16.12.2013

Version 1.4

Guidelines for reporting of Geophysical data to Authorities

(Yellow Book)

Norwegian Petroleum Directorate

Version 1.4	**December 2013**	**Published on NPD web 16.12.13** • **Included all input and corrections made to version 1.3 in Yellow Book WG meeting 4.12.2013**
Version 1.3	**Nov. 2013**	**Work in progress** • **Include some text on Grav/Mag reporting requirements Chap 8 and 9** • **Include naming convention for merged data sets** • **Include reporting of velocity models** • **Included in the text most of the comments from work group after Elins request of 15 March 2013. Remaining kept as "comments" for discussions** • **Naming conventions for seismic surveys moved from appendix to Chapt 4** • **Lists of company codes included in appendix F** • **First draft of requirements for EM data included in chapt 7** • **Version 1.3 was not published on NPD web**
Version 1.2	**Dec 4. 2012**	**The naming convention for seismic datasets has been removed from Appendix E.** **Replaced the version 1.1 on NPD's website as per 4th Dec 2012**
Version 1.1	**Nov 30. 2012**	**Modified after a meeting in the "Yellow Book Committee" in NPD on 20. November 2012.** **Replaced the version 1.0 on NPD's website as per 1st Dec 2012**
Version 1.0	**Sept 13.2012**	**Replaced the Beta-version on the NPD internet page medio September. The**

		chapter headings have been changed, some texts are modified and Table S-1 is now introduced
Beta Version	**June 2012**	**First draft was put on NPD internet web-page ultimo June.**

Innhold

0. Introduction

The purpose of this document is to define clear specifications for reporting of Geophysical data to the Norwegian authorities. The current version provides consistent standards for reporting of seismic data and related information. Requirements for other data types will be included later, as they become available. These updated requirements shall be applicable for data and reports acquired or received after 1.1.2012 unless otherwise noted.

1. Objective

The main objective of these Reporting Requirements from the Norwegian Petroleum Directorate (NPD) is to support the efficient exploitation of the country's hydrocarbon reserves. The subject data will be kept confidential according to the Petroleum Regulations § 85 and made available for use by the NPD and authorized oil companies during the confidentiality period and to other parties thereafter.

It is a basic requirement that all items are clearly identified, are of known quality and are maintained in a secure environment. The reporting requirements are, therefore, designed so that reported data is structured and identified in a common manner.

2. Reporting of Geophysical Data to the Authorities

Pursuant to the Petroleum Act § 10-4, the Regulations to this Act section 6, seventh and eighth paragraph and article 12 in the relevant individual exploration license, the NPD instructs the licensees to report the following digital data directly to the DISKOS Database Operator (DDO), to which NPD has outsourced the data storage on behalf of the Authorities.

It is expected that most operational issues incurred in complying with the regulatory requirements will be resolved by the data owner, or their contracted representative and the DDO. The data owner is responsible for any costs, including loading fees, according to the contract between NPD and the DDO.

It is the data owners' responsibility to ensure that data is delivered within the required timeframes and that they are of appropriate quality and completeness. There will be no formal approval process involving the NPD. These Reporting Requirements can never provide an exhaustive list of all conceivable data types reported, but constitute a detailed framework within which any such data is able to be reported.

3. Terminology

- **DISKOS Database** – System for storage of Geophysical data and other data types on behalf of the DISKOS joint initiative and NPD.
- **DISKOS Database Operator** – The company to which NPD has outsourced data storage on behalf of the Authorities and the DISKOS joint initiative.
- **Seismic survey**- the activity of seismic acquisition (seismic activity).

- **Seismic field data**- the first non-processed data as a result of a seismic acquisition
- **Seismic prestack data** – data being the result of processing seismic field data from one seismic survey to a processing step prior to stacking
- **Seismic poststack data** – data being the result of processing of prestack data through NMO and stacking
- **Merge dataset** – a dataset that contains data from more than one seismic survey
- **Reprocessed dataset** – a dataset that is the result of later processing than the first processed version distributed to the owner (and authorities). This can be done either by the owner of the input dataset(s) or by others that uses public datasets or purchased datasets as input.
- **Raw Navigation data** – the dataset (usually in P2 format) containing observations of acquisition and used for the navigation processing at any time in the processing flow.
- **Processed Navigation data** – the dataset containing information of the location of the seismic traces, either as a separate file or imbedded in other seismic data.
- **Near Common Depth Point (nCDP)** -The point half way between the active source and any given near receiver group.
- **Pseudo Near Common Depth Point, Pseudo-NCDP (PnCDP) -A** single-point view of a seismic sail line (3D)**. -** PnCDP is a calculated midpoint between all receiver groups (for example all near receiver groups) and the sources.
- **Seismic Dataset** – Collection of data that is the result of compiling or processing seismic data (PetroBank terminology -" Seismic project")
- **PSTM** – PreStackTime Migrated dataset
- **PSDM** – PreStackDepth Migrated dataset

4. Naming conventions

4.1. Naming conventions for seismic surveys and seismic data

The naming of the seismic surveys and datasets shall be unique. The NPDID for the survey shall always be part of seismic survey's and dataset's metadata..
The following recommendation on naming conventions for new seismic surveys should be applied. Surveys already loaded to the system should not be changed.

Contents:

- NAMING OF SEISMIC SURVEYS NAMING OF SEISMIC LINES NAMING OF SEISMIC PROJECTS

NAMING OF SEISMIC SURVEYS

[Operator code][Acquisition year][Index indicating survey type]

Generic example: NNYYXXX
NN(N) operator (See appendix F)
YY acquisition year
XXX index indicating survey type

Index ranges:

NNNYY000 -099	Traditional marine surveys
NNNYY100 -199	For future use

NNNYY200 -249	For future use
NNNYY250 -299	EM surveys
NNNYY300 -399	Site surveys,
NNNYY400 -499	Not for seismic surveys
NNNYY500 -599	Not for seismic surveys
NNNYY600 -699	Not for seismic surveys
NNNYY700 -799	Not for seismic surveys
NNNYY800 -899	For future use
NNNYY900 -999	Not for seismic surveys

If the same operator acquires several surveys the same year, a different index within the relevant index range should make them unique (start from lower end).

NAMING OF SEISMIC LINES

The seismic line-name should always be unique and is recommended to have the following form:

Survey name-ccccc
ccccc = Line name

Example: **NNN10010-01012** (Operator NNN, survey NNN10010 and line id. 01012)

NAMING OF MERGED SEISMIC DATA SETS
[Operator code][merge production year]M[Index of Merge per Operator within merge production year]
Generic example: NNYYMXX
NN(N) Operator
YY Merge production year
XX Index of merge per Operator within merge production year
E.g: ST12M01 (first merge by Statoil in 2012)
BPN12M01 (first merge by BP Norway in 2012)
Meta data: The surveys composing the merge shall be documented in UKOOA- and SEG-Y headers.
The comment field in "Survey View" in Diskos PetroBank (PowerExplorer→SeismicData→Surveys→Survey) shall list what original surveys the merge consists of.

4.2. Naming conventions for Grav/Mag surveys

The following recommendation on naming conventions for gravity surveys (when gravity measurements are not made along with a a seismic acquisition) . This naming convention should be applied to new surveys only. Surveys already loaded to the system should not be changed. Names and metadata of gravity datasets should reflect the survey name of the acquisition (either a seismic survey or a separate gravity survey).

[Operator code][Acquisition year][Index indicating survey type]

Generic example: NNYYXXX
NN(N) operator (See appendix F)
YY acquisition year
XXX index indicating survey type

Index ranges:

NNNYY400 -499	Gravity surveys (and combined Grav/Mag surveys)
NNNYY500 -599	Magnetic surveys

If the same operator acquires several surveys the same year, a different index within the relevant index range should make them unique (start from lower end).

4.4. Naming conventions for electromagnetic surveys and electromagnetic data

The following recommendation on naming conventions for electromagnetic surveys and datasets should be applied to new surveys only. Surveys already loaded to the system should not be changed.

[Operator code][Acquisition year][Index indicating survey type]

Generic example: NNYYXXX
NN(N) operator (See appendix F)
YY acquisition year
XXX index indicating survey type

Index ranges:

NNNYY250 -299	EM surveys

If the same operator acquires several surveys the same year, a different index within the relevant index range should make them unique (start from lower end).

4.5. Naming conventions for acoustic surveys and acoustic data (Sonar etc)

The following recommendation on naming conventions for acoustic surveys and datasets should be applied to new surveys only. Surveys already loaded to the system should not be changed.

If the same operator acquires several surveys the same year, a different index within the relevant index range should make them unique (start from lower end).

[Operator code][Acquisition year][Index indicating survey type]

Generic example: NNYYXXX
NN(N) operator (See appendix F)
YY acquisition year
XXX index indicating survey type

Index ranges:
NNNYY600 -699 Acoustic surveys (Sonar etc)

If the same operator acquires several surveys the same year, a different index within the relevant index range should make them unique (start from lower end).

5. Reporting Requirements for seismic data

5.1. Data from conventional seismic surveys

5.1.1. Seismic Field data:

Reporting of all recorded trace data is mandatory. Licensees can apply to NPD for exemptions from this requirement. Deviation from reporting requirements can be granted on certain conditions.

- SEG-D 3.0 format must be used See link SEG-D 3.0. Link to the right version: http://www.seg.org/resources/publications/misc/technical-standards . If use of SEG-D3.0 is not possible for practical reasons in the transition period for the new reporting requirements, then SEG-D 2.1 may be accepted by DISKOS subject to approval.

