

## CDA Limited

Second Floor  
232-242 Vauxhall Bridge Rd.  
London SW1V 1AU  
(020) 7802 2434  
www.cdal.com

# CDA STANDARD

## CS-10

### STORAGE & RETRIEVAL OF SEISMIC NAVIGATION DATA



## 1.0 PURPOSE

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- 1.1 To define the data types and formats required for submission of seismic navigation data to the CDA Data DataStore
- 1.2 To define the quality assurance standards to be applied for data acceptance
- 1.3 To define the data storage and retrieval requirements

## 2.0 DATA TYPES, FORMATS AND MEDIA

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- 2.1 The CDA DataStore contains the following seismic navigation data:

Data types	Format for data submission
2D sail lines	UKOOA P1/90,P1/84. P1/78
3D outline polygons	Excel
3D bin grids	UKOOA P6/98
3D sail lines	UKOOA P1/90
3D bin centres	UKOOA P1/90
3D OBC	SPS
- 2.2 4D seismic is a sequence of 3D seismic surveys shot over the same area. These will be related through a hierarchical CS9 name which contains the list of 3D surveys. This CS9 4D seismic survey name will have no associated data.
- 2.3 Data may be supplied on a variety of Media including:  
9 track tape; exabyte; 3480; 3590; DAT tapes
- 2.4 Small datasets such as 3D outline polygons **and UKOOA P6/98** files may be submitted as file attachments to email or on floppy disk or CD.

## 3.0 STANDARDS

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- 3.1 UKOOA standards can be obtained as free downloads from [www.oilandgas.org.uk](http://www.oilandgas.org.uk)
- 3.2 EPSG geodetic reference definitions and codes can be obtained as a free download from [www.epsg.org](http://www.epsg.org)

## 4.0 METADATA

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- 4.1 The metadata associated with each data type is in addition to the header records associated with the exchange format. This additional metadata is required for the 2D Seismic sail lines and the 3D outline polygons. The P6/98 bin grid and the P1/90 3D sail line and bin centre data will assume the same metadata as the 3D outline polygon.
- 4.2 Where the submitted data files do not contain a CS9 survey name this name will be added by the Service Provider before storing.

## 5.0 DATA SUBMISSION

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Single surveys will be submitted with the associated metadata on the forms provided by the Service Provider.



Bulk legacy files will be transferred by agreement between the Data Owner and the Service Provider.

## **6.0 DATA QC**

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6.1 The purpose of the data QC is to ensure that the submitted data is complete, reliable and accurate. The Data Owner is responsible for the integrity of the data and all data which fails the QC tests will be referred back to the Data Owner for correction. Only minor repairs to data format anomalies and obvious typographic errors will be corrected without reference to the Data Owner.

### **6.2 UKOOA P1/90**

P1/90 header records will be checked for completeness. The following records are mandatory:

H0100; H0300; H0800; H1400; H1800 + associated projection definitions as defined in UKOOA P1/90 section 3 pg 8; H2000; H2002

The H0800 record (Co-ordinate location e.g. Centre of Source) will be checked against the first character of the data record.

The geographical co-ordinates for sample shot points will be transformed to grid using the geodetic descriptors in the header records (H1400, H1800) and compared to the grid co-ordinates. Agreement must be within two metres.

The data records will be checked for compliance with the format.

The data records for each survey line will be checked. The shot point interval between successive records will be calculated and the sequence of shot point numbers checked. Any breaks in the shot point sequence will be plotted and compared to the calculated shot point interval. Any anomalies that cannot be reconciled will be referred back to the data owner.

The survey will be plotted to confirm that it falls within the expected quad / block

### **6.3 UKOOA P6/98**

P6/98 records will be checked for completeness.

The integrity of the data will be checked by validating the three points defining the grid ((H1400,H1410,H1420) using the Affine Transformation Definitions and the defining header records. Where the agreement between the quoted and the computed Bin Grid and Map Grid co-ordinates for any point is greater than 3 metres the bin grid will be referred back to the data owner.

The outline polygon described in the perimeter definition records will be plotted and checked to fall within the Outline Polygon for the survey. It will also be checked against the expected Quad/Block of the survey.

