

Ministry of **Economic  
Development**



*M a n a t ū   Ō h a n g a*

**Crown Minerals**

# **PETROLEUM DIGITAL DATA SUBMISSION STANDARDS**

**September 2008**

<b>1 BACKGROUND</b> .....	3
<b>2 LEGISLATION</b> .....	3
<b>3 TECHNICAL REPORT AVAILABILITY</b> .....	3
<b>4 ARCHIVAL PRACTICE</b> .....	3
<b>5 SUBMISSION REQUIREMENTS:</b> .....	4
<b>5.2 Media labelling</b> .....	4
<b>5.3 File Naming Convention</b> .....	4
<b>5.4 Headers</b> .....	5
<b>5.5 Technical Reports</b> .....	5
<b>5.6 Digital Data Type</b> .....	5
<b>6 DATA DELIVERY ADDRESS</b> .....	8
<b>7 CHECKLIST</b> .....	9
<b>8 GLOSSARY</b> .....	10

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# Contents

## **1 BACKGROUND**

The petroleum exploration industry in New Zealand generates a vast amount of geo scientific and resource information each year. Crown Minerals, as a unit within the Business Services Branch, Ministry of Economic Development is responsible for the collection, preservation and dissemination of all statutory information submitted by permit holders and this duty makes a significant contribution to promoting effective and efficient mineral exploration.

## **2 LEGISLATION**

The statutory information is submitted under the Crown Minerals Act 1991 Section 90 and the Crown Minerals (Petroleum) Regulations 2007.

These Regulations establish format requirements (Part One, 8 to 12) by specifying that ***Documents must be provided electronically to the Secretary*** thus achieving three broad objectives:

- to maximise the amount of digital data submitted to Crown Minerals
- to maximise usefulness of statutory digital data released to open file.
- to minimise costs associated with acceptance, storage and release of digital information.

The intention of this document is to define the statement “*acceptable to the Secretary*” by detailing the preferred formats and compilation process to ensure that all critical metadata is captured and supporting data is included.

It is anticipated that the document will be reviewed annually by Crown Minerals and therefore provide an opportunity to amend and update formats/media to encompass the impact of any new and relevant technologies.

## **3 TECHNICAL REPORT AVAILABILITY**

All information supplied by a permit holder under the Crown Minerals Act 1991 and relevant regulations is held confidential by Crown Minerals until:

- the expiry of 5 years after the date on which the information was obtained by the permit holder; or
- the permit in respect of which the information was obtained and every subsequent permit in respect of that permit ceases to be in force

“Which ever first occurs”.

We have implemented stringent processes to ensure the security of all confidential data.

At the end of the period of confidentiality all material becomes publicly available and can be freely accessed by explorers thus ensuring that exploration efforts are not duplicated and new models can be developed on the basis of earlier data.

All paper collections have been scanned and made available for free download via the Crown Minerals Website.

## **4 ARCHIVAL PRACTICE**

**Paper:** stored and preserved by Ministry of Economic Development in accordance with the Public Records Act 2002 and as designated by the Chief Archivist.

**Digital:** managed by Crown Minerals using recognised digital archiving principles:

- Monitoring the condition of the media upon which the data is stored to ensure long term integrity is maintained;
- Transcribing to new high density media before the old media deteriorate and reading equipment/drives become obsolete;
- Maintaining backup and disaster recovery strategies for digital data and applications;
- Providing environmental storage conditions as recommended by global standards.

## **5 SUBMISSION REQUIREMENTS:**

**5.1 Acceptable Media** Choice should be appropriate to the volume of data submitted

E-mail (files less than 12Mb)  
CD-ROM, no multisession, read only  
DVD-ROM, no multisession, read only  
5.0 GB 8mm Exabyte Cartridge  
DAT, Digital Audio Tape  
3590 / 3480  
LTO  
External Hard Drive  
USB Memory stick

### **5.2 Media labelling**

The media (disc/tapes) submitted must be labelled with the following information both on the disc/tape itself and on the cover:

- Company name
- Project/survey name
- Permit number
- Type of report
- Year
- Table of content if space permits

### **5.3 File Naming Convention**

Report data loaded into the Ministry's data management system are assigned a Petroleum report number. Files are given names according to this convention, e.g. PR3203.pdf, PR3203\_1.tif etc. As report numbers are not known to operators at the time of submission there is no formal file naming convention.