The following additional data and information related to field data shall also be provided. Detailed information regarding content, valid formats, filenames and how to organize the data transfer are provided below.

Metadata according to all attributes as recorded on NPD's factpage (see Appendix E)
Raw navigation to be reported in the (P2/94)-format or later
Source-receiver navigation is to be reported using the (P1/90)-format or later
Acquisition reports are to be reported according to Table S-1
Navigation reports are to be reported according to Table S-1
Navigation QC reports are to be reported according to Table S-1
Observer logs are to be reported according to Table S-1

If exemption from reporting field and pre-stack data has been granted by the NPD, either on application or according to the relaxed requirements in the "transition period" for incorporation of new guidelines, the metadata as described in Appendix I shall be sent to Diskos within 3 months after acquisition.

5.1.2. Seismic pre-stack data:

The licensee can apply to NPD for exemptions from this requirement as for field data.

Nav-seis merge:

- Reporting of the data where no processing has been applied is mandatory.
- Licencee can apply to NPD for exceptions from this requirement. Deviation from reporting requirements can be granted on certain conditions.

- Shot sorted (Shot Gathers)
  - Sail-line – FFID (or ShotID)
  - FFID/ShotID need to increase or decrease throughout each SEGY file.

- SEGY format, refer to Appendix A for more details

- SEG-Y trace header requirements
  - Unique LineID for each sail line (sequence no – byte optional 233-240)
  - Trace no (byte pos 1)
  - FFID (byte pos 9)
  - Trace Number within field record (byte pos 13)
  - ShotID (byte pos 17)
  - No of samples (byte pos 115)
  - Sample Interval (byte pos 117)

The following data and information related to Nav seis merge gathers data shall also be provided. More detailed information regarding content and valid formats are provided below or in appendices to this document.

Reports, logs and navigation are to be reported according to Table S-1.

Demultiple gathers:

- Reporting of demultiple gathers are optional.
- If reported, then demultiple gathers are recommended to be reported in shot-domain, uncorrected for velocities as well as have no spherical divergence or gain applied. It is also recommended that gathers should be un-regularized in order to be as much compliant as possible with further processing.

- Sorting: Shot sorted (Shot Gathers)
  - Sail-line – FFID (or ShotID)
  - FFID/ShotID need to increase or decrease throughout each SEGY file.

- Sorting: CDP sorted (Sub Surface Lines CDP Gathers))
  - Unique CDP Line – CDP
  - CDP need to increase or decrease throughout each SEGY file.

- Sorting: BIN sorted (Bin Gathers)
  - Inline – Crossline
  - Crossline need to increase or decrease throughout each SEGY file.

- SEGY format, refer to Appendix A for more details
- SEG-Y trace header requirements (Shot Data)
    - Unique LineID for each sail line (sequence no – byte optional 233-240)
    - Trace no (byte pos 1)
    - FFID (byte pos 9)
    - Trace Number within field record (byte pos 13)
    - ShotID (byte pos 17)
    - No of samples (byte pos 115)
    - Sample Interval (byte pos 117)

- SEG-Y trace header requirements (CDP Data – Sub Surface Lines)
    - Unique LineID for each CDP line (byte optional 233-240)
    - Trace no (byte pos 1)
    - FFID (byte pos 9)
    - Trace Number within field record (byte pos 13)
    - ShotID (byte pos 17)
    - CDP (byte pos 21)
    - Ensamble number (byte pos 21)
    - No of samples (byte pos 115)
    - Sample Interval (byte pos 117)
    - Guncode (byte pos xxxxxx)
    - Cable Number (byte pos xxxxxx)

The following data and information related to Demultiple gathers data shall also be provided. More detailed information regarding content and valid formats are provided below or in appendices to this document.

Reports, logs and navigation are to be reported according to Table S-1.

"PSTM / PSDM gathers":

- Mandatory to report at least <u>one</u> version.
    - For multi-component seismic, options exist for whether S-wave data are output in PS time or PP time and for whether data are split into azimuth sectors. The data owner should decide what is appropriate to report and must document this.

    - Sorting: BIN sorted (Bin Gathers)
        - Inline – Crossline
        - Crossline need to increase or decrease throughout each SEGY file.

    - SEGY format, refer to Appendix A for more details
    - SEG-Y trace header requirements (BIN Gathers)
        - Trace no (byte pos 1)
        - No of samples (byte pos 115)
        - Sample Interval (byte pos 117)
        - Inline (byte pos 189)
        - Crossline (byte pos 193)

- SEG-Y trace header requirements (CDP Data – Sub Surface Lines)
    - Unique LineID for each CDP line (byte optional 233-240)
    - Trace no (byte pos 1)
    - FFID (byte pos 9)
    - Trace Number within field record (byte pos 13)
    - ShotID (byte pos 17)
    - CDP (byte pos 21)
    - Ensamble number (byte pos 21)
    - No of samples (byte pos 115)
    - Sample Interval (byte pos 117)
    - Guncode (byte pos xxxxxx)
    - Cable Number (byte pos xxxxx)

The following data and information related to PSTM/PSDM gathers data shall also be provided. More detailed information regarding content and valid formats are provided below or in appendices to this document.

Processing reports are to be reported according to Table S-1

5.1.3. Post-Stack Data from seismic surveys

The following datasets /versions (if created) are subject to mandatory reporting requirements for all data types (results of first processing and/or later reprocessing/merging):

- Migration with pre-stack post migration processing
- Migration with post-stack post migration processing
- Partial stacks (offset/angle).

Refer to naming conventions from Diskos Operator

Reporting of all significant datasets are mandatory (a significant dataset is a dataset that is regarded interesting for partners to have access to).

Clarifications for PSDM volumes:

Migration products stored in both time and depth (if created)
If PSTM products are created as part of PSDM project, they shall be reported
All PSDM products (different algorithms) – mandatory to be reported.

Reporting “fast track” products (sub-optimal early products) is optional (company z can choose to report these to DISKOS). Reporting of only fast track products does not fulfil the reporting requirements.

These requirement also cover reprocessing and merges (merges must always refer to the NPDID for all involved surveys in the EBCDIC and UKOOA header) if distributed to partners or customers etc.

SEGY format, refer to Appendix A for more details

The following data and information related to Post-stack data shall also be provided. More detailed information regarding content and valid formats are provided below or in appendices to this document.

Processing reports (including merge report) are to be reported according to Table S-1
Navigation reports are to be reported according to Table S-1

5.1.4. Navigation Data from conventional seismic surveys

See Appendix B

Raw Navigation
Source-Receiver
Pseudo nCDP
nCDP
Post-Stack CMP and BIN

5.1.5. Velocity Data from conventional seismic surveys

- mandatory reporting of PSTM velocity products:
  - stacking velocities
  - migration velocities
  - interval velocities used for deriving angle stacks and gathers (if generated)
  - anisotropy parameters (if generated)

- mandatory PSDM velocity products:
  - stacking velocities
  - migration velocities (specify algorithm if appropriate)
  - interval velocities used for deriving angle stacks and gathers (if generated)
  - anisotropy parameters V0, delta, epsilon, dip cubes (if generated)
  - velocity model for time-to-depth conversion

- Additional products for multi-component data:
  - Relevant S-wave velocity data should be reported.

- Format for delivery:
  - hand-picked velocities are to be reported in DISKOSV98 (refer to Appendix C)
  - finely gridded models (after auto-picking or depth migration) are to be reported in SEGY. Data values must retain two decimal places: 1481.65 m/s (refer to Appendix A)
  - definition of the SP:CDP relationship for 2D data to be mandatory

All volumes under velocity data shall be allocated an NPDID number for the seismic survey referenced in the velocity or SEGY tape header.

5.1.6. Reports and Other Documentation related to data from conventional seismic surveys

Mandatory reporting of the following:
- Acquisition and acquisition QC reports
- Navigation, navigation QC-reports and navigation processing reports
- Observer logs
- Seismic processing reports (also for reprocessed data sets and merges)

Reports must include the NPD survey ID, the survey name and a list of final deliverables. Formats shall be either PDF or ASCII, other proprietary formats will not be accepted, see also Table S-1.

The data owner is responsible for compliance with reporting requirements. Reports must be final versions, in English and contain all necessary information. Any revisions made to documents must be incorporated into a revised version of the report with a clear notation describing the revision number.

The DDO has the authority to return reports sent in that do not comply with requirements.

5.2. Other types of seismic surveys

5.2.1. Data from Site Survey Seismic and Shallow Seismic:

Site surveys shall be reported in the same way as conventional seismic data.

5.2.2. Repeated acquisitions (ex Seabed/ocean bottom seismic/4D/Life of field seismic (LoFS)):

The initial and the last survey are to be reported according to current requirements. .

5.3. Reporting of only "merged" seismic data:

- If the first processing of a new survey includes the merge of other data, independent stack volumes for the new survey only may not exist. In this case it is not necessary to create and report these additional stack data.
- Mandatory reporting of the nav-seis merge for the new survey.

6. Reporting Requirements for Grav/Mag surveys

The naming of separate Grav/Mag surveys shall be in accordance with Chapter 4.2

Metadata on all Grav/Mag surveys must be reported. If Grav/Mag data is acquired during a seismic survey, then this can be referred to in the seismic survey metadata.

Both raw data and processed data shall be reported. If a gridded dataset exist, this shall be reported in addition to the raw and processed data for each reading.

The file format shall be UKOOA P1/90, ASCII-format, the gridded data set may be reported as an XYZ ASCII file

Grav/Mag data shall not be reported on the same computer-file as the seismic navigation.

