO) recognised by the Committee for Mineral Reserves International Reporting Standards (CRIRSCO). The code used and the relevant jurisdiction must be stipulated.

If the resource estimation was undertaken by a third party, reference to their report and personnel/company details should be provided.

Associated sections:	
Associated data files:	Data – Reserves and Resources

2.4.2 Hazard Information

A statement of Hazard Information relating to activities carried out within the resource authority must be provided. Statement should consider the following factors:

- the nature of the hazard
- the cause, or reasons for existence, of the hazard
- the location of the hazard
- measures taken to prevent or reduce the risk of the hazard to mitigate the effects of the hazard.

2.4.3 Reason for Relinquishment or Surrender

A statement of the reason the holder of the resource authority has relinquished or surrendered all or part of the resource authority area must be provided. Statement should consider the following factors:

- Geological factors – quantity or quality of resources
- Technical factors – viable future extraction or processing of resources
- Environmental, social or political factors – inability to secure required access and approval
- Economic factors – unfavourable market demand and supply conditions.

2.4.4 Drillhole summary

Where a permit or licence is relinquished or surrendered, a summary of holes or wells drilled under the permit or licence in the relinquished area or surrendered area must be provided. The summary must include the following:

- name/identifier
- location.

2.4.5 Work Program Compliance Statement

A statement of work program compliance within the resource authority must be provided. The activities conducted and/or outcomes achieved in the current reporting period must be reconciled with the work program approved by the Department of Resources.

Information in the summary must include the following:

- a statement of work program compliance or non-compliance
- a comparison of the activities undertaken on the resource authority with the planned work program activities and their intended outcome
- details of compliance failures
- reasons for compliance failures.

2.4.6 Expenditure Statement

The Expenditure Statement must be lodged as a separate document to the corresponding Activity Report or Final Report. Submission via the MyMinesOnline portal to the corresponding report is required. The statement must itemise expenditure incurred for each activity carried out under the approved work program for the permit or licence and each activity other than the activities under the approved work program during the reporting period.

Activities other than those activities under the approved work program may include operational and administrative expenses, or additional exploration activities that were not in the approved work program.

. All work included as an expenditure claim must be described within the report. In the case of final reports, the expenditure statement must itemise expenditure for the complete term of the exploration permit against the approved work programs.

2.5 Appendices

Information that is best provided separately should be placed in an appendix and referenced from the applicable report section. Appendix information that is too numerous or large to be provided within the report can be provided separately as a compressed file.

2.5.1 Ancillary Reports

Obligations for provision of ancillary reports is detailed in the Common Requirements. Ancillary reports (including contractor/consultant reports) may include operational, analytical, and interpretation reports completed as part of a reportable activity.

For samples and analyses, the reports must include the methods for analysis, key assumptions made, and details of the laboratory, QA/QC methodology, analytical testing equipment and procedures, sample details and preparation, and Raw results of the tests, provided in digital tabular form in the associated data files.

Please see Section 1 for a listing of mandatory associated sections and data files to be submitted with the report with further information on their requirements in Section 2.5.

As per Schedule 3A of the Regulations, see the applicable confidentiality period.

Associated data files:	Data - Ancillary Reports
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2.5.2 Maps: Geological Summary

Geological maps at local and regional scales should be provided to accompany the corresponding geological summary sections. The maps should show the relevant resource authority at a scale that provides useful context. This illustration may show the relationship of the geology with topographical and cadastral features. Every map must have title, coordinates, scale, north arrow, legend (legible), datum, projection, and zone stipulated.

Spatial data must be provided for any information depicted in the location map that has not been offered through other statutory reporting or available in the public domain. See the associated data files for further information.

