AUSTRALIAN REQUIREMENTS FOR THE SUBMISSION OF DIGITAL EXPLORATION DATA

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Prepared by

Government Geoscience Information Committee (GGIC)
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Australian Government
Geoscience Australia

Department of Industry
Resources & Energy

Government of Western Australia
Department of Mines and Petroleum

VICTORIA State Government

NORTHERN TERRITORY GOVERNMENT

Queensland Government

Government of South Australia
Department of State Development

Tasmanian Government

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SUMMARY

This document presents a minimum National Standard for the receipt of digital data related to mineral exploration activities. Individual State/Territory agencies may have specialized individual requirements in addition to those in this Standard.

The Standard addresses the future use of digital files and their ability to be uploaded into another database by requiring:

- the inclusion of metadata
- the submission of data in standard, widely used file formats, including the submission of drilling and geochemical tabular data in standardised non-proprietary ASCII format.

Software to assist in generating compliant exploration report files is available free of charge from each State/Territory Geological Survey. The Mineral Exploration Reporting Templates (MRT) software allows generation of metadata headers for files of tabular drilling and geochemical data, and a listing of all the files in the report. The development of a new version of the MRT software was completed in December 2011. It has been designed for use in any State or Territory as it includes map sheets for all the States and Territories. It is also more sophisticated and user friendly than the previous version and can be downloaded from any State and Territory website and from the Geoscience Portal on the Geoscience Australia website. The current version of the MRT software is version 1.4.2.

In general, the process of digital report generation will involve:

- the production of files containing the main report text in PDF files
- the production of related files such as images and geophysical data
- the production of tabular ASCII files of drilling and geochemistry results involving two steps:
  - the export of the standardized tabular data to TAB delimited ASCII format
  - the generation of the metadata ASCII headers using MRT or other software
- the generation of a file verification listing containing names of all the files mentioned above, plus the name of the listing file, using the MRT or other software containing all file names as specified in the Standard.

1 INTRODUCTION

The mineral exploration industry in Australia generates a vast amount of geoscientific and resource information each year. This large investment in basic data gathering should be available for future explorers so that similar effort is not duplicated and new exploration models can be developed on the basis of earlier data. State/Territory agencies play a critical role in promoting effective and efficient mineral exploration in Australia by archiving statutory mineral exploration information and then releasing it back into the public domain for the use of future explorers. Acceptance of exploration data in digital format adds a new dimension to this role, but to be effective requires the adoption of three broad objectives:

- maximize the amount of digital data of verifiable quality submitted to statutory agencies according to prescribed standards
- maximize usefulness of statutory digital data released to open file
- minimize costs associated with acceptance, storage and release of digital information by statutory agencies.

The main issues involved in the submission of digital data concern the variety of data received and the lack of standards for some of these data. In an attempt to minimize the impact of these issues, a system of Standards is provided that will facilitate confident interpretation of digital statutory exploration data in the future.

The Standards have been designed to allow the future user maximum flexibility and ensure that critical metadata and supporting data such as authority/look-up tables are included. The issue of metadata is by far the most critical for digital data. In the past, companies submitted the metadata as part of the text of a printed report. The current Standard specifies that critical metadata are included in the 'header' to the raw data. The objective of including the metadata with the raw data is to remove the reliance on having to search for other data packages (i.e. the report plus the digital data) to build a complete set of data.

This document was developed by Government Geoscience Information Committee (GGIC) members to provide a common requirement for the submission of digital mineral exploration data across States and Territories. It is recognized that some agencies have particular needs that exceed the minimal requirements set out in this document. In these cases, the individual agency may incorporate additional components in its own requirements document.

This Standard is reviewed annually by GGIC. The rate of technology change is such that today's recommendations (in terms of format, file-type, media, etc.) may be old technology in one year.

2 DATA STANDARD SPECIFICATION — GENERAL

2.1 File Name Convention

File names should conform to the following file-naming convention:

Tenement id_YYYY_[A|P|F]_ ##_ {data type}.eee

Table 1. Acceptable file name convention

Name Convention	***Description***	***Example***
Tenement id	Identifier for the tenement, or in the case of group reporting, a combined report or project number identifier	EL99999 C201_1995
YYYY	Four-digit report date representing year	2012
[A|P|F]	'A' Annual Report, 'P' Partial Relinquishment, 'F' Final Report	A
##	Two-digit sequential integer for each file submitted	01
{data type}	The data type contained in the file corresponding to one of the abbreviations in File Verification Listing Example 7	ReportBody
.eee	File suffix as shown in Table 2	.pdf

Examples:

EL99999_2012_A_01_ReportBody.pdf
EL99999_2012_A_02_ProspectGeology.tif
EL99999_2012_A_03_Aeromag.gdf
EL99999_2012_A_04_Aeromag.ecw
EL99999_2012_A_05_DrillCollars.txt
EL99999_2012_A_06_Lithologs.txt
EL99999_2012_A_07_DownholeGeochem.txt
EL99999_2012_A_08_SurfaceGeochem.txt
EL99999_2012_A_09_SurfaceLocations.txt
EL99999_2012_A_10_DownholeSurveys.txt
EL99999_2012_A_11_LithologyCodes.txt
EL99999_2012_A_12_DrillingSummary.txt
EL99999_2012_A_13_FileListing.txt
EL99999_2012_A_14_QAQCGeochem.txt

Some geophysical data files have additional naming requirements; refer Section 2.4 of this document.

2.2 Acceptable Media

Data will be accepted on the following media:

- CD-ROM, no multisession, read only
- DVD-ROM, no multisession, read only
- USB Flash Drives, non-returnable
- Hard Drives, non-returnable
- SD card, non-returnable — not preferred by Tasmania
- Online data submission: email or FPT, file size depends on State/Territory requirements.
    - *Queensland 10 MB*
    - *South Australia 10 MB*
    - *Tasmania 10 MB — online submission by arrangement only, hardcopy also required.*
    - *Victoria 11 MB*

2.3 Acceptable Language

Report text and data will be accepted only in English.

2.4 Data Types

Table 2: Acceptable formats for digital data

Data Type	Description	Format	Parameter	Suffix
Tabular data*	Point locations, geochemistry, heavy mineral, diamond indicator and drilling data.	Delimited ASCII	Standard as described in Sections 2.4.1 and 3	.txt
	Coal borehole data in CoalLog v2.0 format	Comma separated values	Standard as described in Section 2.4.1	.csv
Report text	Documents, figures etc. previously provided only in hardcopy	Adobe Acrobat	See section 2.4.2	.pdf
Maps, plans, figures and photographs not embodied in report text	Files of maps, plans, figures, core photographs, aerial photographs etc.	Adobe Acrobat	See section 2.4.3	.pdf
		GEOTIFF/TIFF (colour)	Reproducible at 300 dpi, 24 bit	.tif
		JPEG	Q>95, reproducible at 300 dpi	.jpg
		GIF	8 bit	.gif
		PNG		.png
GIS data	Data in GIS format	Each State and Territory to determine which format(s) they will accept	See Section 2.4.4	
Video clips	Fly-throughs etc	Each State and Territory to determine which format(s) they will accept	See Section 2.4.5	
3D mine models	3D mine model data	Each State and Territory to	See Section 2.4.6	

Data Type	Description	Format	Parameter	Suffix
		determine which format(s) they will accept		
Geophysics (other than seismic)	Raw and processed located data and gridded data. For example, magnetics, radiometrics, EM, DTM and gravity data	ASEG GDF2 ASEG GXF ASEG.ESF ER Mapper grid XML (including schema)	See Section 2.4.7	gdf .gxf .esf .grd, .ers .xml, .xsd
Geophysical and other remotely sensed images	Images derived from geophysical/ remote sensing surveys, e.g. TMI, Bouguer, radiometrics, Landsat 5 or 7	GEOTIFF/TIFF (colour) TIFF (greyscale) Compressed ER Mapper JPEG GIF PDF PNG	Reproducible at 300 dpi, 24 bit Reproducible at 300 dpi, 8 bit Best quality (least loss) Quality above 8 bit. See section 2.4.8	.tif .tif .ecw .jpg .gif .pdf .png
Geophysical Inversion and Numerical Modelling	Models	Points (DXF or ASCII) Images Surfaces 3D grids (UBC Grid or GoCAD Voxet)	 See maps, plans, figures etc. section 2.4.3 See Section 2.4.9	.dxf .txt .pdf .tif .jpg .gif .pnf .dxf
Seismic data	Raw and processed data	SEG Y, preferably Rev. 1 SEG D	See Section 2.4.10	.sgy .sgd
	Navigation data	UKOOA P1/90		.uka
	Processed sections (for further information, see petroleum data submission guidelines at	CGM+ format with metadata (line number, shotpoint number) Geophysical image formats as above		.cgm .tif, .jpg, .gif, .pdf, .png

Data Type	Description	Format	Parameter	Suffix
	Geoscience Australia)			
Petrophysical and geophysical log data	Raw and processed wireline and MWD data (for further information, see petroleum data submission guidelines at Geoscience Australia)	DLIS LIS LAS Delimited ASCII (format must be explained) WELLOGML (POSC standard)	As defined by latest Industry Standard, see Section 2.4.11	.lis .lis .las .asc
	Log plots	Adobe Acrobat TIFF (colour) TIFF (greyscale) JPEG GIF PNG	See section 2.4.11 Quality as above Quality as above Quality as above 8 bit	.pdf .tif .tif .jpg .gif .png
	Processed downhole velocity data	SEG Y, preferably Rev. 1	See Section 2.4.11	.sgy
Hyperspectral data – **Point data** **Image data (see definition in Section 2.5)**	 Reflectance data Reflectance data	 Georeferenced FOS, ASD, SDF, SDS Georeferenced BSQ, BIL or BIP image format	 As described in Section 2.4.12 As described in Section 2.4.12	. fos, asd, sdf, sds bsq, .bil, .bip
LIDAR data	Raw data	Georeferenced LAS or CSV files	As described in Section 2.4.13	las, .csv

*NB: Where several related database files cover one theme (e.g. surveying data, drill logs, look-up tables etc.) tabular data should be submitted in a self-extracting zip file containing all relevant files named according to this Standard.