7. Reporting Requirements for electromagnetic surveys

Metadata on all EM-surveys shall be reported. This must include

Type of EM survey, e.g:

- •Controlled-source electromagnetics (CSEM) Magnetotellurics (MT)
- •Marine Onshore
- •Ocean bottom node (OBN) Streamer

Types of datasets available, e.g.:

- •Electric and magnetic fields
- •Source current (CSEM)
- •Navigation
- •Environmental data
- •Hardware description
- •Calibration information
- •Quality indicators (e.g. noise estimates)

The following data sets are mandatory to report

- •Field data (raw data or calibrated)
  - time series
- •Processed data
  - Magnitude & phase data (frequency-domain CSEM)
  - Traces (transient CSEM)
  - Impedance tensor (MT)

The following reports are mandatory to report:

- Acquisition reports
- Processing reports

Reports are to be submitted digitally in an approved pdf format.

The location of the survey shall be reported as a polygon represented as a shape-file or 4 geographic georeferenced positions (cornerpoints).

The raw data and the processed data shall be submittes digitally in its existing format and will be loaded in Diskos as native files ("archive objects") linked to the EM-survey

8. Reporting Requirements for non-seismic acoustic surveys (Sonar etc)

Reporting requirements will be specified later

Appendix A – Pre-Stack and Post-Stack seismic data in SEGY

All SEGY data reported must follow the recommended standard for SEGY Data Exchange (Ref SEG standards: http://www.seg.org/resources/publications/misc/technical-standards)

Textual File Header (EBCDIC)

The textual file header should include the following information:

Client = Name of survey operator
Survey Name, Survey NPDID
Area name
Identification of processing contractor, place and time of processing
Processing history as agreed with client and contractor
SP/CDP relation for 2D data at a given point on the line or Byte position for inline/crossline information in trace header for 3D data
Identification of survey and line by names. Line name should be complete including any prefix (f.ex. FF12001-0001)
If this is a reprocessing add to prefix Ryy where yy is the year of reprocessing. .ex. FF11001R12-0001 we see that this survey was reprocessed in 2012).
Identification of GEODETIC DATUM, PROJECTION, CENTRAL MERIDIAN and SPHEROID for coordinates in seismic.

For 2D data the EBCDIC Header, should CLEARLY give the relationship CDP to Shot-Point numbering, at one tiepoint or as a formula.

For 3D data EBCDIC header should CLEARLY give byte position for inline/ crossline information in trace header.

For 3D data EBCDIC header should CLEARLY give Coordinates of grid Origin.

For 3D data EBCDIC header should CLEARLY give Grid rotation in seconds related to grid North and clockwise in inline direction.

3200-byte Textual File Header							
Cols 1-10	**Cols 11-20**	**Cols 21-30**	**Cols 31-40**	**Cols 41-50**	**Cols 51-60**	**Cols 61-70**	**Cols 71-80**
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890
C 1 CLIENT			COMPAN	Y		CREW N	O
C 2 LINE		AREA		MA	P ID		
C 3 REEL N	O	DAY-STAR	T OF REEL	YEAR	OBSERV	ER	
C 4 INSTRU	MENT: MFG		MODEL	SE	RIAL NO		
C 5 DATA T	RACES/RECO	RD	AUXILIARY	TRACES/REC	ORD	CDF FOLD	
C 6 SAMPLE	INTERVAL	SA	MPLES/TRAC	E BI	TS/IN	BYTES/SAMP	PLE
C 7 RECORD	ING FORMAT	FO	RMAT THIS	REEL	MEASUREM	ENT SYSTEM	
C 8 SAMPLE	CODE: FLO	ATING PT	FIXED P	T FIXE	D PT-GAIN	CORREL	ATED
C 9 GAIN	TYPE: FIXE	D BINS	RY FLO	ATING POIN	T OTHE	R	
C10 FILTER	S: ALIAS	HZ NOT	CH HZ	BAND	- HZ	SLOPE -	DB/OCT
C11 SOURCE	: TYPE	NU	MBER/POINT	PO	INT INTERV	AL	
C12 PA	TTERN:			LENGTH	WID	TH	
C13 SWEEP:	START	HZ END	HZ LEN	GTH M	S CHANNEL	NO TY	PE
C14 TAPER:	START LEN	GTH	MS END LE	NGTH	MS TYPE		
C15 SPREAD	: OFFSET	MAX	DISTANCE	GROU	P INTERVAL		
C16 GEOPHO	NES: PER G	ROUP S	PACING	FREQUENCY	MFG	MO	DEL
C17 PA	TTERN:			LENGTH	WID	TH	
C18 TRACES	SORTED BY	: RECORD	CDP	OTHER			
C19 AMPLIT	UDE RECOV	RY: NONE	SPHERI	CAL DIV	AGC	OTHER	
C20 MAP PR	OJECTION			ZONE ID	COORDI	NATE UNITS	[1]
C21 PROCES	SING:						
C21 PROCES	SING:						
C23							
…							
C38							
C39 SEG Y	REV1.4						
C40 END TE	XTUAL HEAD	ER[2].4					

[1] C20 is over-ridden by the contents of location data stanza in an extended header record

[1] C40 END EBCDIC is also acceptable but C40 END TEXTUAL HEADER is the preferred encoding.

.

Example EBCDIC Header

C 1 CLIENT: COMPANY COMPANY: FUGRO-SURVEY AS
C 2 LINE: FF12001-102 AREA: NOCS BLOCK XX/X
C 3 DAY-START OF REEL: AUGUST YEAR: 2007
C 4 DATA TRACES/RECORD: 96 AUXILIARY TRACES/RECORD: CDP FOLD: 48
C 5 SAMPLE INTERVAL: 1MS SAMPLES/TRACE: 2500
C 6 REC FORMAT:SEG-D FORMAT THIS REEL SEG-Y MEASUREMENT SYST:
C 7 SAMPLE CODE:32 BIT FLOATING PT FIXED PT FIXED PT-GAIN CORRELATED
C 8 GAIN TYPE FIXED BINARY FLOATING POINT OTHER
C 9 FILTERS: ALIAS HZ NOTCH HZ BAND HZ SLOPE
C10 SOURCE: SLEEVE GUN NUMBER/POINT POINT INTERVAL
C11 PATTERN: LENGTH WIDTH
C12 SWEEP: START HZ END HZ LENGTH MS CHANNEL NO TYPE
C13 TAPER: START LENGTH MS END LENGTH MS TYPE
C14 SPREAD OFFSET: ACTIVE LENGTH:1200.0 M GROUP INTERVAL:12.5 M
C15 GEOPHONES: SPACING: 12.5 M FREQUENCY MFG MODEL
C16 PATTERN: LENGTH WIDTH
C17 TRACES SORTED BY: RECORD CDP OTHER
C18 AMPLITUDE RECOVERY: NONE SPHERICAL DIV AGC OTHER
C19 MAP PROJECTION UTM ZONE ID 34N COORDINATE UNITS METERS
C20 PROCESSING CONTRACTOR XXXXXXX OFFICE OSLO DATE AUGUST, 2007
C21
C22 PROCESSING HISTORY
C23 1)xxxxxxxxxxxxxxxxxxxxx 2) xxxxxxxxxxxxxxxxxxxxxxxxxx
C24
C25
C26
C27
C28 13) xxxxxxxxxxxxxxxxx 14) OUTPUT IN SEG-Y FORMAT.
C29
C30 AQUISITION:
C31 RECORDING: 8058 (SEGD) 96 CH, 1 MS, 2500 MS
C32 FIELD FILTERS: LOW-CUT 11.3 HZ, HIGH-CUT 350 HZ
C33 VERSION ON THIS TAPE: FILTER MIGRATED STACK
C34 SHOTPOINT / CDP RELATION, SP: 1001-1357 / CDP: 2099-2906
C35 SHOTPOINT / CDP RELATION, CDP = 2*SP + 195
C36 SURVEY NAME: FFF12001, LINE: FF12001-102 NPDID: 1234
C37 GEODETIC DATUM ED50 (EUROPEINTERNATIONAL) PROJECTION UTM CENTRAL MERID.009E
C38 FALSE EASTING: 500000.00E SPHEROID INT. ORIGO GRID ROTATION IN SECONDS
C39 LOC. OF FIRST FULL FOLD CDP FOR FIRST SHOT 1001 IS CDP NO.2194
C40 END EBCDIC

Binary Header

All bytes marked yellow are to be considered mandatory information. The LINE Number shall be in both the BINARY and the TRACE Header.

Table 1 Binary File Header

400-byte Binary File Header	
Byte	**Description**
3201-3204	Job identification number.
3205-3208	Line number. For 3-D poststack data, this will typically contain the in-line number.
3209-3212	Reel number.
3213-3214[3]	Number of data traces per ensemble. Mandatory for prestack data.
3215-3216[3]	Number of auxiliary traces per ensemble. Mandatory for prestack data.
3217-3218[4]	Sample interval in microseconds (µs). Mandatory for all data types.
3219-3220	Sample interval in microseconds (µs) of original field recording.
3221-3222[4]	Number of samples per data trace. Mandatory for all types of data. Note: The sample interval and number of samples in the Binary File Header should be for the primary set of seismic data traces in the file.
3223-3224	Number of samples per data trace for original field recording.
3225-3226[4]	Data sample format code. Mandatory for all data. 1 = 4-byte IBM floating-point 2 = 4-byte, two's complement integer 3 = 2-byte, two's complement integer 4 = 4-byte fixed-point with gain (obsolete) 5 = 4-byte IEEE floating-point 6 = Not currently used 7 = Not currently used 8 = 1-byte, two's complement integer
3227-3228[5]	Ensemble fold — The expected number of data traces per trace ensemble (e.g. the CMP fold). Highly recommended for all types of data.
3229-3230[5]	Trace sorting code (i.e. type of ensemble) : -1 = Other (should be explained in user Extended Textual File Header stanza 0 = Unknown 1 = As recorded (no sorting) 2 = CDP ensemble 3 = Single fold continuous profile 4 = Horizontally stacked 5 = Common source point 6 = Common receiver point 7 = Common offset point 8 = Common mid-point 9 = Common conversion point Highly recommended for all types of data.