Associated data files:	Data – Ancillary Reports, Data – Maps, Data – Surface Geology
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2.5.3 Maps: Technical

Technical maps illustrative of geological knowledge, such as rock types and their relationships, structures (faults, folds, shear zones), should show the area of interest at a scale that provides useful context. Every map must have title, coordinates, scale, north arrow, legend (legible), datum, projection, and zone stipulated. Additionally, all technical maps must include the following:

- Caption with name (e.g. subject, location, drillhole) and description
- Method of interpolation
- Markers, with name annotations, for source data such as sampling sites or drillholes
- Labels on contour lines and/or a scale for colour gradients

- Supplementary index for symbols and abbreviations where complexity precludes inclusion within map legend
- In the relinquished area of an exploration permit or the surrendered area of a mineral development licence a structure contour map or three-dimensional model showing the seismic horizons, or seismic reflectors must be provided.

Spatial data must be provided for any information depicted in the location map that has not been offered through other statutory reporting or available in the public domain. See the associated data files for further information.

Associated data files:	Data – Ancillary Reports, Data – Maps, Data – Surface Geology, Data – Geophysics (non-seismic), Data – Remote Sensing
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2.5.4 Photos – Core

Digital images of any cores acquired during the drilling of the well or drillhole should also be compiled and submitted at a sufficient resolution in an associated document to the report. Images should have the following attributes:

- clear labelling of:
 - the project name, well or drillhole name and number
 - the date of photography
 - regular depths (minimum 0.5m intervals) and core orientation, or a clearly displayed tape measure
 - identification and depth of any samples taken
- one core tray per image or a minimum of 1m intervals with visible overlaps
- image capture at a constant distance
- preferably in consistent illumination across the length of the core without partial shade
- unobscured by residual drilling fluid or cuttings
- core may be wet or dry to best illustrate the relevant lithologic features but should be consistent throughout the image set
- where available, a colour and grey-scale chart should be made visible in the image without obscuring the core.

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	CoalLog Geology and Geotechnical Training Manual
Accepted file formats:	Images - *.JPG, *.GIF, *.PNG; Compiled images - *.PDF

2.6 Data Files

Where suitable equivalents are available the Department of Resources data submission templates for coal and minerals are based on the data standards of Australian Coal Association Research Program’s (ACARP) CoalLog and the Government Geoscience Information Committee (GGIC)

Australian Requirements for the Submission of Digital Exploration Data respectively. **Where the following data report sections specify that Submission Template is the accepted file format, the CoalLog Transfer Format may also be used for coal data where applicable. The Department of Resources submission templates or the equivalent GGIC templates may be used for minerals data.**

All data submitted must meet reporting requirements regardless of the format submitted. The Tenement or Header data tables, in the Department of Resources Templates and CoalLog Transfer Format respectively, must be provided with all other table submissions. The metadata fields in each table must be populated when using GGIC templates.

The following Table lists some examples of raw data items which should be provided where applicable and as described in the following sections.

Data Category	Data Item	Data examples
Mapping	Field mapping	Spatial coordinates of field stations, boundary or section line traverses and observation points, linear and polygonal features, strike and dip measurements, sampling localities
Mapping	Geophysical mapping	Spatial coordinates of field stations, boundary or section line traverses and observation points, linear and polygonal features, strike and dip measurements, sampling localities
Mapping	Photogeol mapping	Linear and polygonal features, strike and dip measurements (surface outcrops)
Maps	Vector Attribute Data	Information that describes the content, quality, condition, origin and other characteristics of data or pieces of information
Drilling	Drillhole locations	Name, number, E, N, (Lat, Long), RL, TD, Datums, Projection, UTM Zone, Incl, Azim,
Drilling	Drillhole metadata	Location accuracy, Company name, start and finish dates
Drilling	Downhole survey	Inclination, survey type, surveying company, survey unique identifier, maximum deviation from vertical, survey computation method, azimuth and distance and direction of deviation data
Lithology	Lithology (coal - depth corrected)	Type, colour, bedding, weathering, dip, physical attributes, minerals, code dictionary
Lithology	Geotech log	Defects, strengths, surfaces
Lithology	Formation depths	Depths
Lithology	Seam/Ore details	Depths, thicknesses as part of Lithology (not names)
Sample Details	Sample locations	Drillhole or site name / number, surface position, unique sample identifier, sampling procedures
Sample Details	Sample metadata	Depths, names, type, purpose, dates (sampled, analysis started, analysis completed), photos