2.4.1 Tabular data

These data include point locations, geochemistry, diamond indicator observations and drilling data. Data will be submitted as flat TAB-delimited ASCII files with a suffix of .txt. File format details are provided in Section 3 and Appendix 1.

The 'MRT' software creates the metadata headers required for compliant tabular files. Compliant files of tabular data can be modified manually using any text editor.

Refer to Section 3 and Appendix 1 (examples) for detailed explanation of tabular data formats for submission.

For coal borehole logs (including status, drilling, lithology, RMU and defects, water, samples, point loads) the CoalLog v2.0 standard should be used and the data submitted in .csv files

2.4.2 Report text

Documents, including figures and tables previously provided only in hardcopy reports, must be submitted in Portable Document Format (PDF) with security settings allowing copying from, but not editing of, the document. Security settings may differ with different State and Territory requirements, and respective jurisdictions should be consulted for clarification.

The PDF format has been chosen because of its wide acceptance in industry as a standard format, the ease of creation from other formats, the availability of free software to read the files and its ability to be searched for words or phrases.

Only provide PDF files that are legible, including the use of common standard fonts and readable maps and images. When compressing or re-sampling image files, ensure that the final images have good resolutions and clarity for readers. Image resolutions should be at least 75 dpi and the recommended resolution for downhole logs is 150 dpi. However, ensure that the final document size does not exceed the limits set by respective Geological Surveys for online report submission. Avoid use of any non-standard fonts as viewers of the documents may not have all the required fonts; Arial and Times Roman fonts are usually the safe options. *Tasmania will accept larger documents on physical media to ensure that image resolution is adequate, and require that all images be legible at the scale of the original document and commonly find 200 dpi is a minimum, depending of feature size.*

Do not embed other files within PDF documents, and submit digital templates as a separate file. Hyperlinks from PDF documents may no longer work when the report is lodged into respective digital report-lodgement systems.

2.4.3 Maps, plans, figures and photographs

For maps, plans, figures and photographs that are not embodied in the text of the report, see Table 2.

2.4.4 GIS data

Currently, no single Standard exists for data in GIS format. It is up to each agency to specify acceptable GIS format(s).

2.4.5 Video clips

It is up to each agency to specify acceptable multimedia format(s).

2.4.6 3D modelling

Companies need to provide:

- sufficient files and associated files to regenerate the models
- details of software and version used
- model extents in MGA, GDA94 and/or latitude/longitude
- local grid transformation data if required
- model points, lines and surfaces as ASCII .dxf files (or as ASCII pointsets or ASCII line strings for point and line objects).

2.4.7 Geophysical data (other than seismic)

2.4.7.1 Airborne geophysical data

These include data from airborne magnetic, gravity, radiometric and electromagnetic (EM) surveys, including gradiometric surveys.

In the case of airborne EM surveys, data should be submitted in the ASEG-ESF format (https://aseg.org.au/aseg-technical-standards), incorporating as much as possible of the following information as is pertinent to the type of survey conducted and in addition to the operational data normally supplied for airborne surveys (such as line number, sample position, terrain clearance etc). Such additional data shall be sufficient to enable inversion of the data commensurate with the current state of the art as it applies to the type of survey conducted:

- raw EM data for each recorded component, if supplied by the survey contractor
- levelled, windowed and processed EM data for each recorded sample and component
- all channels of information computed from the processed EM data e.g. half-space apparent conductivities, layered earth apparent conductivities
- ancillary data such as those recorded by power line monitors and spherics monitors
- Tx-Rx vertical and horizontal separation tabulated with accompanying diagram, or Tx and Rx positions, for each sample if recorded dynamically
- all parameters relevant to Tx and Rx moment and all orientation data

- all relevant sensitivity information if a B-field sensor is used
- Tx current details and, if available, for each sample recorded dynamically
- all reference or real-time waveforms recorded and suitable for calibration purposes
- all calibration data relevant to the flight lines supplied
- full metadata about the EM system including frequencies, waveform and duty cycle, window times, centres and widths, measurement units and details of any amplitude normalization
- full metadata about the EM data processing including a list defining the processing sequence employed and a quantitative description of each processing stage in the processing sequence, sufficient that its effect on the data may be determined for future reference. Such descriptions may include references to published papers explaining the algorithms used
- any other recorded parameters relevant to the processed or interpretative outputs or useful for the further processing or inversion of the data.

Whilst most if not all the dot points listed above are encoded in the new standard ASEG-ESF, much of the reference information required will be in the operations report which should be lodged with the data.

2.4.7.2 Ground geophysical (electrical methods) data

These include data from ground or downhole electrical surveys including induced polarization (IP), DC resistivity, complex resistivity, mise-a-la-masse, MT, CSAMT and electromagnetic surveys.

As much of the following information as is pertinent to the type of survey conducted shall be supplied, in addition to the operational data normally supplied for such surveys (such as station number, MGA co-ordinates, survey datum). Such additional data shall be sufficient to enable inversion of the data commensurate with the current state of the art as it applies to the type of survey conducted. Data should be submitted in the ASEG-ESF format , (https://aseg.org.au/aseg-technical-standards), incorporating as much as possible of the following information:

- specifications of the geophysical survey (e.g. parameters measured, line or station spacing, grid or traverse ID, station ID, local and/or national grid coordinates, national grid conversion factors)
- specifications of instruments (notably type, design, accuracy, sensitivity, calibration) and mode of recording data (i.e. analogue or digital)
- raw data for each recorded parameter including any component data, at each station or sample point, if supplied by the survey contractor
- levelled, windowed and processed data for each recorded parameter, including any component data, at each station or sample point
- all channels of information derived from processing of the data e.g. apparent resistivity, conductivity, chargeability, complex impedance and

any apparent depths or dimensions of anomalous sources where calculated
- ancillary data such as those recorded by downhole sensor orientation devices, power line monitors and spherics monitors, including any self-potential data
- Tx electrode, dipole, loop, coil or downhole electrode locations
- Rx electrode, dipole, loop, coil or downhole sensor locations
- all parameters relevant to Tx and Rx moment, Tx current and all orientation data
- all relevant sensitivity information for magnetic field sensors
- all reference or real-time waveforms recorded and suitable for calibration purposes
- location of significant cultural features which may affect results (e.g. power lines, fences)
- all calibration data relevant to the data supplied
- all parameters or constants used to compute derived parameters from the data
- full metadata about the survey system including frequencies, waveforms and duty cycles, window times, centres and widths, measurement units and details of any amplitude normalization
- full metadata about the data processing including a list defining the processing sequence employed and a quantitative description of each processing stage in the processing sequence, sufficient that its effect on the data may be determined for future reference. Such descriptions may include references to published papers explaining the algorithms used
- any other recorded parameters relevant to the processed or interpretative outputs or useful for the further processing or inversion of the data.

Much of the reference information required will be in the operations report which should be lodged with the data.

2.4.7.3 Ground geophysical (potential field methods) data

These data are from magnetic and gravity surveys including gradiometry and downhole surveys.

As much of the following information as is pertinent to the type of survey conducted shall be supplied, in addition to the operational data normally supplied for such surveys (such as station number, MGA co-ordinates, survey datum, elevation values). Such additional data shall be sufficient to enable inversion of the data commensurate with the current state of the art as it applies to the type of survey conducted:

- specifications of the geophysical survey (e.g. parameters measured, line or station spacing, grid or traverse ID, station ID, local and/or national grid coordinates, national grid conversion factors)

- specifications of instruments (notably type, design, accuracy, sensitivity, calibration) and mode of recording data (i.e. analogue or digital)
- raw data for each recorded parameter including any component or gradient data, at each station or sample point, if supplied by the survey contractor
- levelled data, where levelling is applicable, with those data appropriately merged with location data
  - all drift/diurnal/tie corrections which have been made to the data
- all channels of information derived from processing of the data, e.g. Bouguer density, depth and dimensions of anomalous sources where calculated
- all constants or parameters used to compute derived parameters or residuals from the data (e.g. magnetic base value used, terrain corrections, specific density)
- sensor location and orientation including all ancillary data such as those recorded by downhole sensor orientation devices
- all calibration data relevant to the data supplied including those pertaining to drift correction
- full metadata about the survey system including sensor capability, measurement units and any internal instrument corrections applied or assumptions made
- location of significant cultural features which may affect results (e.g. power lines)
- full metadata about the data processing including a list defining the processing sequence employed and a quantitative description of each processing stage in the processing sequence, sufficient that its effect on the data may be determined for future reference. Such descriptions may include references to published papers explaining the algorithms used
- any other recorded parameters relevant to the processed or interpretative outputs or useful for the further processing or inversion of the data.

Much of the reference information required will be in the operations report which should be lodged with the data.

2.4.8 Geophysical and remotely sensed images

These are primarily derived from geophysical surveys and include TMI and Bouguer gravity images. The submission of images does not exempt companies from submission of the other geophysical data from which the images were derived. Other imagery includes satellite, multispectral scanner and ortho-imagery. Sufficient information should be provided to allow correct spatial registration of images where appropriate.

2.4.9 Geophysical inversion and numerical modelling

For geophysical inversion and numerical modelling results, companies should provide:

- a description of the aim and scope of the inversion or simulation project
- details of software version
- model extents in MGA, GDA94 and/or latitude/longitude
- a description of the input datasets and constraints
- a description of the modelling parameter used (control file)
- brief description of model convergence and confidence level
- model outputs (geophysical inversion) either as:
  - points (DXF or ASCII)
  - images — calculated, observed, or residual
  - surfaces (DXF and/or file type described in sect 2.4.6, 3D model objects)
  - 3D grids (UBC Grid or GoCAD Voxet)
- model outputs (numerical simulation) in DXF, VRML, VTK, GoCAD or other appropriate format as in section 2.4.6, 3D model objects.

2.4.10 Seismic data

Refer to petroleum data submission guidelines at Geoscience Australia for further details on this section and Section 2.4.9.

International Standards exist for seismic data and compliance with the following formats is required:

Raw and processed data

SEG standards SEG Y (preferably Rev. 1) or SEG D with file names including the survey name and line number where appropriate.