[3] This information is mandatory for prestack data.

[4] This information is mandatory for all data types.

400-byte Binary File Header	
Byte	**Description**
3231-3232	Vertical sum code: 1 = no sum, 2 = two sum, …, N = M-1 sum (M = 2 to 32,767)
3233-3234	Sweep frequency at start (Hz).
3235-3236	Sweep frequency at end (Hz).
3237-3238	Sweep length (ms).
3239-3240	Sweep type code: 1 = linear 2 = parabolic 3 = exponential 4 = other
3241-3242	Trace number of sweep channel.
3243-3244	Sweep trace taper length in milliseconds at start if tapered (the taper starts at zero time and is effective for this length).
3245-3246	Sweep trace taper length in milliseconds at end (the ending taper starts at sweep length minus the taper length at end).
3247-3248	Taper type: 1 = linear 2 = $\cos^2$ 3 = other
3249-3250	Correlated data traces: 1 = no 2 = yes
3251-3252	Binary gain recovered: 1 = yes 2 = no
3253-3254	Amplitude recovery method: 1 = none 2 = spherical divergence 3 = AGC 4 = other
3255-32565	Measurement system: Highly recommended for all types of data. If Location Data stanzas are included in the file, this entry must agree with the Location Data stanza. If there is a disagreement, the last Location Data stanza is the controlling authority. 1 = Meters 2 = Feet
3257-3258	Impulse signal polarity 1 = Increase in pressure or upward geophone case movement gives negative number on tape. 2 = Increase in pressure or upward geophone case movement gives positive number on tape.
3259-3260	Vibratory polarity code: Seismic signal lags pilot signal by: 1 = 337.5° to 22.5° 2 = 22.5° to 67.5° 3 = 67.5° to 112.5° 4 = 112.5° to 157.5° 5 = 157.5° to 202.5° 6 = 202.5° to 247.5° 7 = 247.5° to 292.5° 8 = 292.5° to 337.5°
3261-3500	Unassigned
3501-35024	SEG Y Format Revision Number. This is a 16-bit unsigned value with a Q-point between the first and second bytes. Thus for SEG Y Revision 1.0, as defined in this document, this will be recorded as 0100_{16}. This field is mandatory for all versions of

400-byte Binary File Header	
Byte	**Description**
	SEG Y, although a value of zero indicates “traditional” SEG Y conforming to the 1975 standard.
3503-3504	Fixed length trace flag. A value of one indicates that all traces in this SEG Y file are guaranteed to have the same sample interval and number of samples, as specified in Textual File Header bytes 3217-3218 and 3221-3222. A value of zero indicates that the length of the traces in the file may vary and the number of samples in bytes 115-116 of the Trace Header must be examined to determine the actual length of each trace. This field is mandatory for all versions of SEG Y, although a value of zero indicates “traditional” SEG Y conforming to the 1975 standard.
3505-3506	Number of 3200-byte, Extended Textual File Header records following the Binary Header. A value of zero indicates there are no Extended Textual File Header records (i.e. this file has no Extended Textual File Header(s)). A value of -1 indicates that there are a variable number of Extended Textual File Header records and the end of the Extended Textual File Header is denoted by an ((SEG: EndText)) stanza in the final record. A positive value indicates that there are exactly that many Extended Textual File Header records. Note that, although the exact number of Extended Textual File Header records may be a useful piece of information, it will not always be known at the time the Binary Header is written and it is not mandatory that a positive value be recorded here. This field is mandatory for all versions of SEG Y, although a value of zero indicates “traditional” SEG Y conforming to the 1975 standard.
3507-3600	Unassigned

Trace Headers

All byte positions marked yellow are to be regarded as mandatory information and should always be filled in properly. Dead traces should have a Trace Header with TRACE TYPE = 2, and not be simply skipped. Duplicate Trace/Line numbers should be avoided. The CDP numbers must be in ascending order with an increment of 1. Gaps in the number sequence will be regarded as zero traces.

CDP number: Position: Trace identification header pos. 21-24.
SP number: Position: Trace identification header pos. 17-20.

The trace data values must be in an IBM 32-bit floating point format

Table 2 Trace Header

240-byte Trace Header	
Byte	**Description**
1-4[5]	Trace sequence number within line — Numbers continue to increase if the same line continues across multiple SEG Y files. Highly recommended for all types of data.
5-8	Trace sequence number within SEG Y file — Each file starts with trace sequence one.
9-12[5]	Original field record number. Highly recommended for all types of data.
13-16[5]	Trace number within the original field record. Highly recommended for all types of data.
17-20	Energy source point number — Used when more than one record occurs at the same effective surface location. It is recommended that the new entry defined in Trace Header bytes 197-202 be used for shotpoint number.
21-24	Ensemble number (i.e. CDP, CMP, CRP, etc)

[5] Strongly recommended that this information always be recorded.

240-byte Trace Header		
Byte	**Description**	
25-28	Trace number within the ensemble — Each ensemble starts with trace number one.	
29-305	Trace identification code: -1 = Other 0 = Unknown 1 = Seismic data 2 = Dead 3 = Dummy 4 = Time break 5 = Uphole 6 = Sweep 7 = Timing 8 = Waterbreak 9 = Near-field gun signature 10 = Far-field gun signature 11 = Seismic pressure sensor 12 = Multicomponent seismic sensor - Vertical component 13 = Multicomponent seismic sensor - Cross-line component 14 = Multicomponent seismic sensor - In-line component 15 = Rotated multicomponent seismic sensor - Vertical component 16 = Rotated multicomponent seismic sensor - Transverse component 17 = Rotated multicomponent seismic sensor - Radial component 18 = Vibrator reaction mass 19 = Vibrator baseplate 20 = Vibrator estimated ground force 21 = Vibrator reference 22 = Time-velocity pairs 23 … N = optional use, (maximum N = 32,767) Highly recommended for all types of data.	
31-32	Number of vertically summed traces yielding this trace. (1 is one trace, 2 is two summed traces, etc.)	
33-34	Number of horizontally stacked traces yielding this trace. (1 is one trace, 2 is two stacked traces, etc.)	
35-36	Data use: 1 = Production 2 = Test	
37-40	Distance from center of the source point to the center of the receiver group (negative if opposite to direction in which line is shot).	
41-44	Receiver group elevation (all elevations above the Vertical datum are positive and below are negative).	The scalar in Trace Header bytes 69-70 applies to these values. The units are feet or meters as specified in Binary File Header bytes 3255-3256). The Vertical Datum should be defined through a Location Data stanza (see section D-1).
45-48	Surface elevation at source.	
49-52	Source depth below surface (a positive number).	
53-56	Datum elevation at receiver group.	
57-60	Datum elevation at source.	
61-64	Water depth at source.	
65- 68	Water depth at group.	
69-70	Scalar to be applied to all elevations and depths specified in Trace Header bytes 41-68 to give the real value. Scalar = 1, +10, +100, +1000, or +10,000. If positive, scalar is used as a multiplier; if negative, scalar is used as a divisor.	
71-72	Scalar to be applied to all coordinates specified in Trace Header bytes 73-88 and to bytes Trace Header 181-188 to give the real value. Scalar = 1, +10, +100, +1000, or +10,000. If positive, scalar is used as a multiplier; if negative, scalar is used as divisor.	
73-76	Source coordinate - X.	The coordinate reference system should be identified through an extended header Location Data stanza (see section D-1).
77-80	Source coordinate - Y.	
81-84	Group coordinate - X.	