However in order to easily associate submissions with work programme obligations and enclosures with reports file names should follow a logical pattern. For example:

File names should conform as follows:

**Permit Number\_YYYY\_##.eee**

**Permit Number** is the 5 digit identifier as per the Crown Minerals grant

**YYYY** is four-digits representing year,

**##** is a two digit sequential integer for each file submitted,

**.eee** is the file suffix as per the following Digital Format Table.

Examples:

39111\_2004\_01.pdf

39111\_2004\_02.pdf

39111\_2004\_03.jpg

39111\_2004\_04.tif

39111\_2004\_05.txt

39111\_2004\_06.ecw

## **5.4 Headers**

Refer to Crown Minerals (Petroleum) Regulations 2007 Part 1 r 10

## **5.5 Technical Reports**

All text based reports of any kind should retain the well established structure and sequence of hardcopy (paper) reporting and must include the following information:

A title page that contains

- the permit number
- the name of the permit holder (operator)
- the Work Programme Obligation Number
- the Title of the activity
- the Author of the activity
- the Date of the report
- the File name
- the total line km/km<sup>2</sup> of 2D/3D geophysical data collected/processed

A detailed contents page listing

- all figures, tables and plates
- all plans, maps, figures and any other attachments
- any appendices such as additional reports and tabular data

Any code, colour or shading used on a map, profile, or other document or record must be explained in an accompanying legend.

## **5.6 Digital Data Type**

Data to be submitted must be supplied in the format as originally recorded, and be direct copy of the data supplied by the contracting company to the operator.

Table 1. Acceptable formats for digital reporting

<b>Data Type</b>	<b>Description (examples only)</b>	<b>Format</b>	<b>Parameter</b>	<b>Suffix</b>
<b>Tabular Data<sup>1</sup></b>	Point locations, geochemistry, heavy mineral, petrochemical, diamond indicator, uphole data, velocity data, drilling data	Delimited ASCII		.txt
<b>Report text<sup>2</sup></b>	Documents, figures etc.	Adobe Acrobat	Document security method to be set to "No Security" <sup>3</sup>	.pdf
<b>Maps, plans, figures, photographs and image logs not embodied</b>	Files of maps, plans, figures, core photographs, aerial photographs etc.	GEOTIFF/TIFF (colour) JPEG	Reproducible at 300 dpi, 24 bit Q>95, reproducible at	.tif .jpg

<b>in report text</b>		GIF PNG CGM, CGM+ PDF	300 dpi 8 bit Document security method to be set to "No Security" <sup>3</sup>	.gif .png .cgm .pdf
<b>Digital images of interpretation maps</b>		Georeferenced TIF		.tif
<b>GIS data</b>	Data in GIS format	MapInfo tables ESRI shapefiles XML Autocad		.tab + support files .shp + support files .xml .dwg
<b>Geophysics and other remotely sensed data</b>	Raw and processed located data, gridded data, magnetics, radiometrics, DTM and gravity data	ASCII tab delimited ER Mapper Grid XML (including schema)		.asc .grd, .ers .xml, .xsd
<b>Geophysical and other remotely sensed images</b>	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 CGM, CGM+	Reproducible at 300 dpi, 24 bit Reproducible at 300 dpi, 8 bit Best quality (least lost) Quality as above 8 bit	.tif .tif .ecw .jpg .gif .pdf .png .cgm
<b>Seismic data</b>	Raw data	SEG D		.sgd
	Processed data	SEG Y (Rev.1)		.sgy
	Navigation data	UKOOA P1/90 3D Bin Grid P6/98		.uka
	Stacking velocities	Western format SEG Y (Rev.1) Delimited ASCII		.wgf .sgy .txt
	Processed sections	CGM, CGM+ format with metadata (line number,		.cgm