Navigation data

This will be submitted as a complete UKOOA P1/90 file.

Processed sections

Submitted as CGM+ complete with metadata, with the line number included within the file name. Images of processed sections may use geophysical image formats specified in Table 2.

2.4.11 Petrophysical and geophysical log data

Data submitted for these logs must comply with the following standards:

Raw and processed wireline and MWD data

DLIS, LIS, LAS, delimited ASCII or WELLOGML (POSC standard) formats.

Log plots

One of PDF, TIFF, JPEG, GIF, or PNG should be used.

Processed down-hole velocity data

SEG Y (preferably Rev. 1) format, with the well name as part of the file name.

2.4.12 Hyperspectral data

For **point data** from drillcore, rock chip, and grab samples (in part specified as *drillcore imaging* within current guidelines – e.g. HyLogger, HyChips , ASD, Terraspec and PIMA) provide the following:

- reflectance data (in FOS, ASD, SDF, SDS)
- metadata
- instrument name and model number
- sample medium
- integration time
- drillhole collar coordinates or GPS coordinates
- drillhole survey and depth.

Product summary table

Product name	Features extracted	Feature extraction type	Geological/mineralogical significance
e.g. white mica composition	2205 +/- 20 nm	minimum wavelength	mineralization lies adjacent to compositional gradient

For **image data** from *airborne imaging, satellite imaging, multispectral remote sensing* and *drillcore imaging* from proximal sensors including Specim (SisuRock), Hyspex (e.g. SWIR320m- e) and Corescan (HCI-2), provide the following:

- reflectance data (in BSQ, BIL or BIP image format)
- ENVI or ERMapper header files
- instrument response function file (band centre wavelengths and full-width at half-height widths (if available)
- metadata including
  - instrument name and model number
  - image/profile specifications:
    - pixel size
    - no. pixels
    - no. lines
    - no. of runs
    - no. of blocks
  - Area covered:
    - lat/long coordinates of survey block boundaries
    - drillhole collar coordinates, survey and depth
  - data quantization (byte, integer*2, real, floating point etc)
  - calibrated units (e.g. reflectance *100, *10000)
  - gain conversion factors (if applied)

- radiative transfer code (RTC) used to convert from radiance-at-sensor to reflectance/emissivity
- assumptions used in RTC, including
  - aerosols (visibility in kms)
  - EFFORT smoothing (yes/no)
- geometric data
  - along flight-line-only GPS information
  - NS-GPS roll-pitch-yaw image information (GLT files)
  - datum/projection
- gain conversion factors (if applied)
- date/time (GMT) of acquisition

- product summary table (see above).

2.4.13 LIDAR data

Digital data from a LIDAR survey should include as a minimum:

- a grid of the full resolution DEM in one of the accepted formats for geophysical grid data
- a metadata report providing details of the following:
  - survey parameters
  - survey area
  - vertical datum
  - horizontal datum
  - map projection
  - spatial accuracy
  - average point density.

If an ortho-photo is acquired, a copy of the image as a geo-referenced ECW should be provided.

If un-gridded data are provided as well, then these data should be in LAS format.

2.4.14 Coal data

These National Guidelines recognise that the coal industry in Australia has developed a standard, known as CoalLog, for collection and transfer of coal borehole data. The development and publication of this standard was supported by ACARP and it was first released in February 2012. An updated version 2.0 was released in March 2015. All files, as well as a manual which describes the reasons, principles and elements of CoalLog, can be downloaded for free from the following web page hosted by the AusIMM: http://www.ausimm.com.au/content/default.aspx?ID=451

CoalLog contains a set of field definitions, coding dictionaries and recommended templates for the collection of all geological and geotechnical data recorded from a

coal borehole as well as information about the borehole itself, such as its location and drilling methods used. All data collected would be stored as tabular data. CoalLog specifies CSV as the data transfer format.

There will be some correlation between fields and codes specified in these Guidelines and those provided in CoalLog. Data collected by coal exploration and mining companies in CoalLog format provides a substantial part of the metadata required by these Guidelines, and significantly more lithological and other data.

2 DATA STANDARD SPECIFICATION — TABULAR DATA, METADATA AND TEMPLATES

Metadata are defined as ‘data about data’ and should provide sufficient information about a dataset for it to be used again. The Standard recommended by ANZLIC for metadata should be used where appropriate. However, some data require more information for intelligent use, and some data require specific metadata covered under other international standards.

Metadata are to be presented in a file header at the top of the file of related tabular data (preferred), or as a separate file. Details of the metadata file headers information required is in Tables 3 and 4 and the metadata headers (‘templates’) in Examples 1–8 are discussed in the following sections.

3.1 File Header Format

The required file header format (see Example 1) has a generic numbering format for flexibility. The file header will be TAB-delimited ASCII, preferably placed at the top of the data file. Alternatively, with large file sizes, it can be supplied as a separate .hdr file with the same name as the data file. The main rules with these file headers are:

- The header number/line identifier (e.g. ‘H0100’) and header field/descriptor (e.g. ‘Tenement_no.’) are mandatory for data supplied and will be placed in the first and second field positions respectively in each header record/line. Exceptions are the H1000 series in which only the header number/line identifiers appear, followed by the header data fields.
- Header data fields will be tab-delimited and allow for several separate pieces of information for each header type where necessary.
- Numbering within a category will be consecutive.
- The TAB delimiter must be used consistently throughout the assemblage of template files in an exploration report.
- Where a header row is not relevant to the type of data in the file, it should be omitted, e.g. H0800 series (assay information) and H1002 (assay code) would be omitted from a file of type SL4 (Surface Location) (Example 1).
- Units of measure (H1001) are to be submitted using the International System of Units (SI).

Users may add specific data fields in addition to the mandatory fields to the data section of any appropriate template file. This will necessitate addition of header fields to the appropriate records of the H1000 series, corresponding to the additional data fields.

Table 3. Version 4 metadata file header information

Fields in **bold** are mandatory. Explanations are in *italics.*
Square brackets denote alternatives, e.g. [AAA|BBB] denotes one of AAA or BBB.

Header Number	***Header Field Title***	***Examples of Values***
H0000	**Reserved – used by earlier versions**	
H0001	**Reserved – used by earlier versions**	
H0002	**Version (of digital reporting guidelines)**	***4.0***
H0003	**Date_generated**	***15-Oct-2002***
H0004	**Reporting_period_end_date**	***30-Sep-2002***
H0005	**State**	***SA***
H0100	**[Tenement_no|Combined_rept_no]** *(When Combined_rept_ no is used, a listing of all tenements under the combined reporting no for that year must be included in the text of the report. In addition, individual tenement numbers should be included in the H1000 and D series, i.e. identifying each row of data as belonging to a particular tenement.)*	***[EL99999|C316_99]***
H0101	**Tenement_holder**	***Big Time Mining***
H0102	**Project_name**	**Kryptonite**
H0103 to H0105	**Reserved – used by earlier versions**	
H0106	**Tenement_operator**	**Small Time Mining**
H0110	**Documents (Reserved by SA)**	ENV09876
H0113	**Reserved – used by earlier versions**	
H0123	**Reserved – used by earlier versions**	
H0150	**250K_map_sheet_number** *(covered by data)*	**SH5311**
H0151	**100K_map_sheet_number** *(covered by data)*	**5936 5937 6037**
H0152	50K_map_sheet_number	59361 59373 60374
H0153	25K_map_sheet_number	59361N 59373S 60374N
H0200	**Start_date_of_data_acquisition**	**01-Oct-2001**
H0201	**End_date_of_data_acquisition**	**30-Sep-2002**
H0202	**Template_format**	**SL4**
H0203	**Number_of_data_records** *(in this file)*	**7**
H0204	**Date_of_metadata_update**	**15-Oct-2002**

Header Number	***Header Field Title***	***Examples of Values***
H0300 onwards	*(Pointers to other files directly related to this file. H0300 and H0308 are always present. Other H03nn records which relate to this file **must** be present. H0318 onward are reserved for other data types in the future)*	
H0300	***Filetype*** *(H0300 should always contain the name and type of the file in which it is contained as a check against inadvertent file name changes)*	**EL99999_2002_A_06_DrillCollars.txt**
H0301	Location_data_file	EL99999_2002_A_06_DrillCollars.txt
H0302	Downhole_lithology_data_file	EL99999_2002_A_08_Lithologs.txt
H0303	Downhole_geochem_data_file	EL99999_2002_A_09_DownholeGeochem.txt
H0304	Downhole_survey_data_file	EL99999_2002_A_14_DownholeSurveys.txt
H0305	Surface_geochem_comp_data_file	***EL99999_2002_A_10_SurfaceGeochem.txt***
H0306	Surface_geochem_abbr_data_file	EL99999_2002_A_13_SurfaceGeochem.txt
H0307	Lithology_code_file	EL99999_2002_A_16_LithologyCodes.txt
H0308	**File_Verification_Listing**	**EL99999_2002_A_18_FileListing.txt**
H0309	Drilling_summary_data_file	EL99999_2002_A_17_DrillingSummary.txt
H0310	Water_data_file	EL99999_2002_A_19_WaterDataFile.txt
H0311	Hydrodata_in_litholog_flag	[Yes | No]
H0313	Alteration_data_file	EL99999_2002_A_21_Alteration_data_file.txt
H0314	Magsusc_data_file	EL99999_2002_A_22_Magsusc_data_file.txt
H0315	Vein_data_file	EL99999_2002_A_23_Vein_data_file.txt
H0316	Recovery_data_file	EL99999_2002_A_23_Recovery_data_file.txt
H0317	Weathering_data_file	EL99999_2002_A_23_Weathering_data_file.txt
H0318 onward	Other_data_file (*name appropriate to content)*	EL99999_2002_A_nn_Variant_data_file.txt
H0400	**Drill_code** *(All drilling codes used should be stated here. Where more than one is used, place another column stating the drilling type in the H1000 and D series, to identify each row of data with a particular drilling type.)*	**RAB ACR DIA**
H0401	Drill_contractor *(Drilling contractor used. If more than one, include in the H1000 and D series to identify each row of data with a particular driller.)*	Drill Faster Pty Ltd Drill Well Pty Ltd
H0402	**Description** *(Describe the drilling codes in the order they are shown in the H0400 record, with code/description paired and items separated by the standard delimiter.)*	**RAB Rotary air blast ACR Aircore** **DIA Diamond bit-coring**