240-byte Trace Header		
Byte	**Description**	
85-88	Group coordinate - Y.	If the coordinate units are in seconds of arc, decimal degrees or DMS, the X values represent longitude and the Y values latitude. A positive value designates east of Greenwich Meridian or north of the equator and a negative value designates south or west.
89-90	Coordinate units: 1 = Length (meters or feet) 2 = Seconds of arc 3 = Decimal degrees 4 = Degrees, minutes, seconds (DMS) Note: To encode ±DDDMMSS bytes 89-90 equal = $\pm DDD*10^4 + MM*10^2 + SS$ with bytes 71-72 set to 1; To encode ±DDDMMSS.ss bytes 89-90 equal = $\pm DDD*10^6 + MM*10^4 + SS*10^2$ with bytes 71-72 set to -100.	
91-92	Weathering velocity. (ft/s or m/s as specified in Binary File Header bytes 3255-3256)	
93-94	Subweathering velocity. (ft/s or m/s as specified in Binary File Header bytes 3255-3256)	
95-96	Uphole time at source in milliseconds.	Time in milliseconds as scaled by the scalar specified in Trace Header bytes 215-216.
97-98	Uphole time at group in milliseconds.	
99-100	Source static correction in milliseconds.	
101-102	Group static correction in milliseconds.	
103-104	Total static applied in milliseconds. (Zero if no static has been applied,)	
105-106	Lag time A — Time in milliseconds between end of 240-byte trace identification header and time break. The value is positive if time break occurs after the end of header; negative if time break occurs before the end of header. Time break is defined as the initiation pulse that may be recorded on an auxiliary trace or as otherwise specified by the recording system.	
107-108	Lag Time B — Time in milliseconds between time break and the initiation time of the energy source. May be positive or negative.	
109-110	Delay recording time — Time in milliseconds between initiation time of energy source and the time when recording of data samples begins. In SEG Y rev 0 this entry was intended for deep-water work if data recording does not start at zero time. The entry can be negative to accommodate negative start times (i.e. data recorded before time zero, presumably as a result of static application to the data trace). If a non-zero value (negative or positive) is recorded in this entry, a comment to that effect should appear in the Textual File Header.	
111-112	Mute time — Start time in milliseconds.	
113-114	Mute time — End time in milliseconds.	
115-1165	Number of samples in this trace. Highly recommended for all types of data.	
117-1185	Sample interval in microseconds (µs) for this trace. The number of bytes in a trace record must be consistent with the number of samples written in the trace header. This is important for all recording media; but it is particularly crucial for the correct processing of SEG Y data in disk files (see **Feil! Fant ikke referansekilden.**). If the fixed length trace flag in bytes 3503-3504 of the Binary File Header is set, the sample interval and number of samples in every trace in the SEG Y file must be the same as the values recorded in the Binary File Header. If the fixed length trace flag is not set, the sample interval and number of samples may vary from trace to trace. Highly recommended for all types of data.	
119-120	Gain type of field instruments: 1 = fixed 2 = binary 3 = floating point 4 … N = optional use	
121-122	Instrument gain constant (dB).	

240-byte Trace Header	
Byte	**Description**
123-124	Instrument early or initial gain (dB).
125-126	Correlated: 1 = no 2 = yes
127-128	Sweep frequency at start (Hz).
129-130	Sweep frequency at end (Hz).
131-132	Sweep length in milliseconds.
133-134	Sweep type: 1 = linear 2 = parabolic 3 = exponential 4 = other
135-136	Sweep trace taper length at start in milliseconds.
137-138	Sweep trace taper length at end in milliseconds.
139-140	Taper type: 1 = linear 2 = $\cos^2$ 3 = other
141-142	Alias filter frequency (Hz), if used.
143-144	Alias filter slope (dB/octave).
145-146	Notch filter frequency (Hz), if used.
147-148	Notch filter slope (dB/octave).
149-150	Low-cut frequency (Hz), if used.
151-152	High-cut frequency (Hz), if used.
153-154	Low-cut slope (dB/octave)
155-156	High-cut slope (dB/octave)
157-158	Year data recorded — The 1975 standard is unclear as to whether this should be recorded as a 2-digit or a 4-digit year and both have been used. For SEG Y revisions beyond rev 0, the year should be recorded as the complete 4-digit Gregorian calendar year (i.e. the year 2001 should be recorded as 2001_{10} ($7D1_{16}$)).
159-160	Day of year (Julian day for GMT and UTC time basis).
161-162	Hour of day (24 hour clock).
163-164	Minute of hour.
165-166	Second of minute.
167-168	Time basis code: 1 = Local 2 = GMT (Greenwich Mean Time) 3 = Other, should be explained in a user defined stanza in the Extended Textual File Header 4 = UTC (Coordinated Universal Time)
169-170	Trace weighting factor — Defined as 2^{-N} volts for the least significant bit. (N = 0, 1, …, 32767)
171-172	Geophone group number of roll switch position one.
173-174	Geophone group number of trace number one within original field record.
175-176	Geophone group number of last trace within original field record.
177-178	Gap size (total number of groups dropped).
179-180	Over travel associated with taper at beginning or end of line: 1 = down (or behind) 2 = up (or ahead)
181-184	X coordinate of ensemble (CDP) position of this trace (scalar in Trace Header bytes 71-72 applies). The coordinate reference system should be identified through an extended header Location Data stanza (see section D-1).
185-188	Y coordinate of ensemble (CDP) position of this trace (scalar in bytes Trace Header 71-72 applies). The coordinate reference system should be identified through an extended header Location Data stanza (see section D-1).

240-byte Trace Header	
Byte	**Description**
189-192	For 3-D poststack data, this field should be used for the in-line number. If one in-line per SEG Y file is being recorded, this value should be the same for all traces in the file and the same value will be recorded in bytes 3205-3208 of the Binary File Header.
193-196	For 3-D poststack data, this field should be used for the cross-line number. This will typically be the same value as the ensemble (CDP) number in Trace Header bytes 21-24, but this does not have to be the case.
197-200	Shotpoint number — This is probably only applicable to 2-D poststack data. Note that it is assumed that the shotpoint number refers to the source location nearest to the ensemble (CDP) location for a particular trace. If this is not the case, there should be a comment in the Textual File Header explaining what the shotpoint number actually refers to.
201-202	Scalar to be applied to the shotpoint number in Trace Header bytes 197-200 to give the real value. If positive, scalar is used as a multiplier; if negative as a divisor; if zero the shotpoint number is not scaled (i.e. it is an integer. A typical value will be -10, allowing shotpoint numbers with one decimal digit to the right of the decimal point).
203-204	Trace value measurement unit: -1 = Other (should be described in Data Sample Measurement Units Stanza) 0 = Unknown 1 = Pascal (Pa) 2 = Volts (v) 3 = Millivolts (mV) 4 = Amperes (A) 5 = Meters (m) 6 = Meters per second (m/s) 7 = Meters per second squared (m/s^2) 8 = Newton (N) 9 = Watt (W)
205-210	Transduction Constant — The multiplicative constant used to convert the Data Trace samples to the Transduction Units (specified in Trace Header bytes 211-212). The constant is encoded as a four-byte, two's complement integer (bytes 205-208) which is the mantissa and a two-byte, two's complement integer (bytes 209-210) which is the power of ten exponent (i.e. Bytes 205-208 * 10**Bytes 209-210).
211-212	Transduction Units — The unit of measurement of the Data Trace samples after they have been multiplied by the Transduction Constant specified in Trace Header bytes 205-210. -1 = Other (should be described in Data Sample Measurement Unit stanza, page **Feil! Bokmerke er ikke definert.**) 0 = Unknown 1 = Pascal (Pa) 2 = Volts (v) 3 = Millivolts (mV) 4 = Amperes (A) 5 = Meters (m) 6 = Meters per second (m/s) 7 = Meters per second squared (m/s^2) 8 = Newton (N) 9 = Watt (W)
213-214	Device/Trace Identifier — The unit number or id number of the device associated with the Data Trace (i.e. 4368 for vibrator serial number 4368 or 20316 for gun 16 on string 3 on vessel 2). This field allows traces to be associated across trace ensembles independently of the trace number (Trace Header bytes 25-28).
215-216	Scalar to be applied to times specified in Trace Header bytes 95-114 to give the true time value in milliseconds. Scalar = 1, +10, +100, +1000, or +10,000. If positive, scalar is used as a multiplier; if negative, scalar is used as divisor. A value of zero is assumed to be a scalar value of 1.

240-byte Trace Header	
Byte	**Description**
217-218	Source Type/Orientation — Defines the type and the orientation of the energy source. The terms vertical, cross-line and in-line refer to the three axes of an orthogonal coordinate system. The absolute azimuthal orientation of the coordinate system axes can be defined in the Bin Grid Definition Stanza (page **Feil! Bokmerke er ikke definert.**). -1 to -n = Other (should be described in Source Type/Orientation stanza, page **Feil! Bokmerke er ikke definert.**) 0 = Unknown 1 = Vibratory - Vertical orientation 2 = Vibratory - Cross-line orientation 3 = Vibratory - In-line orientation 4 = Impulsive - Vertical orientation 5 = Impulsive - Cross-line orientation 6 = Impulsive - In-line orientation 7 = Distributed Impulsive - Vertical orientation 8 = Distributed Impulsive - Cross-line orientation 9 = Distributed Impulsive - In-line orientation
219-224	Source Energy Direction with respect to the source orientation — The positive orientation direction is defined in Bytes 217-218 of the Trace Header. The energy direction is encoded in tenths of degrees (i.e. 347.8º is encoded as 3478).
225-230	Source Measurement — Describes the source effort used to generate the trace. The measurement can be simple, qualitative measurements such as the total weight of explosive used or the peak air gun pressure or the number of vibrators times the sweep duration. Although these simple measurements are acceptable, it is preferable to use true measurement units of energy or work. The constant is encoded as a four-byte, two's complement integer (bytes 225-228) which is the mantissa and a two-byte, two's complement integer (bytes 209-230) which is the power of ten exponent (i.e. Bytes 225-228 * 10**Bytes 229-230).
231-232	Source Measurement Unit — The unit used for the Source Measurement, Trace header bytes 225-230. -1 = Other (should be described in Source Measurement Unit stanza, page **Feil! Bokmerke er ikke definert.**) 0 = Unknown 1 = Joule (J) 2 = Kilowatt (kW) 3 = Pascal (Pa) 4 = Bar (Bar) 4 = Bar-meter (Bar-m) 5 = Newton (N) 6 = Kilograms (kg)
233-240	Unassigned — For optional information.

Appendix B – Seismic Navigation Data in P1/90

All submitted navigation for Field, Prestack and Post-Stack data shall meet the UKOOA P1/90 format.

