

NHDA Data Standards and Formats

1. Introduction

All data archived with the NHDA, with the exception of well cores and samples, and certain types of site-survey data, must be in digital format and must be provided to the NHDA either on modern media or via the computer network (for example, by FTP or email). The transfer method and media should be appropriate to the type and the volume of data, and should be agreed with the NHDA during Phase 3 of the Archive Process.

If possible, data should be in standard data exchange and/or data archive formats appropriate for the data type. If there is no alternative, the original proprietary format may be acceptable for certain data types (which may need prior approval from DECC).

Currently accepted media are:

- CD-ROM/DVD;
- Portable hard disk;
- 3590E (or B), 3592 (JA media type, uncompressed 300 Gb), LTO2, LTO3 tape.

Additional tape media that may be acceptable (but should be discussed and agreed during Phase 3) are Exabyte, DAT and DLT.

In general, tape data should be uncompressed and non-encrypted. Encapsulated field seismic data is an exception providing that it complies with RODE or TIF (Tape Image File format).

All data submitted to the NHDA during Phase 5 should be accompanied by a Delivery Catalogue. This will be used to check that all items selected from the Selection Catalogue during Phase 3 have been delivered. In the ideal case, both catalogues should be the same, however, in practice differences can be expected, especially with legacy data.

2. Naming conventions

All data and catalogues should use the standard names for features (Licences, Fields, wells and seismic surveys) as listed in DEAL. In addition, alias names can be listed in the catalogues.

3. Data Formats

DOCUMENTS

1) Existing paper or film documents (reports, maps, sections and logs)

These documents should be scanned during Phase 5 of the Archive Process. The required image format is TIFF, and the scanning standard is CDA CS-6 (except for seismic sections).

	Black and white items	Grey scale items	Colour Items
Header tags	TIFF standard	TIFF standard	TIFF standard
Resolution	200 DPI (minimum)	200 DPI (minimum)	200 DPI (minimum)
Thresholds	Apply	Apply	Apply
Compression	CCITT Group IV	LZW	LZW
Tiling	No	No	No
Colour range	Bi-tonal	256 levels of grey	256 colours

Every effort should be made to maximise the quality of the image (for example, by applying thresholds and scanning at an appropriate resolution) and at the same time minimise the file size. Colour scanning should only be applied to individual pages where the use of colour is fundamental to

the understanding or interpretation of the image. Licensees should ensure that the scanned images do not include large areas of white space (for example, a well log scanned with a paper setting of A0). Such images should be scanned using the appropriate scan settings, or cropped before submission.

For seismic sections, the following specification is recommended by the DECC Data Release Agent – Phoenix Data Solutions:

- Conventional Seismic Sections - scan at a minimum resolution of 400dpi (preferably 600dpi) in black/white (monochrome) mode using dynamic thresholding if available. The file format should be TIFF with CCITT Group IV compression. If it is difficult to choose a scanning threshold that gives good results with both the label information and the seismic traces, then priority should be given to obtaining a good image of the seismic traces.
- Variable-Density/Dual-Polarity/Rectified Seismic Sections - scan at a minimum resolution of 400dpi (preferably 600dpi) in greyscale mode. The file format should be TIFF. If it is difficult to choose a scanning threshold that gives good results with both the label information and the seismic traces, then priority should be given to obtaining a good image of the seismic traces.

The filenames of all scanned images should contain adequate information to uniquely identify an image, and to reconcile it with the associated information provided in the Delivery Catalogue.

2) Existing scanned documents

Images of documents scanned prior to Phase 5 of the Archive Process and which do not comply with the CS-6 standard are acceptable (to avoid rescanning), providing that the data in the images are legible, complete and the files are TIFF, JPEG or PDF format. Existing scanned seismic sections must be in TIFF format. Areas of significant white space in large format documents should be cropped, and PDF versions of well logs must be continuous feed with no page breaks.

3) Existing digital native format documents

Documents created and stored in digital form can be submitted to the NHDA in a format appropriate to the type of document. Examples of currently acceptable file formats are:

- Microsoft Office formats
- Rich text format (RTF)
- ASCII
- PDF
- CGM
- MetafileCGM
- PDS
- Adobe Photoshop
- CorelDraw
- DGN
- ESRI

File format is a mandatory attribute in the Selection Catalogue submitted to the NHDA in Phase 3. All file formats will be agreed prior to submission of data during Phase 5.