Header Number	*Header Field Title*	*Examples of Values*
H0500	**Feature_type**	**Hole_collar**
H0501	**Geodetic_datum**	**GDA94**
H0502	**Vertical_datum** *(If an arbitrary vertical datum has been used then this must be stated.)*	**AHD, Nominal**
H0503	**Projection** *(Detailed as at right for a projected coordinate system, 'None' for a geographic coordinate system.)*	**UNIVERSAL TRANSVERSE MERCATOR (UTM)**
H0504 to H0507	*Reserved – used by earlier versions*	
H0508	Local_grid_name *(When local grid coordinates are provided the geographic or projected coordinates must also be included in the H1000 and D series*.)	Neutron grid
H0510	Local_grid_information (State specific)	
H0511	Local_grid_information (State specific)	
H0522 to H0524	*Reserved by NSW*	
H0530	**Coordinate_system** [Geographic|Projected]	**Projected**
H0531	**Projection_zone** *(Null for geographic coordinate system, zone specified for UTM.* *If more than one UTM zone is specified and this template file contains coordinates, an additional column specifying UTM zone must be included in the H1000 and D series, i.e. identifying each row of data as belonging to a particular zone.)*	**53**
H0532	**Surveying_instrument** *(Where more than one instrument applicable to this particular template file is used, an additional column stating the instrument type must be included in the H1000 and D series, i.e. identifying each row of data as applying to a particular survey method.)*	**GPS Differential Generic** **GPS Survey Grade**
H0533	Surveying_company	Super Surveying Pty Ltd

Header Number	*Header Field Title*	*Examples of Values*
H0600	**Sample_code**	**DC CT CS Soi**
H0601	**Sample_type** *(Sample source type code/description pairs, in the order they are shown in the H0600 record.)*	**DC Drillcore** **CT Drill cuttings** **CS Core sludge** **Soi Soil**
H0602	**Sample_description** *(Describe field and pre-lab dispatch sampling methods)*	**Quarter core** **Half splits of cuttings**
H0700	**Sample_preparation_code** *(Codes used for laboratory sample preparation for assaying.)*	**S031**
H0701	**Sample_preparation_details** *(Laboratory sample preparation code/description pairs. Where more than one laboratory is specified in H0801, list sample preparation details in order of H0801 laboratory listing, assuming one sample preparation method per laboratory. If more than one sample preparation method per laboratory, results should be presented in separate files.)*	**S031 Fine pulverize to 75μm**
H702	**Job_no** *(Laboratory job/batch number. Where more than one laboratory is used, show job numbers in the order corresponding to the laboratories in H0801.)*	**G37215** **ADL20406**
H0800	**Assay_code** *(All laboratory assay codes used should be stated in the metadata. Where more than one type of assay is used, the assay code must also be included in the H1002 row.)*	**FA50 IC587**
H0801	**Assay_company** *(Laboratory code/name pairs, name including location. Where more than one laboratory is used, each laboratory name should be preceded by an abbreviation code which is then used in the H1007 record to identify assay_code against laboratory.)*	**PLP Phlogiston Laboratories, Perth** **AAL Aardvark Laboratories, Adelaide**
H0802	**Assay_description** *(Assay code/description pairs, in order of codes specified in H0800.)*	**FA50 Aqua regia digest, Fire assay determination** **IC587 HClO4 + HNO3 + HF digest, inductively coupled plasma mass spectrometry determination**
H0900	**Comments** *(Free text comments and remarks, enclosed in quotes.)*	**'Various general comments, remarks, observations etc.'**

Header Number	***Header Field Title***	***Examples of Values***
H1000 onward	*Note that, in the H1000 series, the record name is not shown after the H1nnn designator. Each record passes directly into field names, units etc.*	
H1000	*(Data field names)*	**Xcoordinate, Lab Job no., Au SiO_2 Zn**
H1001	*(Units of measure for each dimensioned field – NA (not applicable) for fields where this is null.)*	**metres ddd.ddddddd ddmmss.sss ppm %**
H1002	*(Assay_code – specify for each analyte)*	**FA50**
H1003	*(Lower detection limit as units specified in H1001)*	**0.01**
H1004	*(Accuracy – specify for each dimensioned field using the units in H1001)*	**0.01**
H1005	*(Upper detection limit as units specified in H1001)*	1000
H1006	*(Preferred assay indicator (P) for preferred assay where several values are presented for a single sample, null for others. The 'preferred assay' field should also be the first listed for that analyte.)*	P
H1007	*(Assay_company_ID: where more than one laboratory is used, a code specified in H0801 identifies assay_code against laboratory.)*	**PLP**
D	**(Data)**	

3.2 Description of File Templates for Tabular Data

All headers require the 'Header number', e.g. 'H0100', to appear in the first field of each header row to enable transcription software to upload the metadata correctly (Example 1).

All data records are to contain the character 'D' in the first field to allow transcription software to distinguish data from metadata on upload.

An end of file marker 'EOF' must immediately follow the last data record as the final line of the file.

Table 4. Acceptable templates for tabular data submission

Explanation in italics

Template	***Data Type***	***Mandatory dependent/related templates***	***Dependent/related templates***	***Appendix 1 Examples***
SL4	Surface point locations, drill collars		DG4, DL4, DS4 *(when downhole data collected)*	Example 1
SG4	Surface geochemistry		Lithology_code_file *(when lithology is specified for each sample)* QG4	Example 2
DG4	Downhole geochemistry	SL4	Lithology_code_file *(when lithology is specified for each sample)* QG4	Example 3
QG4	QA/QC file for capturing laboratory/field duplicates, standards and blanks	SG4 &/or DG4		Example 4
DS4	Downhole directional survey	SL4		Example 5
DL4	Downhole lithological logs	SL4 Lithology_code_file		Example 6
VL4	File verification listing			Example 7
DU4	Drilling Summary	SL4		Example 8
SG4_PXRF	Portable XRF Surface Geochemistry	SG4PXRF		Example 9
DG4_PXRF	Portable XRF Downhole Geochemistry	DG4PXRF		Example 10

Note that SG4 and DG4 templates may also be used for submission of heavy mineral or diamond indicator sampling results; however, a DG4 template must be accompanied by a related SL4 template.

3.2.1 **SL4: Surface point locations, drill collars** (Example 1)

Drillhole collar and sample point locations require the additional parameters of geodetic datum, coordinate system, projection and spatial accuracy to ensure completeness, avoid ambiguity and the longevity of the data. Detailed

explanations of these concepts are available from a number of sources, and are outside the scope of this document.

H1001 should include the datum for the azimuth as a suffix to the units of measurement, i.e. _M (Magnetic) or _T (True).

3.2.2 **SG4: Surface geochemistry** (Example 2 and 9)

A complete file of surface geochemistry contains both location and assay data and will therefore require metadata on both the spatial and analytical components. Spatial metadata are treated as in the SL4 header template. The H0600, H0700 and H0800 series contain metadata related to sample collection, preparation and analysis respectively. H1002, H1003, H1005, H1006 and H1007 are brought into use for analytical metadata.

The H0800 record should contain the assay method code as specified by the laboratory, rather than that used by the client. Description of each analytical method in H0802 should specify sample digestion as well as final analytical determination method.

When an assay result for a particular analyte is below detection limit, it should be shown in the data record as not detected ‘nd’, or the negative of the detection limit e.g. ‘-10’.

When an analyte was not assayed for a particular sample, it should be shown in the data record as null or not assayed ‘na’.

Each file must be consistent in its usage of ‘below detection limit’ and ‘not assayed’.

SG4 templates may also be used for submission of heavy mineral or diamond indicator sampling results. There is separate template (Example 9)for portable XRF data

QA/QC data (laboratory/field duplicates, standards, blanks) should be included in a separate QA/QC file. See QG4 below.

3.2.3 **DG4: Downhole geochemistry** (Example 3 and 10)

Downhole geochemical data files require sample location data and metadata to be provided in separate files, i.e. in the SL4 file. In the DG4 file, only the drillhole identifier, sample identifier, sample code, downhole interval and assay data are provided for each sample in the data records, with pointers to the relevant SL4 file.

If downhole lithological logs (DL4) are not presented, it is recommended that the lithology of each sample be specified as an extra data field in the DG4 file.

DG4 template may also be used for submission of heavy mineral or diamond indicator sampling results. There is separate template (Example 10) for downhole portable XRF data

QA/QC data (laboratory/field duplicates, standards, blanks) should be included in separate QA/QC file. See QG4 below.

3.2.4 **QG4: QA/QC quality control file** (Example 4)

It is considered that in addition to the metadata covering analytical method, laboratory, sample preparation, units of measure, and upper and lower detection limits, all of which are required in the various geochemistry templates, inclusion of analytical results of named standards as well as results of analyses of duplicate samples and blanks will assist in evaluating the quality of the data.

The QG4 Template has the same structure and metadata as the geochemistry files (SG4 & DG4) but will include:

- lab job number — as provided by analytical laboratory
- QA/QC type:
  - FDup = field duplicate submitted to laboratory
  - LDup = duplicate generated and reported by laboratory
  - Standard = general and certified standards
  - Blank = laboratory blanks
- Standard ID – name of standard be it certified or a general standard
- duplicated sample number (original sample number for field duplicate).

3.2.5 **DS4: Downhole directional survey** (Example 5)

H1001 should include the datum for the azimuth as a suffix to the units of measurement, i.e. _M (Magnetic) or _T (True).

3.2.6 **DL4: Downhole lithological logs** (Example 6)

Only the drillhole identifiers, depth intervals and lithological data are provided in this file, with pointers to the relevant SL4 file and lookup / authority / validation / namespace files. In most cases, lithologies are presented as abbreviation codes. A TAB delimited ASCII file showing abbreviation code against full lithology name must be provided if this is the case, Lithology_code_file.