Description of this format can be found in the document U.K.O.O.A. P1/90 POST PLOT DATA EXCHANGE TAPE - 1990 FORMAT, prepared by the UKOOa Exploration Committee.

http://www.seg.org/documents/10161/77915/ukooa_p1_90.pdf

Navigation data can be provided on tape, in text format (dd) or as a tar file or in a disk file on USB media, DVD or CD.

For 2D data it is preferred to use the CMP navigation.

For 3D data all inlines must be included, crosslines may be decimated, i.e. every 100th crossline. Seismic data is matched to navigation data using inlines so it is critical that all inlines are included in the navigation file.

Header Records

The data set consists of one file with header records followed by a series of "Data Records" containing one shot-point position each. Header record H0800 indicates whether the coordinated point represents the 'shot-point', the 'common mid-point', or other defined location.

Header information.

The UKOOa P1/90 standard has recommended Header content, as shown below.

```
H0100 Description of survey area
H0101 General survey details
H0102 Vessel details – Name: Ids
H0103 Source details – Name: Ids
H0104 Streamer details – Description: Ids
H0105 Other details – Descriptions: Ids
H0200 Date of survey
H0201 Date of issue of post-plot tape (d.m.y.)
H0202 Tape version identifier
H0203 Line prefix
H0300 Details of client
H0400 Details of geophysical contractor
H0500 Details of positioning contractor
H0600 Details of positioning processing contractor
H0700 Descriptions of positioning and onboard computer system(s).
H0800 Co-ordinate location e.g. centre of source
H0900 Offset from ship system position to co-ordinate location – Vessel ID : Code
H09XX Other specified offsets e.g. antenna, XX in range 1-99 – Vessel ID : Code :
```

```
H1000 Clock time in respect of GMT (clock display in advance of GMT expressed as
GMT + N hours)
H1100 Number of receiver groups per shot
H1400 Geodetic datum description as used for survey Datum name: Spheroid name:
H1401 Transformation parameters for H1400 to WGS84 dx= :dy= :dz- :rx= :ry= :rz= :s=
3
H1500 Geodetic datum description as used for post Datum name : Spheroid name :
H1501 Transformation parameters for H1500 to WGS84 dx= :dy= :dz- :rx= :ry= :rz= :s=
H1510 Township system data flag (Type 2) and a description of the specific township
used.
H1600 Tranformation parameters between
H1400 (Datum 1) and H1500 (Datum 2) dx= :dy= :dz- :rx= :ry= :rz= :s=
H1700 Vertical datum - Name : Origin 33-80 2(A24)
H1800 Projection code : description 33-80 A4, A44
H1810 Township relative coordinates 33-80 A48
H1900 Projection zone (including hemisphere for U.T.M.)
H1910 For Township & Range, description of principal meridian
H2000 Description of grid units - Code : Unit of measurement : Conversion factor to
International Metres
H2001 Description of height units – Code : Unit of measurement : Conversion factor
to International Metres
H2002 Descripton of angular units – Code : Unit of measurement
H2100 Latitude of standard parallel(s) (d.m.s. N/S) (grads N/S)
H2200 Longitude of central meridian (d.m.s. E/W) (grads E/W)
H2301 Grid origin (Latitude, Longitude, (d.m.s. N/E) (grads N/E)
H2302 Grid co-ordinates at grid origin (E,N)
H2401 Scale factor
H2402 Latitude/Longitude at which scale factor (grads N/E)
H2506 Latitude/Longitude of two points defining initial line of projection (d.m.s.)
(grads)
H2507 Circular bearing of initial line of  projection (d.m.s.) (grads)
H2508 Quadrant bearing of initial line of projection (N/S, d.m.s., E/W) (N/S,
grads, E/W)
H2509 Angle from skew to rectified grid (d.m.s.) (grads)
H2600 Any other relevant information.
```

SAMPLE –Navigation 2D

```
H0100 SURVEY AREA               2D SEISMIC, NCS QUAD 11
H0101 GENERAL SURVEY DETAILS    2D SURVEY , 1 VESSEL, 1 STREAMER, 1 GUN
H0102 VESSEL DETAILS            VESSEL1
H0105 OTHER DETAILS             N/A
H0200 DATE OF SURVEY            21 JUNE 2005 - 14 JULY 2005
H0202 TAPE VERSION IDENTIFIER   N/A
H0203 LINE PREFIX               PRE05-
H0300 CLIENT                    COMPANYA
H0400 GEOPHYSICAL CONTRACTOR    CONTRACTOR MARINE ACQUISITION
H0500 POSITIONING CONTRACTOR    POSITION COMPANY
H0600 POSITIONING PROCESSING    CONTRACTOR MARINE ACQUISITION
H0700 POSITIONING SYSTEM        System 1A
H0800 COORDINATE POSITION       CMP POSITION
H1100 RECEIVER GROUPS PER SHOT  N/A
H1400 GEODETIC DATUM (SURVEY)   ED50        Internat1924 6378388.000 297.0000000
H1401 DATUM SHIFT ED50 TO WGS84  -90.4-101.1-123.4 0.333 0.077 0.894 1.9940000
H1500 GEODETIC DATUM  POST PLOT ED50        Internat1924 6378388.000 297.0000000
H1501 DATUM SHIFT ED50 TO WGS84  -90.4-101.1-123.4 0.333 0.077 0.894 1.9940000
H1600 DATUM SHIFT H1400-H1500      0.0   0.0   0.0 0.000 0.000 0.000 0.0000000
H1700 VERTICAL DATUM            N/A
H1800 PROJECTION                001 U.T.M. NORTH
H1900 ZONE                      32  N
H2000 GRID UNITS                1 INTRENATIONAL METRES    1.000000000000
H2001 HEIGHT UNITS              1 INTRENATIONAL METRES    1.000000000000
H2200 CENTRAL MERIDIAN            90000.000E
H2600 THE FOLLOWING RECORDS RELATE TO AQUISITION INFORMATION.
H2600*****************************************************************
H2600 CMP POSITIONS TAKEN FROM SEGY TRACE HEADERS FROM FINAL PROCESSED SEISMIC
```

```
H2600             FORMAT OF SHOT RECORDS
H2600      COLUMN           DESCRIPTION
H2600           1           'C' = COMMON MID POINT
H2600         2-13          LINE NAME
H2600        20-25          SHOT POINT NUMBER
H2600        26-35          LATITUDE (DDMMSS.SS)
H2600        36 46          LONGITUDE (DDDMMSS.SS)
H2600        47-55          MAP GRID EASTING IN METERS
H2600        56-64          MAP GRID NORTHING IN METERS
CPRE05-1001          1001575135.95N  6 935.74E 331492.46416805.0
CPRE05-1001          1002575135.14N  6 935.84E 331493.06416780.0
CPRE05-1001          1003575134.33N  6 935.95E 331493.86416755.0
CPRE05-1001          1004575133.53N  6 936.00E 331493.66416730.0
CPRE05-1001          1005575132.72N  6 936.02E 331492.86416705.0
```

SAMPLE – Navigation 3D Bin

```
H0100 SURVEY AREA               AREA HIGH 3D, NORWAY     NN05001
H0101 GENERAL SURVEY DETAILS    3D, SINGLE VESSEL, DUAL SOURCE, TEN STREAMERS
H0102 VESSEL DETAILS            VESSEL1                    1
H0103 SOURCE DETAILS            STBD SOURCE G1             1   1
H0103 SOURCE DETAILS            PORT SOURCE G2             1   2
H0104 STREAMER DETAILS          STREAMER  1 360CH (STBD)   1       1   1
H0104 STREAMER DETAILS          STREAMER  2 360CH          1       2   2
H0104 STREAMER DETAILS          STREAMER  3 360CH          1       3   3
H0104 STREAMER DETAILS          STREAMER  4 360CH          1       4   4
H0104 STREAMER DETAILS          STREAMER  5 360CH          1       5   5
H0104 STREAMER DETAILS          STREAMER  6 360CH          1       6   6
H0104 STREAMER DETAILS          STREAMER  7 360CH          1       7   7
H0104 STREAMER DETAILS          STREAMER  8 360CH          1       8   8
H0104 STREAMER DETAILS          STREAMER  9 360CH          1       9   9
H0104 STREAMER DETAILS          STREAMER 10 360CH (PORT)   1       A   A
H0105 OTHER DETAILS             N/A
H0200 DATE OF SURVEY            START SEPT 2005 - END AUG 2006
H0201 DATE OF ISSUE OF TAPE     Sun Dec 24 13:52:04 2006
H0202 TAPE VERSION IDENTIFIER   N/A
H0203 LINE PREFIX               NN05001
H0300 CLIENT                    COMPANYA
H0400 GEOPHYSICAL CONTRACTOR    CONTRACTOR MARINE ACQUISITION
H0500 POSITIONING CONTRACTOR    POS COMPANY
H0600 POSITIONING PROCESSING    CONTRACTOR MARINE ACQUISITION
H0700 POSITIONING SYSTEM        NAV SYSTEM 1: SYSTEM1
H0700 POSITIONING SYSTEM        NAV SYSTEM 2: SYSTEM2
H0700 POSITIONING SYSTEM        INTEGRATED NAV SYSTEM
H0800 COORDINATE LOCATION       BIN CENTRE
H0900 OFFSET SYSTEM TO SOURCE 1 N/A
H1000 CLOCK TIME                GMT
H1100 RECEIVER GROUPS PER SHOT  3600
H1400 GEODETIC DATUM AS SURVEY  ED50        INTERNAT1924 6378388.000 297.0000000
H1401 DATUM SHIFT ED50 TO WGS84 -116.6 -56.9-110.6 0.893 0.921-0.917-3.5200000
H1500 GEODETIC DATUM POSTPROC.  ED50        INTERNAT1924 6378388.000 297.0000000
H1501 DATUM SHIFT ED50 TO WGS84 -116.6 -56.9-110.6 0.893 0.921-0.917-3.5200000
H1600 DATUM SHIFT H1400 - H1500    0.0   0.0   0.0 0.000 0.000 0.000 0.0000000
H1700 VERTICAL DATUM            N/A
H1800 PROJECTION                001 U.T.M NORTH
H1900 ZONE                      32N
H2000 GRID UNITS                1 INTERNATIONAL METERS    1.000000000000
H2001 HEIGHT UNITS              1 INTERNATIONAL METERS    1.000000000000
H2200 CENTRAL MERIDIAN          009 0 0.000E
H2600*****************************************************************************
H2600 THE FOLLOWING RECORDS RELATE TO THE DATA PROCESSING INFORMATION
H2600     COLUMN        DESCRIPTION
```

```
H2600          1        C OR Q OPTION
H2600                   C = CMP POSITION, Q = BIN CENTRE
H2600       2-13        LINE NAME
H2600      20-25        XLINE
H2600      26-35        LATITUDE
H2600      36-46        LONGITUDE
H2600      47-55        EASTING
H2600      56-64        NORTHING
H2600
H2600 COORDINATES ARE IN METERS
Q20                  18006333 7.72N  61816.42E 366077.27050104.0
Q20                  18016333 8.12N  61816.41E 366077.67050116.5
Q20                  18026333 8.53N  61816.41E 366078.17050129.0
Q20                  18036333 8.93N  61816.41E 366078.67050141.5
Q20                  18046333 9.33N  61816.40E 366079.17050154.0
Q20                  18056333 9.74N  61816.40E 366079.67050166.5
Q20                  1806633310.14N  61816.40E 366080.07050179.0
Q20                  1807633310.55N  61816.39E 366080.57050191.5
Q20                  1808633310.95N  61816.39E 366081.07050204.0
```