Geophysics (non-seismic)	Airborne surveys	Final located line data, survey outline polygons, survey bounds or line plots, acquisition
Geophysics (non-seismic)	Airborne surveys	Processing, grids of data
Geophysics (non-seismic)	Ground-based surveys	Final located line data, acquisition
Geophysics (non-seismic)	Ground-based surveys	Processing, grids of data
Geophysics (non-seismic)	Gravity survey	Station number, spatial coordinates (datum, projection, and zone specified), elevation relative to AHD, absolute observed gravity (specify datum), terrain correction, methods and parameters
Wireline Logs	Wireline logs	LAS and metadata
Wireline Logs	Wireline logs metadata	Drillhole name / number, surface position, company, type, dates, casing, MWD, depths, drillhole conditions
Wireline Logs	Wireline ATV, camera	DLIS + metadata
Remote sensing	Landsat	Data and metadata
Remote sensing	Multispectral scanners	Data and metadata
Seismic	2D Seismic data	Acquisition data (SEGY) and metadata, lines, bin grids
Seismic	2D Seismic data	Processing
Seismic	3D Seismic	Acquisition data (SEGY) and metadata, lines, bin grids
Seismic	3D Seismic	Processing
Coal Quality Analysis	Raw quality	Density, Proximate, Energy, Crucible Swelling Number, Reflectance, Moisture
Coal Quality Analysis	Raw quality +	Total Sulphur, Ultimate analysis, Forms of Sulphur, Ash Fusion Temperatures, Ash analysis, Fluidity, Dilution, Phosphorus, Chlorine
Coal Quality Analysis	Raw quality other	Trace Elements, Petrography, Phosphate, Hardgrove Grindability Index, Abrasion Index,
Sample Analysis	Mineral Quality	Assay results for duplicates (with reference to original sample), standards (certified reference materials) & blanks
Sample Testing	Geochemistry	Data only
Sample Testing	Hyperspectral analyses	Data acquisition tool, reflectance data, mineralogical data, metadata, photos, geochemical, geophysical and lithologic logs, NVCL reference
Sample Testing	Geotech tests	Uniaxial Compressive Strength, Strengths, slaking,
Water Observations	Water level / flow (exploration only)	Drillhole name / number, location, depth, date taken, results

Water Observations	Water quality (exploration only)	Drillhole name, number, location, depth, sample details, date taken, test results (as applicable)
Photos	Core photos	Taken prior to sampling
Conceptual model	Conceptual model	Initial geological concept as basis for exploration (not data)
Maps	Digital Elevation Models (DEMs) or topographic contours	Raw data points and processing parameters
Maps	Geological work	Digital files of all drillholes, geochemical survey sample points, 2D seismic lines or outlines of 3D seismic surveys, geophysical survey flight lines, traverse lines, and survey stations
Production	Coal Seam Gas Mined	According to s29A(2)(a)(i) of MRA
Resources & Reserves	Resource Statement	Total measured, Indicated and Inferred Resources, Proved and Probable reserves

2.6.1 Data – Ancillary Reports

Any data that has been included as part of an ancillary report provided to the resource authority holder by a contractor, subcontractor or consultant, that has not already been included as a data file in another section, must be provided as a file in a suitable format.

Data that can be represented as tables, should be provided in tabular format using the transfer formats for coal data provided in the [CoalLog standard](#) or data templates available from the [department website](#). For minerals, data templates are available from the [department website](#). If the data type is not covered by the available templates, all data must be clearly labelled with units of measure provided for each data field. Grid files must also have the following specifications:

- spatial coordinates with datum, projection, and zone specified
- attributes clearly labelled with units of measure
- appropriate grid resolution
- interpolation method specified with data inputs and assumptions described in the associated report section.