		shotpoint number, ...) Geophysical Image formats as above		.tif, .jpg, .gif, .pdf, .png
<b>Petrophysical and geophysical log data</b>	Raw and processed wireline and MWD or LWD log displays	DLIS LIS LAS  Delimited ASCII (format must be explained)  WELLOGML (POSC standard)		.dlis .lis .las  .asc
	Log plots	TIFF (colour) TIFF (greyscale) JPEG GIF PNG PDS	Quality as above Quality as above Quality as above 8 bit	.tif .tif .jpg .gif .png .pds
	Processed down-hole velocity data	SEG Y, preferably Rev.1		.sgy

<sup>1</sup> Tab or space delimited files are strongly preferred over comma delimited, due to the possibility of commas embedded in text fields. It is also much easier to read tab-delimited files prior to machine upload. If comma delimited files are submitted, it is recommended that the files use quote comma delimiters, i.e. text fields (at least) enclosed in quotes. The required file format for tabular data is a "flat file" rather than a "relational" file system. This allows more flexibility in the format and also reduces the need for relational keys between files. However, some datasets, particularly drill logs incorporating lithological, geochemical, structural and other data, including authority / lookup tables, may have to be submitted as a series of "linked" flat files, appropriately documented.

<sup>2</sup> This 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.

<sup>3</sup> If the security is not set to "No Security" the document will be unlocked for editing with PDF Password Remover in order to insert a Bibliographic reference with the assigned report number at the front of the document by the Crown, after which the PDF will be locked. If the document is password protected from being read it will be rejected.

### **5.6.1 Text**

The preferred format for the text report and any appendices is Adobe Acrobat PDF. In most cases operators will need to convert the text from the native format (WORD, EXCEL etc) to PDF format. The report text (including table of contents) and any figures, tables, graphs, small maps or plans (up to A3, 420 x 297mm) that form part of the report must be embedded into a single PDF.

The report must be bookmarked to reflect the contents page/pages and to assist navigation through the document. Table data and photographs should be included in the PDF but also supplied in formats as listed below:

- All photographs including core photographs, environmental photographs etc., are to be submitted as quality JPEG files with a minimum resolution of 300dpi and 64k colours as a minimum.

- Tabular data is to be supplied as delimited ASCII (space delimited preferred). Files to include column headings, units and explanation of any abbreviations.

### **5.6.2 Maps, Plans etc**

For items greater than A3 embedding in the report PDF is not considered appropriate and must be submitted as high quality image files.

These should be preferably left in their native form as either TIFF Group 4 (B/W), JPEG (colour and greyscale) or original CGM+ or SLBs, PDE format, Baker Atlas, Meta format. High quality PDFs may be submitted if these native formats are not available, but file size should be less than 25Mb in this case.

The plans are to be linked to the report via bookmarking and are to occupy the same directory as the PDF.

Where possible general plans (excluding logs) should not exceed A0 size (1189 x 841mm). Minimum resolution for plans as TIFF, JPEG & CGM is 200dpi.

Composite logs, mudlogs and wireline plots should not be paginated, but submitted as a continuous plot in PDS, PDF or TIFF format.

Copies of journal extracts or any published items should only be included if the author owns the Copyright for the work. Otherwise copyright-protected material should be fully referenced with standard bibliographic information.

### **5.6.3 Meta Data requirements**

Metadata are defined as "data about data" and should provide sufficient information about a dataset for it to be used properly. 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. NZ spatial standards are currently being developed and the requirements will adhere with these standards in the future.

<http://www.linz.govt.nz/rcs/linz/pub/web/root/core/Topography/ProjectsAndProgrammes/geospatialmetadata/index.jsp>

### **5.6.4 File Verification Listing**

All data submissions are to include a list of all the files included in the submission.