Appendix C –Formats for seismic Velocity Data

Finely gridded velocity models (after auto-picking or depth migration) are to be provided in SEGY format, refer to Appendix A, for more information. Hand-picked velocities are to be provided in DISKOSV98 format, as described below.

Description of DISKOSV98.1 format

This ASCII format is based on the COPEX format and consists of COPEX identifiers, keywords, values, units and comments which are described below. This format is intended for files on disk only. If files are required on tape it is recommended they are copied from disk using TAR format.

COPEX identifiers

These identify the start, end and data content of a COPEX file, as follows:

```
::COPEX::                    # start of a file #
DataType: Velocity data      # data content of a file #
::Goodbye::                  # end of a file #
```

Refer to the Examples section for an illustration of their use.

Keywords

A keyword consists of a single word terminated by an equals sign (=). It may be followed immediately by a value, useful for header type information. Also keywords can be specified immediately after each other so as to define the columns of a table. The first keyword in such a table layout should be either Line= or Iline=.

Refer to the Usage Table and Abbreviations sections to see which keywords are mandatory (M) and the conditions which apply.

Note that the inclusion of coordinates is not mandatory, but if included can either be latitude and longitude or UTM Easting and Northing, or both.

Values

If a value is not a single word it should be enclosed by a pair of double quotes (O). Using the tilda (˜) character causes a value to be repeated until it is respecified. However, we urge use of explicit values instead of this character. An absent value should be indicated by either an empty pair of double quotes or by the term void.

Refer to the Usage Table and Abbreviations sections for an illustration of values and the format restrictions which apply.

Units

Some keywords require a unit to be specified, enclosed by a pair of double quotes. In the case of a table layout, if a unit is not applicable for a keyword it should be treated as an absent value, i.e. using either an empty pair of double quotes or the term void.

Refer to the Usage Table and Abbreviations sections to see which keywords require units and a list of the legal units.

Comments

Comments can be inserted anywhere and can be specified in either of two ways:

start with /* and end with */
start and end with a pound sign (#), or start with # and continue to the end of a line. To extend onto the next line use a backslash (\) at the end of the line

Usage Table

Keyword
Usage / Purpose
Typical value
Format
Units

Format= M
Version of DISKOS velocity format
DISKOSV98.1
DISKOSVnn.n
No unit

IssueDate= M
Date of issue of file, i.e. by processing contractor
1997-01-29
yyyy-mm-dd
No unit

IssueVersion= M
Issue version, i.e. by processing contractor
Final

No unit

Comments=
Additional information
File generated by PetroBank

No unit

Operator= M
Processing operator (client)
NPD
Max. 40 char
No unit

SurveyType=
2D or 3D survey
3D
Max. 40 char
No unit

SeismicProject= M
PetroBank seismic project name
NN9001-R99
Max. 40 char
No unit

ProjectType= M
PetroBank seismic project type
Filtered stack
Max. 40 char
No unit

VelocitySet=
PetroBank velocity set name
Smoothed set
Max. 40 char
No unit

VelocityType=
PetroBank velocity type
Stacked
Max. 40 char
No unit

Area= M
Geographic area
North Sea
Max. 40 char
No unit

Country= M
Country
Norway
Max. 40 char
No unit

ProcContr= M

Seismic processing contractor
Seismic Processing Company Y
Max. 40 char
No unit

ProjectNo=
Processing contractor project number
1234

No unit

Datum= M (1) (4)
Geodetic datum
ED50
Max. 40 char
No unit

Ellipsoid= M (1) (4)
Ellipsoid
International 1924
Max. 40 char
No unit

Projection= M (1)
Projection
UTM zone 31
UTM zone nn
No unit

CentralMeridian= M (1)
Central meridian
3 deg east

deg

DomainType= M
Velocity domain, i.e. time or depth
Time

No unit

ProcSeq=
Processing sequence and grid definition
See example

No unit

Line= M (2)
Line name, for 2D or non-binned 3D data
NN9601-1001

Max. 40 char
No unit

ILine= M (2)
Inline, for 3D binned data
1001
Max. 40 char
No unit

SP= M (3)
Shotpoint, for 2D or non-binned 3D data
10
Number
No unit

CDP= M (3)
CDP, for 2D or non-binned 3D data
101
Number
No unit

XLine= M (3)
Crossline, for 3D binned data
1
Number
No unit

Easting=
Easting of shotpoint, CDP or crossline
656241.1
xxxxxx.x
m

Northing=
Northing of shotpoint, CDP or crossline
6796333.1
yyyyyyy.y
m

Lat= (5)
Latitude of shotpoint, CDP or crossline
610507.01
DDMMSS.ss
DDMMSS.ss

NS= M (4)
Latitude hemisphere
N
Max. 1 char
No unit

Long= (5)
Longitude of shotpoint, CDP or crossline
1201234.56
DDDMMSS.ss
DDDMMSS.ss

EW= M (4)
Longitude hemisphere
E
Max. 1 char
No unit

TimeDepth= M
Time or depth of velocity
1000
Number
s, ms, m, ft

Vel= M
Velocity
500
Number
m/s, ft/s

Abbreviations:

M Mandatory
(1) Mandatory if X= and Y= values specified
(2) Either Line= or Iline= is mandatory as the first column in the table
(3) A minimum of one is mandatory
(4) Mandatory if Lat= and Long= values specified respectively
(5) Do not prefix value with +/-, use NS= and EW= keywords to indicate hemisphere
D = degrees
M = minutes
S.s = seconds.decimalseconds
m = metres
ft = feet
s = seconds
ms = milliseconds
m/s = metres per second
ft/s = feet per second