A list of acceptable file formats and applicable standards are detailed below.

If data cannot be provided in prescribed formats listed below it must be submitted in digital native format as supplied by the party that conducted the work (i.e. contractor).

Data standards:	Multiple including – CoalLog, Government Geoscience Information Committee (GGIC), Australian Stratigraphic Units Database (ASUD)
Accepted file formats:	Tabular data - *.ASCII, *.CSV; Spatial data - *.SHP, *.TAB

2.6.2 Data – Directional Survey

Detailed information must be provided for any directional surveys conducted in a drillhole. If multiple drillholes (e.g. sidetracks, daughter holes) exist for a single parent hole, a directional survey must be

provided for each, and referenced back to the drillhole origin at surface. Depths must be referenced to the reference datum supplied under Data – Drilling. Directional surveys must include the following information:

- drillhole name and/or number
- measured depth
- the inclination, in degrees from horizontal and azimuth, in degrees from true north if not vertical
- the surveying company and the survey type (e.g. MWD, Gyroscopic, Multishot Camera)
- the dates on which the survey was conducted
- survey accuracy
- Magnetic field (where available).

Data standards:	CoalLog, Government Geoscience Information Committee (GGIC), Log ASCII Standard (LAS), Log Information Standard (LIS)
Accepted file formats:	Submission Template (or GGIC/CoalLog Equivalent): Minerals – Drillhole Survey, Coal – Header - *.CSV, *.XLSX(zipped); Raw data - *.ASCII, *.CSV, *.LAS, *.DLIS

2.6.3 Data – Drilling

Details of drilling data must be provided as digital files in the formats specified below. The detailed information provided must contain the following information:

- drillhole name and/or number
- surface location in latitude and longitude in decimal degrees or easting and northing
- the reference datum (e.g. Ground Level (GL)) and its elevation relative to the Australian Height Datum (AHD)
- total depth (TD) reached
- date drilling commenced
- drilling company.

For accepted abbreviations, vocabulary, and notations, please refer to the applicable commodity relevant data standard and submission template.

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	CoalLog, Government Geoscience Information Committee (GGIC)
Accepted file formats:	Submission Template (or GGIC/CoalLog Equivalent): Minerals - Drillhole Location, Coal – Header, Drilling, Casing, Cementing - *.CSV, *.XLSX (zipped)

2.6.4 Data – Geophysics (non-seismic)

Where geophysical surveys are completed, the data that is acquired and/or processed, must be provided in the specified formats. Geophysical data consists of three types:

- a) airborne surveys
- b) ground-based surveys
- c) downhole surveys.

Geophysical data from these three survey types consists of:

- raw and processed located data (digital data)
- gridded data and images
- acquisition metadata
- acquisition report and results (See Appendices – Ancillary reports).

Airborne surveys

Data to be submitted includes:

- final located line data (ASEG-GDF)
- grids of data
- survey outline polygons
- survey bounds or line plots
- acquisition, processing reports (Appendices – Ancillary reports).

Ground-based surveys

Data to be submitted includes:

- final located data (ASEG-GDF, ASEG-ESF)
- grids of data
- acquisition, processing reports (Appendices – Ancillary reports).

Gravity data must include the station number, spatial coordinates (datum, projection, and zone specified), elevation relative to AHD, absolute observed gravity (specify datum), terrain correction, and must specify the methods and parameters used to calculate the Bouguer anomalies.

Downhole Surveys

See Data – Wireline logs section

For all survey types outlined above, data acquisition reports (Appendices – Ancillary reports) should be submitted.

The Government Geoscience Information Committee (GGIC) of Australia has developed the standard Australian Requirements for the Submission of Digital Exploration Data. Where possible, adhere to the digital formats specified in this standard to enable direct loading of data into databases.