3.2.7 **VL4: File verification listing** (Example 7)

A listing of all digital files submitted as part of the report, including the file type and format. Sufficient information on graphics files to ensure valid interpretations can be made.

3.2.8 **DU4: Drilling summary (Example 8)**

A summary of all drilling undertaken during the financial year by drill type including metres drilled and cost.

APPENDIX 1

DATA TEMPLATES

Example 1. Surface Location Template – SL4 (Collar File)

File name: EL99999_2012_A_05_DrillCollars.txt

H0002	Version	4*	*This refers to the Template version - currently 4.	
H0003	Date_generated	12-Nov-12		
H0004	Reporting_period_end_date	28-Sept-12		
H0005	State	SA		
H0100	Tenement_no/Combind_report_no	EL99999		
H0101	Tenement_holder	Big Time Mining Ltd		
H0102	Project_name	Kryptonite		
H0106	Tenement_operator	Small Time Mining NL		
H0150	250K_map_sheet_number	SH 53-9		
H0151	100K_map_sheet_number	5936	5937	6037
H0152	50K_map_sheet_number			
H0153	25K_map_sheet_number			
H0200	Start_date_of_data_acquisition	29-Sept-11		
H0201	End_date_of_data_acquisition	28-Sept-12		
H0202	Data_format	SL4*	*Mandatory, e.g. **SL4** - **S**urface **L**ocation (collar	
H0203	Number_of_data_records	3*	* Must match number of Data rows (D) below.	
H0204	Date_of_metadata_update	12-Nov-12		
H0300	Related_data_file			
H0301	Location_data_file	EL99999_2012_A_05_DrillCollars.txt		
H0302	Lithology_data_file	EL99999_2012_A_06_LithoLogs.txt		
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt		
H0304	Survey_data_file	EL99999_2012_A_10_DownholeSurveys.txt		
H0307	Lithology_code_file	SmallTime_data_dictionary		
H0308	File verification List	EL99999_2012_A _13_Verification_List.txt		
H0310	Water_data_file			
H0311	Water data incl in lithology file	No		
H0313	Alteration_data_file			
H0314	Magsusc_data_file			
H0315	Vein_data_file			
H0316	Recovery_data_file			
H0317	Weathering_data_file			
H0318	QAQC_data_file	EL99999_2012_A_14_QAQCGeochem.txt		
H0400	Drill_code	DD		RC
H0401	Drill_contractor	Drill Faster Pty Ltd		Drill Well Pty Ltd
H0402	Description	Diamond drilling		Reverse Circulation Drilling
H0500	Feature_located	Drillhole_collar		
H0501	Geodetic_datum	GDA94	Location data must be included in H0500's rows	
H0502	Vertical_datum	AHD	RL500	Nominal
H0503	Projection	UTM		
H0508	Local Grid Name			
H0530	Coordinate_system	Projected		
H0531	Projection_zone	51	Zone is Mandatory with **projected** co-ordinates.	
H0532	Surface_Location_Survey_Instrument	GPS		
H0533	Surface_Location_Survey_Company			
H0900	Remarks	All column headers listed below are mandatory. Others may be added.		

H1000	Hole_id	MGA_E *	MGA_N*	Elevation	Total_Depth	Drill_Code	Dip	Azimuth_mag
H1001		metres	metres	metres	metres	NA	degrees	degrees
H1004		1	1	1	1	0	1	1
D	KPDD001	392200	6589600	320	210	DD	-90	270
D	KPDD002	391900	6588800	320	129	DD	-90	270
D	KPRC001	392300	6589600	320	24	RC	-60	270
EOF *		*Add extra rows for data before EOF as needed.						

View file in Microsoft Excel, check column alignment, 'Save As' , 'Text (Tab delimited) (.txt) from the pull down menu.*

** Check column headings match Geodetic datum (H0501), e.g. **GDA94** uses **MGA_N;** whereas. **AGD84** uses **AMG_N***

The coloured italic text is for instruction only. Do not include in your data file.

Example 2. Surface Geochemistry Template – SG4

File name: EL99999_2012_A_08_Surfacegeochemistry.txt

H0002	Version	**4** *	*This refers to the Template version							
H0003	Date_generated	**12-Nov-12**								
H0004	Reporting_period_end_date	**28-Sept-12**								
H0005	State	**SA**								
H0100	Tenement_no/Combind_report_no	**EL99999**								
H0101	Tenement_holder	**Big Time Mining Ltd**								
H0102	Project_name	**Kryptonite**								
H0106	Tenement_operator	**Small Time Mining NL**								
H0150	250K_map_sheet_number	**SH 53-9**								
H0151	100K_map_sheet_number	**5036**	**6136**							
H0152	50K_map_sheet_number									
H0153	25K_map_sheet_number									
H0200	Start_date_of_data_acquisition	**29-Sept-11**								
H0201	End_date_of_data_acquisition	**28-Sept-12**								
H0202	Data_format	**SG4** *	***Mandatory, e.g. SG4 - Surface Geochemistry.**							
H0203	Number_of_data_records	**6** *	*** Must match number of Data rows (D) below**							
H0204	Date_of_metadata_update	**12-Nov-12**								
H0305	SurfGeochem_Data_File	**EL99999_2012_A__08_SurfaceGeochem.txt**								
H0308	File verification List	**EL99999_2012_A_13_FileListing.txt**								
H0319	QAQC_data_file	**EL99999_2012_A__14_SQAQCGeochem.txt**								
H0500	Feature_located	**Surface Sample**								
H0501	Geodetic_datum	**GDA94**	*Location data must be included in H0500's rows*							
H0502	Vertical_datum	**AHD**								
H0503	Projection	**UTM**								
H0508	Local Grid Name									
H0530	Coordinate_system	**Projected**								
H0531	Projection_zone	**53**	*Zone is Mandatory with projected co-ordinates.*							
H0532	Surface_location_Survey_Instrument	**GPS**								
H0533	Surface_Location_Survey_Company	**Small Time Mining NL**								
H0538	**Surface_Geophysical_Survey_Instrument**									
H0539	**Surface_Geophysical_Survey_Company**									
H0600	Sample_Code	**SOI**	**RKC**							
H0601	Sample_Type	**Soil**	**Rock Chip**							
H0602	Sample_description	**Soil Sample**	**Rock chip sample**							
H0700	Sample_Prep_Code	**SO31**								
H0701	Sample_Prep_Desc	**SO31:Fine pulverise to 75um**								
H0702	Job_no	**B40985**								
H0800	Assay_code	**AR**	ICP-OES							
H0801	Assay_company	**PH:Phlogiston Laboratories**	BR:Brimstone Laboratories							
H0802	Assay_description	**Aqua regia digest**	Inductively coupled plasma – optical emission spectrometry							
H0900	Remarks	***Below: Headings - Sample ID, MGA_E, MGA_N and Sample_type are Mandatory. Others optional.***								
H1000	Sample ID	MGA_E*	MGA_N*	Sample Type	Au	Ag	As	Cu	Pb	Zn
H1001	*units of measure*	*metres*	*metres*	*NA*	ppm	ppm	ppm	ppm	ppm	ppm
H1002	*assay code from H0800*				AR	ICP-OES	ICP-OES	ICP-OES	ICP-OES	ICP-OES
H1003	*lower detection limit*				0.01	0.01	5	0.1	0.1	0.1
H1004	*accuracy*	*1*	*1*	*0*	0.01	0.01	5	0.1	0.1	0.1
H1005	*upper detection limit*									
H1006	*preferred laboratory result*									
H1007	*assay company id - when more than one lab is used*				PH	BR	BR	BR	BR	BR
D	KPS001	392200	6589600	SOI	0.01	0.04	13	0.27	na	0.4
D	KPS002	392843	6581542	SOI	0.02	0.06	5	0.16	0.12	0.5
D	KPS003	392280	6584510	SOI	0.03	0.04	13	0.24	0.14	0.4
D	KPRK001	391954	6588800	RKC	0.01	0.03	12	0.24	0.17	0.4
D	KPRK002	391790	6588791	RKC	0.02	0.03	nd	0.3	0.13	na
D	KPRK003	392306	6589861	RKC	0.01	0.03	36	0.19	0.17	0.3
EOF *	***Add extra rows for data before EOF as needed.**									

View the file in Microsoft Excel to check the alignment of the columns, then "Save As" - "Text (Tab delimited)(.txt)" from the pull down menu.*

** Ensure location column headings match the Geodetic datum, e.g. **GDA94** uses **MGA_N**, whereas **AGD84** uses **AMG_N***

The coloured italic text is for instruction only. Do not include in your data file.