GEOLOGICAL AND GEOPHYSICAL MODELS AND INTERPRETATIONS

The data should be submitted in its original proprietary format and in an exchange format (for example ASCII), with a report containing the name and version of the application that generated the data, the content and date of the model or interpretation and the content and structure of the exchange format data.

PRODUCTION DATA

Production data should be submitted in its original database format and as exported ASCII format files (CSV or TAB delimited) with a document describing the structure of the files. The rows and columns should be clearly labelled. If Excel is used in the process of generating the exported file, care should be taken to ensure that database exports do not exceed the 65535 row limit for an Excel worksheet.

RESERVOIR SIMULATION MODELS

Input data files should be clearly identified by using logical naming schemes for both data decks and any associated data files. They should be extensively commented and the units should be described. The input data files and output files should be in ASCII format if possible, although original formats are acceptable if there are no alternatives. A simulation model should be accompanied by a report (scanned image or native digital format) which clearly documents and identifies the archived simulation cases. Such a report should include views of the simulation grid. The report should also include:

- A description of the simulation grid.
- The initialised hydrocarbon and water volumes.
- A description of the results of the archived simulation cases.

SEISMIC DATA

The NHDA has adopted the CDA standards for submission of seismic post-stack and ancillary data to the CDA Seismic DataStore. Submission and completion of post-stack and ancillary data in the DataStore, followed by change of ownership to the NHDA is the preferred method for Licensees to archive these types of seismic data. The standards and submission procedure are described in the CDA DataStore – Data Standards & Submission Procedures document. Field data should be submitted directly to the NHDA in SEG-D format or RODE or TIF encapsulated SEG-D format. Submission of pre-1975 field data in earlier SEG formats will be considered on a case-by-case basis.

Pre-stack data should be submitted directly to the NHDA in SEG-Y format if possible. Submission of data in other SEG formats will be considered on a case-by-case basis.

SITE-SURVEY DATA

Site-survey data encompasses a very wide range of data types, formats and media. In principle, all types of data, data formats and media can be submitted to MEDIN Data Archive Centres (if selected). However, if possible, data should be supplied digitally, in an appropriate exchange format and on modern media. Data in analogue form, in proprietary digital formats and/or non-standard media will be accepted on a case-by-case basis. See **Part 8 Site Surveys** in the handbook for the selection criteria.

The only exceptions (in terms of formats and media) are the data for geohazard 2D and 3D multi-channel seismic surveys, which must conform to the standards applicable to conventional exploration and production multi-channel seismic surveys.

WELL DATA

The NHDA has adopted the CDA standards for submission of well reports, logs and digital log data to the CDA Well Data Store. Submission and completion of data for a well in the DataStore, followed by change of ownership to the NHDA is the preferred method for Licensees to archive well data. Non-CDA members submitting data directly to the NHDA should use the CDA standards.

4. Cataloguing Standards

There are two types of catalogue:

- Selection Catalogue – this contains all necessary information on data items to allow the NHDA and DECC to select items to be archived by the NHDA or added to the DECC collections. It is submitted during Phase 3 of the Archive Process.
- Delivery Catalogue – this contains all necessary information on data items to allow the NHDA and DECC to QC, index and store the actual items of data delivered during Phase 5. It is submitted during Phase 5 of the Archive Process, prior to or at the time that data items are delivered.

In most circumstances the Delivery Catalogue will be a restatement of the Selection Catalogue that has been:

- Edited to list only the items being delivered.
- Amended and updated to correct any errors or gaps in the attribution.
- Populated with additional attributes (for example, filenames of scanned images, and tape identifiers of remastered tapes).

Note that the Delivery Catalogues for well data should be those used for the delivery of data to the CDA Well DataStore. CDA members should submit the catalogue(s) to the CDA Well DataStore at the time of loading and completion of wells being archived. Non-CDA members should submit the catalogue(s) to the NHDA along with the data or arrange for the data to be archived via the DataStore.

Template catalogues are available from the NHDA on request. However, except for well data and post-stack seismic data (which must use the CDA standards), Licensees can submit equivalent information using their own style of catalogues also. Catalogue attributes are described below.