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	Australian Society of Exploration Geophysicists - ASEG-GDF, ASEG-ESF; Government Geoscience Information Committee (GGIC)
Accepted file formats:	Data - *.ASCII, *.GDB, *.CSV, Grids - *.ERS, *.GRD; Spatial data - *.SHP,

2.6.5 Data – Hyperspectral Sampling

Details of hyperspectral analysis of drill core, rock chip, grab samples should be provided where applicable and must contain the following information:

- data acquisition tool (e.g. HyLogger, HyChips, ASD, Terraspec and PIMA surveys)
- reflectance data (in FOS, ASD, SDF or SDS formats)
- mineralogical data (CSV)
- metadata, including:
 - instrument name and model number
 - sample medium

- integration time
- drillhole collar coordinates, survey, and depth
- sample location coordinates

Data must be provided with associated photography of each sample and complementary geochemical, geophysical and lithologic logs. Where HyLogger data has been previously added to the National Virtual Core Library (NVCL), a reference may be provided in lieu of the detailed data set.

Data Standards:	GGIC - 2.4.12 Hyperspectral data
Accepted file formats:	FOS; ASD; SDF; SDS; GEOTIFF; ERS; BIL (required); PDF; JPEG

2.6.6 Data – Lithology

A lithological description must be provided for all core (full-hole and sidewall) and cuttings samples acquired during drilling. For cuttings (e.g. RC or RAB chips), descriptions must be provided at the resolution of the sampling rate and describe the composite sample. For core, descriptions must be provided at a resolution sufficient to describe lithological variations with depth. For example, where finely bedded sections exist, groupings of rock types that represent a distinct unit may be described across a larger interval so long as the following is supplied:

- drillhole name and/or number
- the top and base depth of each described interval
- code and description of each lithology
- where codes are not in the included lithology dictionary additional entries must be provided for all codes used and their corresponding description.

Lithology descriptions should include the following, where applicable:

- colour and texture
- grain or particle size, sorting, and sphericity
- mineralogy
- structural features
- weathering
- mineralisation
- alteration
- veining.

For accepted abbreviations, vocabulary, and notations, please refer to the applicable commodity relevant data standard and submission template.

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	CoalLog, GGIC National Reporting Guidelines
Accepted file formats:	Submission Template (or GGIC/CoalLog Equivalent): Minerals - Drillhole_Lithology, Coal – Litho *.CSV, *.ASCII *.XLSX(zippered);

2.6.7 Data – Maps

The spatial data for any information depicted in the location or technical maps that has not been offered otherwise in this report, through other reports, or available in the public domain must be provided. This includes, but is not limited to:

- all drillholes
- 2D seismic lines or outlines of 3D seismic surveys
- geochemical survey sample points, including:
 - sample identifier
 - sample locations
 - analysis type
 - sample type (e.g. rock chip, soil, stream sediment etc).
- geophysical survey flight lines, traverse lines, and survey stations
- any permanent features (e.g. processing plants, dam sites, ponds, power lines, etc.)
- pipeline infrastructure including gathering line networks and compression stations
- drainage lines
- Digital Elevation Models (DEMs) or topographic contours.

Files must be populated with sufficient metadata to identify the type of feature and any attributes relevant to the specific feature type. A list of acceptable file formats and applicable standards are detailed below. Geological observations should use the data standards and symbols from Geoscience Australia for naming and mapping conventions. See the [Data standards and symbols](#) web page for more information.

Data standards:	Geoscience Australia mapping standards
Accepted file formats:	*.SHP, *.TAB, *.CSV

2.6.8 Data – Remote Sensing

Where remote sensing surveys are completed, the data that is acquired and/or processed, must be provided. These may include satellite, airborne or ground-based data such as Landsat, airborne multispectral scanner (e.g. Geoscan, Hymap, SPOT, radar, LIDAR etc.)