Example 3. Downhole Geochemistry Template – DG4

File name: EL99999_2012_A_07_DownholeGeochem.txt

H0002	Version	4 *	*This refers to the Template version - currently 4.*
H0003	Date_generated	12-Nov-12	
H0004	Reporting_period_end_date	28-Sept-12	
H0005	State	SA	
H0100	Tenement_no/Combind_report_no	EL99999	
H0101	Tenement_holder	Big Time Mining Ltd	
H0102	Project_name	Kryptonite	
H0106	Tenement_operator	Small Time Mining NL	
H0150	250K_map_sheet_number	SH 53-9	
H0151	100K_map_sheet_number	5036	6136
H0152	50K_map_sheet_number		
H0153	25K_map_sheet_number		
H0200	Start_date_of_data_acquisition	29-Sep-11	
H0201	End_date_of_data_acquisition	28-Sep-12	
H0202	Data_format	DG4 *	*Mandatory, e.g. **DG4** - **D**ownhole **G**eochemistry*
H0203	Number_of_data_records	3 *	* Must match number of Data rows (D) below.*
H0204	Date_of_metadata_update	12-Nov-12	
H0300	Related_data_file		
H0301	Location_data_file	EL99999_2012_A_05_DrillCollars.txt	
H0302	Lithology_data_file	EL99999_2012_A_06_LithoLogs.txt	
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt	
H0304	Survey_data_file	EL99999_2012_A_10_DownholeSurveys.txt	
H0307	Lithology_code_file	SmallTime_data_dictionary	
H0308	File verification List	EL99999_2012_A_13_FileListingtxt	
H0318	QAQC_data_file	EL99999_2012_A_14_QAQCGeochem.txt	
H0320	Other event_data_file		
H0400	Drill_code	DD	RC
H0401	Drill_contractor	Drill Faster Pty Ltd	
H0402	Description	Diamond	Reverse circulation
H0500	Feature_located	Drillhole_collar	
H0501	Geodetic_datum	GDA94	
H0502	Vertical_datum	AHD	
H0503	Projection	Map Grid of Australia (MGA)	
H0508	Local Grid Name		
H0530	Coordinate_system	Projected	
H0531	Projection_zone	53	
H0532	Surface_Location_Survey_Instrument	GPS	
H0533	Surface_Location_Survey_Company		
H0600	Sample_Code	DDC	RCC
H0601	Sample_Type	Diamond core	RC Chips
H0602	Sample_description	¼ core	Reverse Circulation chips
H0700	Sample_Prep_Code	SO31	
H0701	Sample_Prep_Desc	SO31:Fine pulverise to 75um	
H0702	Job_no	G37215 *	*Include Job_no/Batch No.*
H0800	Assay_code* *record also at H1002*	AR	BLEG	ICP-OES
H0801	Assay_company	PH:Phlogiston Labs	BR:Brimstone Labs	BR:Brimstone Laboratories
H0802	Assay_description	Aqua regia digest	Bulk leach extractable.gold	Inductively.coupled plasma – Optical emission spectroscopy

H0900	Remarks	*The column headers Hole_id, Sample_id, From, To & Drill_code, are mandatory. Others vary according to*										
H1000	Hole_id	Sample_id	From	To	Sample _type	Au	Au	As	Cu	Pb	Zn
H1001	*(units of measure)*		m	m	NA	ppb	ppm	ppm	ppm	ppm	ppm
H1002	*(assay code from H0800)*					BLEG	AR	ICP-OES	ICP-OES	ICP-OES	ICP-OES
H1003	*(lower detection limit)*					1	0.01	5	0.1	0.1	0.1
H1004	*(accuracy)*					1	0.01	5	0.1	0.1	0.1
H1005	*(Upper detection limit)*										
H1006	*(Preferred laboratory result)*						P				
H1007	*(assay company id - where more than one laboratory*					BR	PH	BR	BR	BR	BR
D	KPDD001	KP32001	0	1	DDC	1	0.01	13	0.27	0.18	nd
D	KPDD001	KP32002	1	2	DDC	2	0.02	5	0.16	0.12	0.5
D	KPDD002	KP32003	0	1	DDC	na	na	12	0.24	0.17	0.4
D	KPRC002	KP32004	0	4	4 metre comp.	3	0.03	5	0.01	0.13	0.2

EOF * **Add extra rows for data before EOF as needed.*

View file in Microsoft Excel to check column alignment, then use 'Save As' and choose 'Text (Tab delimited) (.txt) in the pull down menu.*

The coloured italic text is for instruction only. Do not include in your data file.

Example 4. Quality Control Template – QG4

File name: EL99999_2012_A_14_QAQCGeochem.txt

H0002	Version	4
H0003	Date_generated	20-Dec-12
H0004	Reporting_period_end_date	28-Sep-12
H0005	State	WA
H0100	Tenement_no/Combind_report_	EL99999
H0101	Tenement_holder	Big Time Mining Ltd
H0102	Project_name	Kryptonite
H0106	Tenement_operator	Small Time Mining NL
H0150	250K_map_sheet_number	SH 51-9
H0151	100K_map_sheet_number	3036 3136
H0152	50K_map_sheet_number	
H0153	25K_map_sheet_number	
H0200	Start_date_of_data_acquisition	29-Sep-11
H0201	End_date_of_data_acquisition	28-Sep-12
H0202	Data_format	QG4
H0203	Number_of_data_records	4
H0204	Date_of_metadata_update	20-Dec-12
H0300	Related_data_file	
H0301	Location_data_file	
H0302	Lithology_data_file	EL99999_2012_A_05_DrillCollars.txt
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt
H0304	Survey_data_file	
H0305	SurfGeochem_Data_File	
H0307	Lithology_code_file	SmallTime_data_dictionary
H0308	File verification List	KP_Verification_List_2004.txt
H0310	Water_data_file	
H0311	Water data incl in lithology file	No
H0313	Alteration_data_file	
H0314	Magsusc_data_file	
H0315	Vein_data_file	
H0316	Recovery_data_file	
H0317	Weathering_data_file	
H0318	QAQC_data_file	EL99999_2012_A_14_QAQCGeochem.txt
H0320	Other event_data_file	
H0400	Drill_code	DD
H0401	Drill_contractor	Drill Faster Pty Ltd
H0402	Description	Diamond Drilling
H0600	Sample_Code	DD
H0601	Sample_Type	Diamond core
H0602	Sample_description	¼ core
H0700	Sample_Prep_Code	**SO31**
H0701	Sample_Prep_Desc	**SO31:Fine pulverise to 75um**
H0702	Job_no	G37215
H0800	Assay_code	LS:AR
H0801	Assay_company	PH:Phlogiston Laboratories
H0802	Assay_description	Aqua regia digest atomic absorption determination
H0900	Remarks	

H1000	LAB job No	Sample	QA/QC	Stand_ID	Orig_Sample	Hole_ID	Depth_from	Depth_To	Stnd_Value	Au	Au1
H1001	NA	NA	NA	NA	NA	NA	metres	metres	ppm	ppm	NA
H1002										AR	AR
H1003										0.01	0.01
H1004							1	1	0	0	0
H1007										PH	PH
D	G37215	KP32100	ST	A378-1	KP32100	KPDD001	23	27	0.09	0.08	
D	G37215	KP32202	ST	A901-2	KP32202	KPDD001	34	36	3.98	3.5	
D	G37215	KP32307	BL		KP32307	KPDD002	50	51		0.02	
D	G37215	KP32401	Fdup		KP32401	KPDD002	100	101			0.49

Example 5. Downhole Survey Template – DS4

File name: EL99999_2012_A_10_DownholeSurveys.txt

H0002	Version	4 *	*This refers to the Template version - currently 4.	
H0003	Date_generated	12-Nov-12		
H0004	Reporting_period_end_date	28-Sept-12		
H0005	State	SA		
H0100	Tenement_no/Combind_report_no	EL99999		
H0101	Tenement_holder	Big Time Mining Ltd		
H0102	Project_name	Kryptonite		
H0106	Tenement_operator	Small Time Mining NL		
H0150	250K_map_sheet_number	SH 53-9		
H0151	100K_map_sheet_number	5036	6136	
H0152	50K_map_sheet_number			
H0153	25K_map_sheet_number			
H0200	Start_date_of_data_acquisition	29-Sept-11		
H0201	End_date_of_data_acquisition	28-Sept-12		
H0202	Data_format	DS4 *	*Mandatory, e.g. **DS4** - **D**ownhole **S**urvey	
H0203	Number_of_data_records	6 *	* Must match number of Data rows (D) below.	
H0204	Date_of_metadata_update	12-Nov-12		
H0300	Related_data_file			
H0301	Location_data_file	EL99999_2012_A_05_DrillCollars.txt		
H0302	Lithology_data_file	EL99999_2012_A_06_LithoLogs.txt		
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt		
H0304	Survey_data_file	EL99999_2012_A_10_DownholeSurveys.txt		
H0308	File verification List	EL99999_2012_A_13_FileListing.txt		
H0310	Water_data_file			
H0311	Water data incl in lithology file	No		
H0313	Alteration_data_file			
H0314	Magsusc_data_file			
H0315	Vein_data_file			
H0316	Recovery_data_file			
H0317	Weathering_data_file			
H0320	Other event_data_file			
H0400	Drill_code	DD	RC	
H0401	Drill_contractor	Drill Faster Pty Ltd	Drill Well	
H0402	Description	Diamond Drilling	Reverse	
H0500	Feature_located	Drillhole_collar		
H0501	Geodetic_datum	GDA94		
H0502	Vertical_datum	AHD		
H0503	Projection	Map Grid of Australia (MGA)		
H0508	Local Grid Name			
H0530	Coordinate_system	Projected		
H0531	Projection_zone	53		
H0532	Surface_Location_Survey_Instrument	GPS		
H0533	Surface_Location_Survey_Company			
H0534	Downhole_Direction_Survey_Instrument	Single shot camera - SS		
H0535	Downhole_Direction_Survey_Company	Small Time Mining NL		
H0900	Remarks	*Below: the column headers Hole_id, Surveyed_depth,Azimuth_mag, & Dip are Mandatory..*		

H1000	Hole_id	Surveyed_Depth	Azimuth_MAG	Dip	Survey_instrument	Drill_code
H1001	*units of measure*	metres	degrees	degrees	NA	NA
H1004	*accuracy*	1	0	0		
D	KPDD001	0	272	-60.3	SS	DD
D	KPDD001	4	263	-61	SS	DD
D	KPDD002	0	180	-60	SS	DD
D	KPDD002	4	180	-62	SS	DD
D	KPRC001	0	175	-61.4	SS	RC
D	KPRC001	4	0	-90	ns	RC
EOF *	*Add extra rows for data before EOF as needed.*					

View file in Microsoft Excel to check alignment, then use 'Save As' and choose 'Text (Tab delimited) (.txt) in the pull down menu.*

The coloured italic text is for instruction only. Do not include in your data file.

Example 6. Downhole Lithology Template – DL4

File name: EL99999_2012_A_06_LithoLogs.txt

NB: This template is also used for other downhole events such as geophysics, alteration, water, etc.