### **6.4 3D OUTLINE POLYGON**

The 3D Outline Polygon nominally describing the full fold coverage of the survey area will be plotted using the defined polygon nodes and compared to the expected Quad/Block of the survey area.

### **6.5 OBC DATA**

The OBC data will be held as an SPS format file linked to the 3D Outline Polygon through the CS9 name. No QC checks will be performed on this data.



## **7.0 DATA LOADING**

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7.1 The CS9 names will be added if these are not supplied by the data owner. This addition will be to the H0100 record of the UKOOA file and will add to but not overwrite the existing data in that header record.

7.2 If the CS9 name is included by the data owner then it will be checked for compliance with CS9 standards and for duplication with any CS9 name already loaded to the CDA DataStore.

### **7.3 2D SAIL LINES**

The metadata associated with the survey will be loaded to enable search and retrieval of the survey.

The original data will be stored at an interval of every 10<sup>th</sup> SP. If only one vessel location is held on the file this will be stored. Where more than one vessel location is available only one location will be stored which will be, in general, the SP. This may be stored either on the original geodetic reference system or transformed to a unified system. Where transformed to a unified system the transformation parameters used will also be stored. The EPSG codes for the geodetic reference system and co-ordinate transformation will be stored together with the descriptions of these codes.

Only the geographical co-ordinates of the shot points will be stored to an accuracy of 0.001 sec in both latitude and longitude.

The original UKOOA P1/90 file will be stored as an archived file, modified only by the addition of a CS9 name in the H0100 record.

### **7.4 3D SAIL LINES**

The metadata associated with the survey will be derived from the Outline Polygon to which the sail lines must be referenced through the CS9 name.

The original data will be stripped of the receiver group records and stored at an interval of every 10<sup>th</sup> SP. If only one vessel location is held on the file this will be stored. Where more than one vessel location is available only one location will be stored which will be, in general, the Vessel Antenna location. This may be stored either on the original geodetic reference system or transformed to a unified system. Where transformed to a unified system the transformation parameters used will also be stored. The EPSG codes for the geodetic reference system and co-ordinate transformation will be stored together with the descriptions of these codes.

The original UKOOA P1/90 file will be stored as an archived file, including the receiver group records, modified only by the addition of a CS9 name in the H0100 record.

### **7.5 3D BIN GRIDS**

The metadata associated with the survey will be derived from the Outline Polygon to which the bin grid must be referenced through the CS9 name.

The UKOOA P6/98 file will be stored as received, except for the addition of the CS9 name in the H0100 record.

### **7.6 3D OUTLINE POLYGON**

The 3D outline polygon will be loaded as a set of co-ordinated nodes of the polygon. The metadata associated with the polygon will be loaded to enable search and retrieval of the polygon. There will be no archived file associated with the 3D polygon.

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### 7.7 3D BIN CENTRES

The metadata associated with the survey will be derived from the Outline Polygon to which the bin centre file must be referenced through the CS9 name.

The original data will be stored at an interval of every 10<sup>th</sup> bin for every inline. This may be stored either on the original geodetic reference system or transformed to a unified system. Where transformed to a unified system the transformation parameters used will also be stored. The EPSG codes for the geodetic reference system and co-ordinate transformation will be stored together with the descriptions of these codes.

The original UKOOA P1/90 file will be stored as an archived file, modified only by the addition of a CS9 name in the H0100 record.

### 7.8 OBC DATA

The metadata associated with the survey will be derived from the Outline Polygon to which the OBC data must be referenced through the CS9 name.

The original SPS file will be stored as an archived file.

## 8.0 DATA RETRIEVAL

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- 8.1 Data may be retrieved either as a full copy of the original file as submitted, in the format as submitted, or as a reconstituted file populated from data drawn from the database. In the latter case the data may be modified in the following manner:
- a. Define SP density of download file for sail line or bin centre data.
  - b. Transform data records to a defined geodetic reference system.
  - c. Define the line density for 3D sail line or 3D bin centre data download.
- 8.2 Where the data is transformed to a new geodetic reference system the details of the transformation, including the original (as stored on the database) reference system, the output system and the transformation method and parameters used to provide the output must be explicit, together with the associated EPSG codes.