Any non-copyright data or images must be submitted with a detailed description of each scene and metadata detailing image capture and processing of each image including: time and date of capture, atmospheric and other radiometric corrections, image enhancements, the remote sensing platform. Where images are supplied in false colour formats the displayed bands must be stated. Images must have some means of locating the data on the ground relative to national grids and specify the datum and projection.

The processed data should be submitted as a georeferenced image or in a standard exchanged format (e.g. ERS or BIL file).

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	Australian Society of Exploration Geophysicists - ASEG-GDF, ASEG-ESF
Accepted file formats:	Grids - *.ERS, *.BIL; Images - *.PDF, *.JPEG, *.TIFF

2.6.9 Data – Reserves and Resources

A table of the total reserves and resources within the area of a resource authority must be provided with the quantity in each classification (i.e. proved reserve, probable reserve, measured resource, indicated resource, inferred resource).

Industrial minerals, such as kaolin, limestone, talc, must be quantified as per the JORC Code where the above is not applicable.

Data Standards:	The JORC Code ; Codes recognised by CRIRSCO
Accepted file formats:	Submission Template - *.CSV, *.XLSX

2.6.10 Data – Samples and Analysis (incl. Geochemistry and Coal Quality)

Detailed information must be provided on samples collected and any subsequent analysis completed. Examples of samples include cuttings and core, soil, or rock from outcrop. Geochemical surveys and Raw coal quality analyses must be described in sufficient detail to allow them to be reproduced. Data transfer formats for coal data are provided in the [CoalLog standard](#) or templates on the department website. Templates that must be used for minerals are also provided at the [department website](#).

The data provided must contain the following information:

- drillhole name and/or number, where relevant
- the location of the sample where not derived from a drillhole
- a unique sample identifier
- details of field sampling procedures for each sample including:
 - the depth or depth interval where the sample was taken
 - sample source
 - sample type
 - study type, i.e. type of analysis
- the start date of the analysis, if available
- the end date of the analysis, if available, a null value indicates the analysis has not been completed
- if not associated with a defined drillhole location, spatial coordinates with datum, projection and zone specified.

Digital images of any core samples acquired may be submitted as an appendix. See section 2.5.4 – Photos - Core, for specific digital image requirements.

For abbreviations and notations, please refer to the applicable commodity relevant data standard.

Data Standards:	Laboratory standards including ISO 9002, AS 3980; Coal – CoalLog; Minerals - GGIC
Accepted file formats:	Submission Template (or GGIC/CoalLog Equivalent): Minerals – Sample_Geochemistry; Coal – Sample Dispatch, Results, Reflectance, Composite Nos, CCC_Definitions, Test_Specifications - *.CSV, *.XLSX (zipped); Raw data – *.ASCII, *.CSV; Images - *.JPG, *.GIF, *.PNG

2.6.11 Data – Seismic Survey

All data pertaining to the acquisition and processing of all seismic surveys completed during the reporting period that intersect the resource authority must be provided. Processed seismic files and Raw data should be provided in their original format along with any associated reports in Data – Ancillary Reports and Appendices – Ancillary Reports. Summary metadata must also be provided as per the [Petroleum and Gas Reporting Practice Direction](#), and the following associated summary templates:

- Data – Seismic Acquisition and Processing Summary
- Data – Seismic Data (raw)
- Data – Seismic Data (processed)
- Data – Seismic Lines and Bin Grids

2.6.12 Data – Surface Geology

Any spatial data associated with surface geology data collected from field mapping, must be provided. The following information may be included:

- spatial coordinates of field stations including boundary or section line traverses and observation points
- boundaries of geological units (ASUD)
- linear features and their classifications including fold axes, faults, dykes, etc. Indication of fault type and throw should be included
- other polygonal geological features and their classifications
- strike and dip measurements with strike in degrees from true north and dip in degrees from the horizontal plane
- sampling localities.