H0002	Version	4 *This refers to the Template version - currently 4.*	
H0003	Date_generated	12-Nov-12	
H0004	Reporting_period_end_date	28-Sept-12	
H0005	State	SA	
H0100	Tenement_no/Combind_report_no	EL99999	
H0101	Tenement_holder	Big Time Mining Ltd	
H0102	Project_name	Kryptonite	
H0106	Tenement_operator	Small Time Mining NL	
H0150	250K_map_sheet_number	SH 53-9	
H0151	100K_map_sheet_number	5036	6136
H0152	50K_map_sheet_number		
H0153	25K_map_sheet_number		
H0200	Start_date_of_data_acquisition	29-Sept-11	
H0201	End_date_of_data_acquisition	28-Sept-12	
H0202	Data_format	DL4 *	*Mandatory, e.g.* ***DL4*** *-* ***D****ownhole* ***L****ithology*
H0203	Number_of_data_records	6 *	** Must match number of Data rows (D) below.*
H0204	Date_of_metadata_update	12-Nov-12	
H0300	Related_data_file		
H0301	Location_data_file	EL99999_2012_A_05_DrillCollars.txt	
H0302	Lithology_data_file	EL99999_2012_A_06_LithoLogs.txt	
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt	
H0304	Survey_data_file	EL99999_2012_A_10_DownholeSurveys.txt	
H0307	Lithology_code_file	EL99999_2012_A_11_LithologyCodes.txt	
H0308	File verification List	EL99999_2012_A_13_FileListing.txt	
H0310	Water_data_file		
H0311	Water data incl in lithology file	No	
H0313	Alteration_data_file		
H0400	Drill_code	AC	RC
H0401	Drill_contractor	Drill Faster Pty Ltd	Drill Well Pty Ltd
H0402	Description	Aircore Drilling	Reverse Circulation Drilling
H0500	Feature_located	Drillhole_collar	
H0501	Geodetic_datum	GDA94	
H0502	Vertical_datum	AHD	
H0503	Projection	UTM	
H0508	Local Grid Name		
H0530	Coordinate_system	Projected	
H0531	Projection_zone	53	
H0532	Surface_Location_Survey_Instrument	GPS	
H0533	Surface_Location_Survey_Company		
H0536	Downhole_Geophysical_Survey_Instrument		
H0537	Downhole_Geophysical_Survey_Company		
H0900	Remarks	*Below: column headers Hole_id, Depth_from & Depth_to, are mandatory. Others may be added.*	

H1000	Hole_id	Depth_from	Depth_to	Rock1	Rock2	Rock3
H1001	*units of measure*	metres	metres	NA	NA	N
H1004	*accuracy*	1	1	0	0	
D	KPDD001	0	4	Gbr	gns	v
D	KPDD001	4	8	gn	sed	
D	KPDD002	0	4	ba	sst	
D	KPDD002	4	8	tl		
D	KPRC001	0	4	rc	v	
D	KPRC001	4	8	sch	t	

**Add extra rows for data before EOF as needed.*

View file in Microsoft Excel to check alignment, then use 'Save As' and choose 'Text (Tab delimited) (.txt) in the pull down menu.*

The coloured italic text is for instruction only. Do not include it in your data file.

Example 7. Sample Hardcopy File Verification Listing – VL4

File name `EL99999_2002_A_13_Filelisting.txt`

Exploration Work Type	*Filename*	*Format*
Office Studies		
Literature search	EL99999_2002_A_01_ReportBody.pdf	pdf
Database compilation		
Computer modelling	`EL99999_2002_A_01_ReportBody.pdf`	pdf
Reprocessing of data		
General research	`EL99999_2002_A_01_ReportBody.pdf`	pdf
Report preparation	`EL99999_2002_A_01_ReportBody.pdf`	pdf
Other (specify)		
Airborne Exploration Surveys		
Aeromagnetics	`EL99999_2002_A_03_Aeromag.gdf` `EL99999_2002_A_04_Aeromag.ecw`	gdf, ecw
Radiometrics		
Electromagnetics		
Gravity		
Digital terrain modelling		
Other (specify)		
Remote Sensing		
Aerial photography		
LANDSAT		
SPOT		
MSS		
Radar		
Other (specify)		
Ground Exploration Surveys		
Geological Mapping		
Regional		
Reconnaissance		
Prospect	`EL99999_2002_A_02_ProspectGeology.tif`	tif
Underground		
Costean		
Ground geophysics		
Radiometrics		
Magnetics		
Gravity		
Digital terrain modelling		
Electromagnetics		
SP/AP/EP		
IP		
AMT		
Resistivity		
Complex resistivity		
Seismic reflection		
Seismic refraction		
Well logging		
Geophysical interpretation		
Other (specify)		
Geochemical Surveying		

Drill sampling	`EL99999_2002_A_07_DownholeGeochem.txt`
	`EL99999_2002_A_05_DrillCollars.txt`
	`EL99999_2002_A_14_QAQCGeochem.txt`
		txt

Surface sampling	`EL99999_2002_A_08_SurfaceGeochem.txt`
	`EL99999_2002_A_09_SurfaceLocations.txt`
	`EL99999_2002_A_14_QAQCGeochem.txt`
		txt

Other (specify)		txt
Drilling		

All drilling	`EL99999_2002_A_05_DrillCollars.txt`
	`EL99999_2002_A_06_Lithologs.txt`
	`EL99999_2002_A_10_DownholeSurveys.txt`
	`EL99999_2002_A_11_LithologyCodes.txt`
	`EL99999_2002_A_12_DrillingSummary.txt`
		txt

File Verification Listing *(this file)*	`EL99999_2002_A_13_FileListing.txt`	txt

Example 8. Drilling Summary – DU4

File name: EL99999_2012_A_12_DrillingSummary.txt

The details below are illustrative only. In a real exploration report, they would correspond to the details in drilling-related SL4 files within the report.

H0002	Version			4	
H0003	Date_generated			12-Nov-12	
H0004	Reporting_period_end_date			28-Sept-12	
H0005	State			SA	
H0100	Tenement_no/Combind_report_no			EL99999	
H0101	Tenement_holder			Big Time Mining Ltd	
H0102	Project_name			Kryptonite	
H0106	Tenement_operator			Small Time Mining NL	
H0200	Start_date_of_data_acquisition			29-Sept-11	
H0201	End_date_of_data_acquisition			28-Sept-12	
H0202	Data_format			DL4	
H0203	Number_of_data_records			6	
H0204	Date_of_metadata_update			12-Nov-12	
H0300	Drilling_summary_data_file			EL99999_2012_A_12_DrillingSummary.txt	
H0301	Location_data_file			EL99999_2012_A_05_DrillCollars.txt	
H0309	Drilling_summary_data_file			EL99999_2012_A_12_DrillingSummary.txt	
H0400	Drill_code			rab	DIA
H0401	Drill_contractor			Drill Faster Pty Ltd	Drill Well Pty Ltd
H0402	Description			Rotary Air Blast	Diamond Bit-coring
H1000	Drilling_code	DrilledLength	Expenditure	FinancialYear	ExplorationType
H1001		metres	$AUS		
H1004		10	100	2011-2012	
D	RAB	4950	34400	2011-2012	
D	RAB	2210	16100	2011-2012	
D	DIAMOND	2260	213600	2011-2012	
EOF					

Example 9 – Portable XRF Surface Geochemistry – SG4_PXRF

File name: EL99999_2012_A_13_PXRF_Surfacegeochemistry.txt

H0002	Version	4
H0003	Date_generated	12-Nov-12
H0004	Reporting_Period_end_date	28-Sep-12
H0005	State	SA
H0100	Tenement_no/Combined_rept_no.	EL999999
H0101	Tenement_holder	Big Time Mining Ltd
H0102	Project_name	Kryptonite
H0106	Tenement_operator	Small Time Mining NL
H0150	250K_map_sheet_number	SH53-09 Barton
H0151	100K_map_sheet_number	5336 Pidinga
H0152	50K_map_sheet_number	
H0153	25K_map_sheet_number	
H0200	Start_date_of_data_acquisition	29-Sep-11
H0201	End_date_of_data_acquisition	28-Sep-12
H0202	Data_format	SG4
H0203	Number_of_data_records	7
H0204	Date_of metadata_update	12-Nov-12
H0305	SurfGeochem_data_file	EL99999_2012_A__08_SurfaceGeochem.txt
H0308	File verification List	EL99999_2012_A_13_FileListing.txt
H0319	QAQC_data_file	EL99999_2012_A__14_SQAQCGeochem.txt
H0500	Feature_located	Surface Sample Point
H0501	Geodetic_datum	GDA94
H0502	Vertical_datum	AHD
H0503	Projection	UTM
H0530	Coordinate_system	Projected
H0531	Projection_zone	53
H0532	Surface_location_Survey_Instrument	GPS
H0533	Surface_Location_Survey_Company	Small Time Mining NL
H0538	Surface_Geophysical_Survey_Instrument	
H0539	Surface_Geophysical_Survey_Company	
H0600	Sample_Code	Rock chip
H0601	Sample_Type	Rock Chip
H0602	Sample_Discription	
H0700	Sample_Preparation_Code	NA
H0701	Sample_Preparation_Details	NA
H0702	Assay_Job_No	NITON_2012_05_22
H0800	Assay_Code	PXRF
H0801	Assay_Company	Small Time Mining NL
H0802	Assay_Discription	Portable XRF
H0803	**XRF_ time_elapsed**	90 seconds total
H0804	**XRF_beam_time**	90 seconds total
H0805	**XRF_Errors_Sigma**	2
H0806	**XRF_Instrument_Types**	NITONXL3t_GOLDD #6
H0807	**XRF_Instruments_Serial No**	1234567
H0900	Remarks	

H1000	**ID_No**	**Sample_No**	**MGA_E**	**MGA_N**	**N_SAMPLE**	**Reading No**	**Sequence**	**Mode**	**Duration**	**Cu**	**Cu_error**	**Pb**	**Pb_error**
H1001	Units_of_measure_per_field								sec	ppm	ppm	ppm	ppm
H1002	Assay_code_per_field										N/Bulk		N/Bulk
H1003	Lower_detection_limit_per_field												
H1004	Accuracy								1	1	1	1	1
H1007	Assay_Company_ID								STM	STM	STM	STM	STM
D	18	SRDD0001	392200	6589600	SRD 001 .5	3	Final	TestAll Geo	90	68	34	< LOD	12
D	19	SRDD0001	392843	6581542	SRD 001 1	4	Final	TestAll Geo	90	250	55	79	18
D	20	SRDD0001	392280	6584510	SRD 001 1.5	5	Final	TestAll Geo	90	54	17	< LOD	8
D	21	SRDD0001	391954	6588800	SRD 001 2	6	Final	TestAll Geo	90	77	17	< LOD	9
D	22	SRDD0001	391370	6588791	SRD 001 2.5	7	Final	TestAll Geo	90	47	10	< LOD	8
D	23	SRDD0001	392136	6589861	SRD 001 3	8	Final	TestAll Geo	90	27	10	< LOD	8
D	24	SRDD0001	392214	6589911	SRD 001 3.5	9	Final	TestAll Geo	90	35	22	< LOD	8

