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

CDA STANDARD
CS-16
WELL DEVIATION DATA

1.0 PURPOSE

1.1 To define the data types and formats required for submission of well deviation data to the CDA Data Repository

1.2 To define the quality assurance standards to be applied for data acceptance

1.3 To define the data storage, retrieval and mapping requirements

2.0 DATA TYPES, FORMATS AND MEDIA

2.1 Well Deviation Data for new wells will be supplied to the CDA Data Repository as UKOOA P7/2000 format files. This format will be either the ASCII UKOOA format or the XML version of that format.

2.2 Legacy data will be supplied as UKOOA P7/2000 if possible but alternative formats are acceptable as described. These will be given a lower quality rating.

3.0 STANDARDS

3.1 UKOOA standards can be obtained as free downloads from www.oilandgas.org.uk

3.2 EPSG geodetic reference definitions and codes can be obtained as a free download from www.epsg.org

4.0 METADATA

4.1 Well Deviation Data must be associated with a well already held on the CDA Data Repository.

4.2 The metadata associated with Well Deviation Data is in addition to the header records associated with the exchange format. This additional metadata is required to link the data to a well already registered on the CDA Data Repository.

5.0 DATA SUBMISSION

5.1 Only one Well Deviation Survey file is expected for each well bore. This will be the final accepted data that the Data Owner would exchange with Partners. The data will take the well level entitlements.

5.2 Single surveys will be submitted with the associated metadata on the forms provided by the Service Provider. The submittal should be by email and new data should be submitted within 6 months of acquisition.

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

5.4 The preferred option for data submittal is in UKOOA P7/2000 format. All new data should be sent in this format.

5.5 Data held by the data owner in digital form in any format will be submitted as pdf file copies of these originals. Data held on hard copy by the data owner will be supplied either as scanned images in pdf format or as hard copy. If supplied as hard copy they will be scanned and placed on the repository as pdf files.

5.6 Regardless of the format in which the data is submitted, the following minimum set of records are required to fully describe a deviation survey:

5.7 Header Information

Well Name	As recognised by the DTI
Well Coordinates	Latitude and Longitude - Decimal Degrees
Projection and Datum	e.g. UTM on ED50
Vertical Datum	Name, e.g. Mean Sea Level
Vertical Datum Elevation	Value
Reference Datum	Name, e.g. Rotary Table
Reference Azimuth	Magnetic, Grid, True or Unknown
Ref. Units Horizontal	Metres or Feet
Ref. Units Vertical	Metres or Feet
Data Source	Operator Name

5.8 Survey Data

The minimum requirement set for the down-hole deviation data was any combination of the following three data triplets:

- Measured Depth, Inclination, Azimuth
- TVD, Local North, Local East
- TVD, UTM North, UTM East

5.9 It is accepted that some legacy data may not have a complete population of all the header fields. Data Owners may still submit such data as being the best available.

6.0 DATA QC

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 that 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 Data supplied as UKOOA P7/2000 files will be checked as follows:

a. Completeness and compliance with the format.
b. The well name in H0110 record will be checked for compliance to DTI standards and a search made for the matching well on the CDA Data Repository.
c. The top hole location in the H0300 – H0325 records will be checked against the data for the same well in the Repository well header data – see below for tolerances.
d. The co-ordinates in the first data record, before deviation, will be checked to agree with those in the H0310,H0315 records.

e. H8000 records have superseded the H0200 series, and as such where H8000 records have been included it is not required to supply H02XX. However both sets of records can be provided as an integrity check. Where both sets are supplied, they will be cross checked for consistency.
f. The geodetic descriptors in the H8000 series will be checked for compliance to the ESPG standards.
g. Where only the H0200 are included, these will be checked for conformity with the geographical and grid co-ordinates in the H0310, H0315, H0320, H0325 records.
h. The well and deviation track will be plotted to confirm that the data is compatible with the well header and the track looks reasonable.

6.3 Well Header Tolerances:

Comparison between the well header location and that shown for the deviation track in the H0300 – H0325 records will be made as follows:

a. For an exploration well the agreement between the co-ordinates should be within 2m in Easting or Northing or, if comparing decimal degrees, within 0.00003 degrees in latitude or longitude.
If the co-ordinates do not agree within this tolerance then the data owner will be advised and requested to confirm the well header location before accepting the deviation data for loading. .
If the co-ordinates agree within this tolerance then the data will be accepted and no changes will be made to either the well header or the well deviation data co-ordinates.
b. For a development well where the well header co-ordinates are different for the various wells drilled from the same platform the same rule as a. above applies.
c. For a development well where the well header co-ordinates are identical for all the various wells drilled from the same platform then the co-ordinates of the deviation data well will be accepted provided that they fall within 25m (or .0002 deg) of the location on the well header. In such a case the well header will be changed to agree with the co-ordinates shown on the deviation survey without reference to the data owner.
If the development well falls outside the tolerance then the data owner will be required to confirm the well header location before accepting the deviation data for loading. .

6.4 Legacy data may be supplied either as digital (non-UKOOA format) or non-digital files. This data will be graded either C or D (see below) and the rating (02-10) will depend on the number of header records from the defined minimum set that have been supplied.

Quality Grade	File Format	Comment
A10	P7/2000	Anything <10 automatically gets a B Grade
B02-B10	P7/2000	No such thing as B10 (= A10)
C02-C10	PDF	Original digital files will be copied to pdf format by the data owner for submission
D02-D10	Non-Digital	Scanned images of non-digital data will be stored as pdf files
B00, B01, C00, C01, D00 and D01 would be rejected because DTI Well Name and Well Coordinates must be supplied.		
- Summary -		
Grade A	P7/2000 Format Submission Meets **All** Minimum Requirements	
Grade B	P7/2000 Format Fails One or More Minimum Requirements	
Grade C	Any Agreed Digital Format (.XLS, .TXT, .DOC) copied to .PDF by the data owner	
Grade D	Any Agreed Non Digital Format scanned to .PDF by either the data owner or the service provider	

7.0 DATA LOADING

7.1 The deviation data supplied as UKOOA P7/2000 files will be loaded provided it passes the QC tests.

7.2 Other data will be loaded as supplied provided that adequate metadata accompanies the data to enable it to be associated with the correct well.

8.0 DATA RETRIEVAL

8.1 Data may be retrieved as a full copy of the original file as submitted, in the format as submitted. The file will be found as a log type associated with the well.

9.0 MAPPING

9.1 Well Deviation Data will be displayed in a mapping interface by plotting the plan view of the well deviation track.