Spatial coordinates of field stations, observations, measurements, and samples must have datum, projection, and zone specified.

All information provided must be clearly identified in the data files including where features are actual or inferred. Geological units must utilise the ASUD standard, where applicable. Petrological descriptions at observation points or from samples may be provided in a tabular form, so long as reference to their spatial locations is provided.

A list of acceptable file formats and applicable standards are detailed below.

Data standards:	Australian Stratigraphic Units Database (ASUD)
Accepted file formats:	Submission Template (or GGIC Equivalent): Minerals – Surface_Lithology, Surface_Structure - *.CSV, *.XLSX (zipped); Spatial data - *.SHP, *.TAB *.DXF, *.GDB

2.6.13 Data – Water Observation

All Raw water observation data from drillholes must be provided where applicable.

Where relevant data is available, the following should be included:

- drillhole name and/or number
- location
- unique identifier for each sample or observation

- observation or sample depth
- observation or sampling date
- test results including, but not limited to, where relevant
 - sampling and analysis
 - flow measurements
 - temperature.

For accepted abbreviations, vocabulary, and notations, please refer to the applicable commodity relevant data standard and submission template.

A list of acceptable file formats and applicable standards are detailed below.

Data Standards:	N/A
Accepted file formats:	Raw Data - *.CSV, *.ASCII; Submission Template (or GGIC/CoalLog Equivalent): Coal – Water Observation – *.CSV, *.XLSX

2.6.14 Data – Wireline Logs

A summary of the wireline logs (i.e. geophysical logs and petrophysical logs) acquired must be included and contain the following:

- Project name, drillhole name and/or number
- the service company who acquired the wireline logs
- the log class, e.g. neutron, resistivity, density
- depth interval(s) over which each wireline tool or tool suite was run
- start and end dates for the job, if available
- type of log service run e.g. gamma, calliper, resistivity
- the log mnemonic.
- indication whether the log was run in cased hole or acquired by measurement while drilling (MWD).

Log file (e.g. LAS, DLIS) header information must be completed as per the standard for the relevant file type as referred to in the data standards. The following should be included:

- drillhole name and number, and the well identifier, where relevant
- the service company who acquired the wireline logs
- depth reference datum (GL, KB, RT) for logging and elevation, relative to AHD
- name of each logging tool or tool suite
- the log types (mnemonic and description) as well as units of measure
- depth interval(s) over which each wireline tool or tool suite was run
- run number and date
- the total measured depth of the drillhole (drillers and loggers depth).

The metadata for well logging activities must be provided in the submission template whilst the raw data acquired (e.g. continuous depth-based measurements), must also be submitted as separate files. The type of file submitted should reflect standard industry usage of the data. For example, image log data (e.g. FMI, CMI) should be submitted in DLIS format, standard log suites in LAS format, and velocity logs (VSP) in SEG-Y format.

A list of acceptable file formats and applicable standards are detailed below. Please contact GSQOpenData@resources.qld.gov.au for assistance with the lodgement of large data files.

Data standards:	Log ASCII Standard (LAS), Digital Log Interchange Standards (DLIS), Society of Exploration Geophysicists (SEG),
Accepted file formats:	Wireline logs - *.LAS 2.0 (unwrapped), *.DLIS, *.SEGY, Submission Template (or GGIC/CoalLog Equivalent): Coal – Header, Wireline_Logs - *.CSV, *.ASCII

3 Checklist

To assist submitters this section provides a checklist for content and format requirements for statutory reports under this practice direction.

