

REPORTING REQUIREMENTS FOR GEOPHYSICS AND DRILLING COLLABORATIONS PROGRAM

The Final Report must include all geological, geophysical and geochemical data obtained from the Program as well as interpretations. Specific details on the reporting requirements have been derived from the *Reporting Guidelines for Mineral Industry Exploration Reports*, and are detailed below.

For diamond drill programs, sample core must be provided to the NT Geological Survey as per the *Drill Core and Cuttings Submission Form and Guidelines (Mineral)*, *Well Core/Cuttings and Fluid Samples Submission Form (Petroleum)*.

Report Title Page

The Final Report must contain a title page detailing all of the following information:

- Recipient
- Program title
- Applicable tenement(s)
- either a corporate, or personal author, or both, plus digital contact details (email or phone). This should be the person(s), be it the titleholder, contractor, operator or the agent, to whom technical enquiries, requests for further information, data or clarification will be directed;
- a date of compilation and/or submission
- the names of the standard NT 1:100 000- and 1:250 000-scale mapsheets
- confirmation that the GDA 94 datum is used and either zone 52 or 53 as relevant.

Report Content

The report must contain a brief text-only Executive Summary or Abstract. This will be transferred verbatim into the Department of Regional Development, Primary Industry, Fisheries and Mines' (the Department) Minerals or Petroleum Exploration Reports database. The summary should include discussion of the tenure history; refer to any named prospects (historical or otherwise), exploration rationale, commodity sought, geology, exploration conducted and the main results and conclusions. A report on grouped titles must specify which titles were worked and which were not, with reasons. No tables or figures are to be included in, or referenced from the summary. The summary must not contain headings, references, hyperlinks, paragraph

breaks, bullet points or other special characters such as @, ® or ±. Expenditure is discussed at the author's discretion; it is not mandatory in the summary. However, it is important to clearly quantify the work undertaken, eg, the wording "RAB drilling was undertaken" should instead be "Drilling consisted of 25 RAB holes for 804 m and 1200 samples". Aerial geophysical surveys should be described with the total line kilometres in each title and line spacing and flight height should be specified.

Reports must not include any information, language, names or images that may be culturally sensitive, offensive or in confidence to Traditional Owners (eg no Aboriginal Areas Protection Authority reports, locations or images of sacred sites, no photos or names of persons recently deceased and so on).

Digital Formats

Digital reporting is mandatory. The required formats follow Federally-endorsed guidelines to enable more consistent and complete reporting of activities by companies that operate in a number of Australian jurisdictions. The Department will accept any of the following media:

- E-mail
- Over-the-counter delivery using portable storage devices
- 650 MB or 700 MB CD-R
- 4.2 GB, 4.7 GB or 8.5 GB DVD-R

Other forms of media will no longer be accepted. Discs must be read-only full-sized disks, compatible with the Windows operating system, and must be supplied in a hard protective cover. All media should be individually labelled with the company name, title number and numbered discs (eg 1/5). A full index of all files should be included in the report. The operator should keep an exact duplicate back-up copy for at least a year after submission to cover the possibility of physical damage, data loss or corruption during transit or within the Department.

In the case of large reports, the text may be emailed and the data sent on one or more discs. Note however, that the Department will not have deemed to have received the report until the total information is received. For this reason and to avoid multiple handling by the Department it is preferable to send **all** material for large reports (including the expenditure, if relevant) on disc(s) rather than e-mail part. Conversely, if a complete report including all data has been submitted by email, it is not necessary to send a disc.

In accordance with national guidelines, text documents should be a text (not image) PDF (portable document format) with thumbnails. This type of file can be created using Adobe Acrobat or similar software (freeware is available on the internet). Do not embed any files as attachments within the text .pdf. All associated files must be separate. Hotlinks are acceptable, but unnecessary,

as they may not work if the Department separates files onto different servers. Security should be set to allow copying from, but not editing of the document. Individual PDF files should not exceed 10 MB. The PDF format can handle plans up to A0 in size (1143 mm x 1143 mm). Larger images and high-quality graphics should be stand alone.

All reports should contain a scaled location map showing sample points or surveys in relation to title boundaries and eastings and northings. The use of outcrop and core photographs in reports is encouraged. Stand-alone images can be in PDF, GEOTIFF, TIFF, JPEG (Q_95), GIF, PNG or EPS formats. Images should be reproducible at the original size with a minimum of 300 dpi. A geo-locatable image must be accompanied by the datum and projection.

Compression software should be used only if absolutely necessary and either be self-extracting or accompanied by the appropriate decompression software if it is not industry standard.

The same standards (below) apply to legacy data captured by the titleholder as well as new data acquired.

Numerical and tabular data must be submitted in ASCII format with a suffix of .txt. They should be tab, not comma, delimited. All units should follow the SI system or an accepted industry standard if SI is not applicable. Mixed units such as ounces or lb per metric tonne are not acceptable. Ensure that any ASCII analytic data has headers that include the units of measure for each column.