## **6 DATA DELIVERY ADDRESS**

Data submissions are to be delivered to:

Data Submission  
Crown Minerals  
PO Box1473  
Wellington

Or if the total files size of the data submission is less than 12 Mb it can be emailed as an attachment to:

[crown.minerals@med.govt.nz](mailto:crown.minerals@med.govt.nz) Subject: Data Submission

## **7 CHECKLIST**

### Technical Reports:

- A title page that contains
  - the permit number
  - the name of the permit holder (operator)
  - the Work Programme Obligation Number
  - the Title of the activity
  - the Author of the activity
  - the Date of the report
  - the File name
  - the total line km/km<sup>2</sup> of 2D/3D geophysical data collected/processed
  
- A detailed contents page listing:
  - all figures, tables and plates
  - all plans, maps, figures and any other attachments
  - any appendices such as additional reports and tabular data

### Media Contains:

- Data transferred to media
- Company name
- Project/survey name
- Permit number
- Type of report
- Year
- Table of content if space permits

### SEGY Header to Contain:

- The survey name.
- The line name.
- The date the data was acquired.
- The acquisition company (including the name of the vessel or crew) and the acquisition parameters of the survey.
- The processing information, including—
  - the processing sequence; and
  - the time correction; and
  - the gain curve; and
  - the bandpass filter; and
  - the polarity and phase:
- The projection, datum, spheroid, and co-ordinate units.
- The sample interval.
- The shot-to-trace relationship.
- The trace length.
- The trace header format.
- The trace header byte locations for line number, common depth point, and shot point numbers, and station locations.

## **8 GLOSSARY**

<b>Abbreviation</b>	<b>Description</b>	<b>Used as</b>
ALF	Airborne Laser Fluorescence	Geophysical technique
ANZLIC	Australia & New Zealand Land Information Committee	Organisation (see <a href="http://www.anzlic.org.au/">http://www.anzlic.org.au/</a> )
ASCII	American Standard Code for Information Interchange	International Standard
AVO	Amplitude Versus Offset	Seismic technique
CDP	Common Depth Point	Seismic expression
CGM	Concatenated Graphics Metafile	File type
CMP	Common Mid Point	Seismic expression
DLIS	Digital Logging International Standard	International standard
EDCDIC	Extended Binary Coded Decimal Interchange Code	International standard
GDF2	General Data Format (Version 2)	National Standard
GEOTIFF	Geo-referenced Tagged Image File Format	File type
GIF	Graphics Interchange Format	File type
GML	Geography Markup Language	International standard
GXF	Grid Exchange Format	International standard
IP	Induced Potential	Geophysical technique
JPG, JPEG	Joint Photographic Experts Group	File type
LAS	Log ASCII Standard	International industry standard
LIS	Logging International Standard (binary format)	International industry standard
MWD	Measurement While Drilling	Logging technique
OGC	Open GIS Consortium	Organisation (see <a href="http://www.opengis.org">http://www.opengis.org</a> )
P1/90	Navigation data standard format	International standard
PDF	Portable Document Format	File type
PDS	Schlumberger log file	File type
PNG	Portable Network Graphics	File type

POSC	Petrotechnical Open Software Consortium	Organisation (see <a href="http://www.posc.org">http://www.posc.org</a> )
PPDM	Public Petroleum Data Model	International standard database Model
SAR	Side Aperture Radar	Geophysical technique
SDTS	Spatial Data Transfer System	International standard
SEG	Society of Exploration Geophysicists	Organisation
SGML	Standard Generalized Markup Language	International standard
SP	Spontaneous Potential	Geophysical technique
TEM	Transient ElectroMagnetics	Geophysical technique
TIF, TIFF	Tagged Image File Format	File Type
TMI	Total Magnetic Intensity	Geophysical measurement
TWT	Two Way Time	Geophysical measurement
UKOOA	United Kingdom Offshore Operators Association	International organisation
UTM	Universal Transverse Mercator	International spatial specification / map projection
VSP	Vertical Seismic Profile	Geophysical technique
XML	Extensible Markup Language	International standard
XMML	Exploration and Mining Markup Language	Standard under development by CSIRO