EOF

Example 10 – Portable XRF Downhole Geochemistry – DG4_PXRF

File name: EL99999_2012_A_14_PXRF_DownholeGeochem.txt

H0002	Version	4
H0003	Date_generated	12-Nov-12
H0004	Reporting_Period_end_date	28-Sep-12
H0005	State	SA
H0100	Tenement_no/Combined_rept_no.	EL999999
H0101	Tenement_holder	Big Time Mining Ltd
H0102	Project_name	Kryptonite
H0106	Tenement_operator	Small Time Mining NL
H0150	250K_map_sheet_number	SH53-09 Barton
H0151	100K_map_sheet_number	5336 Pidinga
H0200	Start_date_of_data_acquisition	29-Sep-11
H0201	End_date_of_data_acquisition	28-Sep-12
H0202	Data_format	DG4
H0203	Number_of_data_records	7
H0204	Date_of metadata_update	12-Nov-12
H0301	Location_data_file	EL99999_2012_A_05_DrillCollars.txt
H0302	Lithology_data_file	EL99999_2012_A_06_LithoLogs.txt
H0303	Assay_data_file	EL99999_2012_A_07_DownholeGeochem.txt
H0304	Survey_data_file	EL99999_2012_A_10_DownholeSurveys.txt
H0307	Lithology_code_file	SmallTime_data_dictionary
H0311	Water_data_included_in_lithology_file	Yes
H0318	PXRF_QAQC_data_file	EL99999_2012_A_14__PXRF_QAQCGeochem.txt
H0400	Drill_code	DDH
H0401	Drill_contractor	Drill Faster
H0402	Drill_description	Diamond
H0500	Feature_located	Niton analysis point
H0501	Geodetic_datum	GDA94
H0502	Vertical_datum	AHD
H0503	Projection	UTM
H0530	Coordinate_system	Projected
H0531	Projection_zone	53
H0600	Sample_Code	DDH & RC
H0601	Sample_Type	HQ & NQ core
H0602	Sample_Discription	Spilt quarter NQ core
H0700	Sample_Preparation_Code	NA
H0701	Sample_Preparation_Details	NA
H0702	Assay_Job_No	NITON_2012_05_22
H0800	Assay_Code	PXRF
H0801	Assay_Company	Small Time Mining NL
H0802	Assay_Discription	Portable XRF
H0803	**XRF_elapsed_time**	90 seconds total
H0804	**XRF_beam_time**	90 seconds total
H0805	**XRF_errors_sigma**	2
H0806	**XRF_Instrument_Type**	NITONXL3t_GOLDD #6
H0807	**XRF_Instrument_Serial No**	1234567
H0900	**Remarks**	

H1000	**ID No**	**Hole No**	**From**	**To**	**N_SAMPLE**	**Reading**	**Sequence**	**Mode**	**Duration**	**Cu**	**Cu_error**	**Pb**	**Pb-Error**
H1001	**Units_of_measure_per_field**								sec	ppm	ppm	ppm	ppm
H1002	**Assay_code_per_field**									N/Bulk		N/Bulk	
H1003	**Lower_detection_limit_per_field**												
H1004	**Accuracy**		1	1					1	1		1	1
H1007	**Assay_Company_ID**								STM	STM	STM	STM	STM
D	18	SRDD0001	0.5	0.6	SRD 001 .5	3	Final	TestAll Geo	90	68	34	< LOD	< LOD
D	19	SRDD0001	1.0	1.1	SRD 001 1	4	Final	TestAll Geo	90	250	55	79	21
D	20	SRDD0001	1.5	1.6	SRD 001 1.5	5	Final	TestAll Geo	90	54	17	< LOD	< LOD
D	21	SRDD0001	2.0	2.1	SRD 001 2	6	Final	TestAll Geo	90	77	17	< LOD	< LOD
D	22	SRDD0001	2.5	2.6	SRD 001 2.5	7	Final	TestAll Geo	90	47	10	< LOD	< LOD
D	23	SRDD0001	3.0	3.1	SRD 001 3	8	Final	TestAll Geo	90	27	10	< LOD	< LOD
D	24	SRDD0001	3.5	3.6	SRD 001 3.5	9	Final	TestAll Geo	90	35	22	< LOD	< LOD

EOF

NB – add error columns for each element.

APPENDIX 2
GLOSSARY

Abbreviation	Description	Used as
AHD	Australian Height Datum	Geodetic datum for altitude measurement in Australia
AMIRA	Australian Mineral Industry Research Association	Organization
ANZLIC	Australia and New Zealand Land Information Council	National organization
ASCII	American Standard Code for Information Interchange	International Standard
ASEG	Australian Society of Exploration Geophysicists	Organization
BIL	Band Interleaved by Line	File format
CD-ROM	Compact Disc, Read only-memory	Acceptable format for submitting digital data
CGGC	Chief Government Geologists' Committee	Organisation – Chief Geologists from Australian Commonwealth, State and Territory geoscience agencies, plus New Zealand and Papua New Guinea
DG4	Downhole Geochemistry 4	Metadata header template for drillhole assay data, version 4
dpi	Dots per inch	Spatial printing or video dot density
DL4	Downhole Lithology 4	Metadata header template for drillhole lithology, structural, alteration etc data, version 4
DS4	Downhole Survey 4	Metadata header template for drillhole survey data, version 4
DTM	Digital Terrain Model	Digital representation of surface topography
DU4	Drilling Undertaken 4	Summary of drilling, version 4
DVD-ROM	Digital Video Disc, Read only-memory	Acceptable format for submitting digital data
DXF	Data Exchange File	2D and 3D graphic file format
Earth Resource ML	Earth Resource Mark-up Language	International Standard originally developed by CSIRO and GGIC member agencies, now maintained by CGI-IUGS. Refer www.earthresourceml.org
EM	Electromagnetic	Geophysical survey method
CGM	Concatenated Graphics Metafile	File type
CSIRO	Commonwealth Scientific and Industrial Research Organisation	Organization
DLIS	Digital Logging International Standard	International Standard

FTD	File Transfer Protocol	Method of exchanging files between computers on the internet
GB	Gigabyte	109 bytes of computer memory
GDA94	Geocentric Datum of Australia94	Spatial specification using UTM projection relative to Geocentric Datum of Australia 1994
GDF2	General Data Format (Version 2)	National Standard
GEOTIFF	Geo-referenced Tagged Image File Format	File type
GGIC	Government Geoscience Information Committee	Organization – advisory to CGGC
GIF	Graphics Interchange Format	File type
GIS	Geographic Information System	Integrates, stores, edits, analyses, shares and displays geographic data
GML	Geography Mark-up Language	International Standard
GoCAD Voxet	Geological Object Computer Aided Design Voxet	Three-dimensional regular grid of a GoCAD surface model that exports as a Noddy geological block model
GPS	Global Positioning System	Allows reliable location information
GXF	Grid Exchange Format	International Standard
JPG, JPEG	Joint Photographic Experts Group	File type
LAS	Log ASCII Standard	International industry Standard
LIS	Logging International Standard (binary format)	International industry Standard
LiDAR	Light detection and ranging survey	
MB	Megabyte	1 million (106) bytes of computer memory
MGA	Map Grid of Australia	Coordinate system based on the UTM projection and GDA94
MRT, MINEX	Mineral Reporting Template	Preferred software for producing compliant metadata headers for tabular data files
MWD	Measurement While Drilling	Logging technique
OGC	Open GIS Consortium	Organization (see http://www.opengis.org)
P1/90	Navigation data standard format	International Standard
PDF	Portable Document Format	File type
PNG	Portable Network Graphics	File type
POSC	Petrotechnical Open Software Consortium	Organization (see http://www.posc.org)
PPDM	Public Petroleum Data Model	International Standard database model

QA/QC	Quality Assurance / Quality Control	Identifying data/samples used to validate geochemistry results
QG4	Quality Geochemistry 4	Metadata header template for QA/QC duplicates and blanks assay data, version 4
SD card	Secure Digital card	A flash memory card that provides storage for digital files
SDTS	Spatial Data Transfer System	International Standard
SEG	Society of Exploration Geophysicists	Organization
SG4	Surface Geochemistry 4	Metadata header template for surface sample assay data, version 4
SGML	Standard Generalized Mark-up Language	International Standard
SIROTEM	CSIRO Transient Electro Magnetics	Geophysical method by CSIRO
SI	International System of Units	International Standard
SL4	Surface Location 4	Metadata header template for location data such as collars, version 4
SPS	Shell Processing System	International Standard
TEM	Transient Electro-Magnetics	Geophysical technique
TIF, TIFF	Tagged Image File Format	File type
TMI	Total Magnetic Intensity	Geophysical measurement
UBC GIF	University of British Columbia Geophysical Inversion Facility	Enables 3D inversion of geophysical data
UKOOA	United Kingdom Offshore Operators Association	International organization
USB Flash Drive	Universal Serial Bus Flash Drive	Flash memory data storage device integrated with a USB interface
UTM	Universal Transverse Mercator	International spatial specification / map projection
VL4	Verification List 4	List of all digital files submitted with an exploration report, version 4
VRML	Virtual Reality Modelling Language	3D graphics language used on the Web
VTK	Visualisation Tool Kit	File format used in geophysical modelling
WELLOGML	Well Log Mark-up language	Standard for web-based exchange of digital well log data
XML	Extensible Mark-up Language	International Standard