All location data must use the Geocentric Datum of Australia 1994 and this should be clearly stated in the header to the actual data.

If the geology is described using codes, these must be supplied with each report.

Minimum acceptable digital (ASCII) drillhole data must include all of the following:

- the type(s) of drilling (eg percussion/diamond coring) and depth ranges
- collar location and total drilled depth
- hole orientation data for non-vertical holes.

Ensure that sample numbers for downhole analytical data can be related to the corresponding drillhole and interval.

Geochemical analyses must be accompanied by a written statement of the sample preparation and analytical techniques (in addition to the proprietary codes from the laboratory), the limits of detection and the standards and blanks used. Location and analytical data must be provided in the same file. Assay results below the limit of detection should be reported as the negative

of that limit. Job numbers provided by the analytical laboratory are to be supplied. If there has been any renumbering of the samples, this needs to be clarified. Multiple assays of the same element using different techniques need to be in separate data files, but replicates or repeats of the same element with the same technique can be in the same file and the element suffixed _1 etc.

Petrophysical and geophysical log data, such as wireline and MWD data, should be in DLIS, LIS, LAS or ASCII formats.

Airborne and ground geophysical data must be located and levelled and in standard ASCII code. A digital location plan is required which shows the boundaries of the data acquired in relation to the GDA 94 datum and title boundaries. This can be a georeferenced .tiff or MapInfo files. The data must be presented in GDF format which includes a DES file explaining the data. Gridded data is required in either ASEG-GXF or ER Mapper gridded format. A mandatory standard for hyperspectral data will also be enforced. In the case of EM data, the processed data, from which pseudo-sections etc are produced, is required as GDF. Raw EM data is not required.

Seismic data should be in SEG Y or SEG D format; navigation data in UKOOA P1/90 or SPS, and processed sections in CGM with metadata. File names must include the line number.

GIS can be submitted in MapInfo or ArcGIS format. Ensure that MapInfo data is submitted as standalone individual layers not just workspaces.

The preferred vector format is MicroStation or DXF. Raster layers can be in ASEG GXF format, to which ER Mapper .ERS files comply.

FAQs

What is GDF?

- GDF is the "geophysical data exchange format", an ASCII data exchange and archive standard for geophysical point and line data, prepared for the Australian Society of Exploration Geophysicists (ASEG); ASEG-GDF2 is the second version of the standard
- The full version of the GDF standard can be obtained from: <http://www.aseg.org.au/Standards/default.aspx>
- GDF is designed for exchange of located data with accompanying machine-readable metadata, so that unrelated software packages can read each other's outputs
- Each dataset is supplied with a set of three files, *.dat, *.dfn and *.des. The data file (*.dat) has the data in flat ASCII columns, the corresponding definition file (*.dfn) contains machine-readable definitions of the columns, and the description file (*.des) has human-readable text that explains the survey

Why does the Department require GDF?

- GDF is the standard exchange format for geophysical data
- GDF is endorsed by the:
 - ASEG Federal Executive
 - SEG (the ASEG's American sister society)
- GDF is a nominated format in the *Australian Governments' Digital Reporting Guidelines*, developed and maintained by the Government Geoscience Information Committee. The guidelines can be downloaded from www.geoscience.gov.au/geoportal/ARSDEData.pdf. All state and Territory jurisdictions use these guidelines as the basis for their statutory reporting requirements
- Software in the future will still be able to read today's data with its metadata
- Machine-readability allows automatic loading of data with all its metadata
- GDF structure can be converted automatically into other formats eg XMMML
- Government supplies its data to companies and other clients as GDF

What types of data need to be in GDF?

- All airborne magnetic and radiometric data, airborne electromagnetic and all gravity data must be supplied in GDF
- IP and ground EM are supposed to be supplied as GDF, but that is yet to be as rigorously enforced

How do I get my data as GDF?

- Ask the acquisition contractor to provide GDF in the first place
- Gravity contractors who have been supplying data in comma separated files, are also able to supply GDF. It is up to the explorer to ask explicitly for GDF as well
- All standard geophysical software now routinely exports and imports GDF; processing packages such as Intrepid, Geosoft, or ChrisDBF, enable the data to be re-loaded, the metadata keyed in and the "export" facility used to create the three GDF files. As the exported description file is often inadequate, the description of the survey should

be edited in, most easily by taking an existing readme.txt file and inserting the characters "COMM " (note the space) into the leftmost columns

- Download the freeware version of Geosoft Oasis Montaj available at: <http://www.geosoft.com/pinfo/oasismontaj/free/montajviewer.asp>, key in the metadata and export the data to ASEG-GDF that way
- Alternately, if such a package is not handy, the data can be sent to someone who can do the job for a fee. Contractors can be found in the "Professional Directory" section of the ASEG Membership Directory