Examples

```
#
#
# Example of 3D velocity data in DISKOS format
```

```
#
# ------------------------------------------
::COPEX::
Section: "Velocity data"
Format= "DISKOSV98.1"
IssueDate= "1999-12-01"
IssueVersion= "Final"
Comments= "File generated by ABC"
Operator= "Oil Company X"
SurveyType= "3D"
SeismicProject= "NN9601"
ProjectType= "Filtered Stack"
VelocitySet= "Smoothed set"
VelocityType= "Stack"
Area= "North Sea"
Country= "Norway"
ProcContr= "Seismic Processing Company Y"
ProjectNo= "P1234"
Datum= "ED50"
Ellipsoid= "International 1924"
Projection= "UTM zone 31"
CentralMeridian= "3 deg east"
DomainType= "time"
ProcSeq= "NORMAL MOVEOUT -USING A SPACE INVARIANT AVERAGE VELOCITY
FK VELOCITY FILTER - DIPS +/- 12.5 MSEC/TR, FULL COSINE TAPER APPLIED
INVERSE NORMAL MOVEOUT & DESIGNATURE APPLIED
VELOCITY ANALYSIS - USING 19 DEPTH POINT VELSCANS ON A 2.0 KM GRID
FK DEMULTIPLE -VELNP=85000 M/SEC, SPATIALLY INTERLEAVED
KIRCHHOFF DIP MOVEOUT - USING 30 OFFSET PLANES, IMAGING TO 60 DEGREES
VELOCITY ANALYSIS - USING 19 DEPTH POINT VELSCANS ON A 0.5 KM GRID
DECONVOLUTION - 1 X 160 MSEC ACTIVE FILTER LENGTH + 32 MSEC GAP
TIME VARIANT SCALING - FLATTVS USING 1000 MS GATES, OPX 153/3138:100/3000 MS
NORMAL MOVEOUT CORRECTION AND FIRST BREAK SUPPRESSION APPLIED
COMMON DEPTH POINT STACK -30 FOLD CDP STACK
DECONVOLUTION - 1 * ZW1 MS ACT.FILTER LENGTH + ZW GAP, ZW1=WB * 0.3,
F-X DECONVOLUTION -ENHANCE V4. ADDBK=90/40, GATE = 500 MS/500 TRA
CROSSLINE INTERPOLATION - FROM 25 M TO 12.5 M LINE SPACING USING STDINTERP
MIGRATION-ONE PASS 3D HDT MIG. WITH GLOBAL DILATION TO GIVE EQUIV.DEPTH MIG.
TRANSMISSION DECONVOLUTION-FREQ.COMP. ONLY,SMASH 999 TRACES,NOISE=10 PERCENT
NOISE SUPPRESSION -K FILTER, AND ZERO PHASING FILTER APPLIED
TIME VARIANT FILTER-FREQ(HZ)/TIME(MS) 8-65/500,8-55/1500,8-45/3000,8-40/5000
TIME VARIANT SCALING-SQUARE ROOT SCALING USING 500MS GATE,OVERLAP 50 PERCENT
GRID ORIGIN 1,1(406214.9872,6076140.6143) CELL SIZE 25M X 25M
AZIMUTH 90 DEG"
#
#
Iline= Xline= X=      Y=       Lat=      NS=  Long=      EW=  TimeDepth=  Vel=
""     ""     "m"     "m"      "deg"      ""  "deg"      ""   "s"          "m/s"
25     125    456241  6796333  554433.22 N    1112233.44 E    .325         1480
25     125    456241  6796333  554433.22 N    1112233.44 E    .575         1638
25     125    456241  6796333  554433.22 N    1112233.44 E    .775         1780
25     125    456241  6796333  554433.22 N    1112233.44 E    1.050        1913
25     125    456241  6796333  554433.22 N    1112233.44 E    2.225        1958
25     125    456241  6796333  554433.22 N    1112233.44 E    3.550        2010
25     125    456241  6796333  554433.22 N    1112233.44 E    4.875        2039
25     125    456241  6796333  554433.22 N    1112233.44 E    5.350        2207
25     125    456241  6796333  554433.22 N    1112233.44 E    6.000        4193
~      ~      ~       ~        ~         ~    ~           ~    .775         1780
~      ~      ~       ~        ~         ~    ~           ~    1.050        1913
~      ~      ~       ~        ~         ~    ~           ~    2.225        1958
~      ~      ~       ~        ~         ~    ~           ~    3.550        2010
~      ~      ~       ~        ~         ~    ~           ~   4.875        2039
~      ~      ~       ~        ~         ~    ~           ~   5.350        2207
~      ~      ~       ~        ~         ~    ~           ~   6.000        4193
::Goodbye::


#
```

```
# Example of 2D velocity data in DISKOS format
#
# ------------------------------------------
::COPEX::
Section: "Velocity data"
Format= "DISKOSV98.1"
IssueDate= "1997-01-29"
IssueVersion= "Final"
Operator= "Oil Company W"
SurveyType= ""
SeismicProject= "ABC9601"
ProjectType= "Filtered Stack"
Area= "North Sea"
Country= "Norway"
ProcContr= "Seismic Processing Company Z"
ProjectNo= void
Datum= "ED50"
Ellipsoid= "International 1924"
DomainType= "time"
#
#
Line=  SP=                    Lat=       NS=  Long=       EW=  TimeDepth=  Vel=
void   ""                     "deg"      ""   "deg"      ""   "s"          "m/s"
ABC-1  15                     050403.22  N    1112233.44  E    .325         1480
~      ~                      ~          ~    ~           ~    .575         1638
~      ~                      ~          ~    ~           ~    .775         1780
~      ~                      ~          ~    ~           ~    1.050        1913
~      ~                      ~          ~    ~           ~    2.225        1958
~      ~                      ~          ~    ~           ~    3.550        2010
~      ~                      ~          ~    ~           ~    4.875        2039
~      ~                      ~          ~    ~           ~    5.350        2207
~      ~                      ~          ~    ~           ~    6.000        4193
~      115                    050403.32  N    1112233.45  E    .325         1480
~      ~                      ~          ~    ~           ~    .575         1638
~      ~                      ~          ~    ~           ~    .775         1780
~      ~                      ~          ~    ~           ~    1.050        1913
~      ~                      ~          ~    ~           ~    2.225        1958
~      ~                      ~          ~    ~           ~    3.550        2010
~      ~                      ~          ~    ~           ~    4.875        2039
~      ~                      ~          ~    ~           ~    5.350        2207
~      ~                      ~          ~    ~           ~    6.000        4193
~      215                    050403.52  N    1112233.47  E    .325         1480
~      ~                      ~          ~    ~           ~    .575         1638
~      ~                      ~          ~    ~           ~    .775         1780
~      ~                      ~          ~    ~           ~    1.050        1913
~      ~                      ~          ~    ~           ~    2.225        1958
~      ~                      ~          ~    ~           ~    3.550        2010
~      ~                      ~          ~    ~           ~    4.875        2039
~      ~                      ~          ~    ~           ~    5.350        2207
~      ~                      ~          ~    ~           ~    6.000        4193
ABC-9  12                     050403.22  N    1112243.44  E    .325         1480
~      ~                      ~          ~    ~           ~    .575         1638
~      ~                      ~          ~    ~           ~    .775         1780
~      ~                      ~          ~    ~           ~    1.050        1913
~      ~                      ~          ~    ~           ~    2.225        1958
~      ~                      ~          ~    ~           ~    3.550        2010
~      ~                      ~          ~    ~           ~    4.875        2039
~      ~                      ~          ~    ~           ~    5.350        2207
~      ~                      ~          ~    ~           ~    6.000        4193
~      112                    050403.22  N    1112243.45  E    .325         1480
~      ~                      ~          ~    ~           ~    .575         1638
~      ~                      ~          ~    ~           ~    .775         1780
~      ~                      ~          ~    ~           ~    1.050        1913
~      ~                      ~          ~    ~           ~    2.225        1958
~      ~                      ~          ~    ~           ~    3.550        2010
~      ~                      ~          ~    ~           ~    4.875        2039
~      ~                      ~          ~    ~           ~    5.350        2207
~      ~                      ~          ~    ~           ~    6.000        4193
```

```
~       212                     050403.22 N    1112243.47 E   .325         1480
~       ~                       ~          ~   ~          ~   .575         1638
~       ~                       ~          ~   ~          ~   .775         1780
~       ~                       ~          ~   ~          ~   1.050        1913
~       ~                       ~          ~   ~          ~   2.225        1958
~       ~                       ~          ~   ~          ~   3.550        2010
~       ~                       ~          ~   ~          ~   4.875        2039
~       ~                       ~          ~   ~          ~   5.350        2207
~       ~                       ~          ~   ~          ~   6.000        4193
::Goodbye::
```

Appendix D – Reports and Other Documentation of seismic data

Acquisition reports

Acquisition reports shall contain all information that may be useful for later use of the data

Navigation reports

Navigation reports shall contain all information that may be useful for later use of the data

Processing reports

Processing reports shall include the following as minimum requirements.

Source:

- Number of source arrays, their total volume and pressure, source array separation
- Source depth (nominal) and if measured depths are recorded please annotate in which byte position to find them.
- Shooting direction with an accuracy of 3 decimals (with reference to 0 degrees north)
- Shot point interval
- Information to identify the different sources (port/stbd). For example: guncode in which byte? Or nominal firing convention (stbd fires on odd…)

Streamer:

- Number of streamers and the nominal distance between them
- Length of the streamer, the total number of recording stations and the interval between the stations
- If the single stations are grouped, the group length and interval should be listed
- Streamer depth (nominal) and if measured depths are recorded please annotate in which byte position to find them
- The nominal inline offset: the distance between centre of sources and centre of the receiver stations closest to the source
- Nominal distance between CMP lines

- Streamer and group numbering convention: diagram/text explaining channel numbers from near to far trace for the different cables

Recording parameters:

- Which recording system
- Maximum recording length and sampling rate
- Recording filter (high cut and low cut with corresponding slopes), for OBS there should be specifications for both hydrophone and geophone recordings
- Recording delay (if any)
- Nominal acquisition bin size (inline/crossline distance) and nominal coverage/fold

Far field signature information (for OBC, signatures should be provided for both hydrophone and geophone):

Array configuration:

- Diagram to show the volumes of the single arrays and the distance between them

Modelled far field signature with source ghost:

- ASCII listing (at 2 ms sampling)
- SEG-Y (optional)
- Figure of the far field signature time series (ppt/gif/jpg/bitmap or similar)
- Figure of the far field signature amplitude spectrum signature (ppt/gif/jpg/bitmap or similar)

Modelled far field signature without source ghost:

- ASCII listing (at 2 ms sampling)
- SEG-Y
- Figure of the far field signature time series (ppt/gif/jpg/bitmap or similar)
- Figure of the far field signature amplitude spectrum (ppt/gif/jpg/bitmap or similar)

Recording filters should be applied in the modelled signatures

The full system response filter should include the effect of connecting the hydrophones to the modules in addition to the recording system filter setting. Therefore the resulting signature includes all phase effects arising from streamer electronics.

If the far field signature is recorded it should be listed in which auxillary trace this information is found.

Appendix E – Tables

Table S -1 Structure and filenames of data to be stores as “Archive Objects (AO) in Diskos

Link to table S-1 in excel

Table S - 2 Metadata for seismic field data

The following form should be used for reporting metadata if dispensation for reporting the seismic field data been accepted.

Link to form S-2 in excel