<input type="checkbox"/>	<p>Every report submitted includes:</p> <ul style="list-style-type: none"> • title page • table of contents • summary • introduction • report sections • conclusions • references • appendices (if applicable) • data files
<input type="checkbox"/>	Written in English (Australian)
<input type="checkbox"/>	<p>The title page includes:</p> <ul style="list-style-type: none"> • report name • project name • resource authority (tenure) type and number • name of the resource authority holder • name and affiliation of the author of the report • name and affiliation of the person submitting the report • the report period, in day-month-year format • the date of the report, in day-month-year format.
<input type="checkbox"/>	Table of contents list all key content in the report including associated data and map files
<input type="checkbox"/>	The report sections include the required information as outlined in these Practice Directions
<input type="checkbox"/>	All reports (and sections) are saved as searchable PDFs
<input type="checkbox"/>	References are provided in the standard format
<input type="checkbox"/>	Appendices are provided in the standard format
<input type="checkbox"/>	Definitions are provided in the standard format
<input type="checkbox"/>	Maps are provided in the preferred format
<input type="checkbox"/>	Data files are provided to the specified standard and in the preferred format
<input type="checkbox"/>	All other Common Requirements have been met

3.1 How to structure references

A list of all references used by the author to compose a report must be provided in standard format (author, date, name, publication) as per the following examples:

For a company report, departmental report, record or publication currently held in QDEX:

ALLEN, G.E., 1976: ATP186C Report for the six months ending 15 February 1976. Unpublished report held by the Geological Survey of Queensland Open Data Portal as CR5542.

ANDERSON, J.C., 1974: Departmental drilling, Springsure Shelf programme, western Bowen Basin. Geological Survey of Queensland Record 1974/37. Unpublished report held by the Geological Survey of Queensland Open Data Portal as CR41674.

HAWKINS, P.J., 1976: Facies Analysis and Economic Significance of Late Permian Strata in the Northern Galilee Basin. *Queensland Government Mining Journal*, **77**(891), 15–32. Held by the Geological Survey of Queensland Open Data Portal as CR48773.

For a technical journal, paper or other publication:

DICKINS, J.M. & MALONE, E.J., 1973: Geology of the Bowen Basin, Queensland. *Bureau of Mineral Resources, Australia, Bulletin* **130**.

EXON, N.F., GALLOWAY, M.C., CASEY, D.J. & KIRKEGAARD, A.G., 1972: Geology of the Tambo/Augathella Area, Queensland. *Bureau of Mineral Resources, Geology and Geophysics, Australia, Report* **143**.

FIELDING, C.R., FALKNER, A.J., KASSAN, J. & DRAPER, J., 1990: Permian and Triassic depositional systems in the Bowen Basin. In Beeston, J.W. (Compiler): *Bowen Basin Symposium 1990 Proceedings*. Geological Society of Australia, Queensland Division, Brisbane, 21-25.

OGG, J.G., OGG, G. & GRADSTEIN, F.M., 2008: *The concise Geologic Time Scale*. Cambridge University Press, Cambridge.

3.2 Definitions

Figure	Illustrative diagram with geo-referencing located within report text or provided as a separate file
Raw data	Basic data collected to investigate the potential identification of a mineral resource or reserve. It does not include detailed testing to define the product or marketable aspects of a resource or reserve, nor the result of any interpretation which could include application of confidential processes or procedures, modelling or other commercially sensitive methods.
Data file	Data associated with report content submitted as separate digital files in specified formats to meet relevant standards
Map file	Spatial data associated with maps submitted as a separate GIS data file in specified formats to meet relevant standards.

3.3 Abbreviations and acronyms

ABBREVIATION	TERM
ACARP	Australian Coal Association Research Program
AHD	Australian Height Datum
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
DAA	Data Acquisition Authority
EPC	Exploration Permit - Coal
EPM	Exploration Permit - Mineral
GDA	Geodetic Datum Australia
GGIC	Government Geoscience Information Committee
GIS	Geographic Information System
GSQ	Geological Survey of Queensland
MDL	Mineral Development Licence
ML	Mining Lease
MRA	Mineral Resources Act 1989
MRR	Mineral Resources Regulation 2013
WMA	Water Monitoring Authority

4 Disclaimer

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Queensland Government should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

5 Authorisation

Approved by:

Director
Georesources
November 2020