North Sea Transition Authority

Information Reporting

Form and Manner of NDR Information

Date of publication April 2025

The document can be found on the NSTAs website.

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Published by the North Sea Transition Authority

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1. Scope and Purpose

This document provides supplemental information in support of published guidance on the North Sea Transition Authority's ('**NSTA'**) requirements for the reporting of Information and Samples that are retained by relevant persons under the Oil and Gas Authority (Offshore Petroleum) (Retention of Information and Samples) Regulations 2018 (the 'Retention Regulations'1), and subsequently must be reported to the NSTA in accordance with a notice issued under section 34 of the Energy Act 2016 ('the Act') or in accordance with the exercise of other powers under Part 2, Chapter 32 of the Act.

The powers under section 34 commenced in December 2016.

This document also provides supplemental information in support of Petroleum Operations Notice 9 (PON9) for the reporting of data created and acquired before 2018, in accordance with the requirements set out in offshore petroleum licence model clauses.

This document is intended to aid understanding of what specific information must be reported to the UK National Data Repository and the "form and manner" in which the information must be reported.

This document is not a replacement for published guidance, which explains what action is required on the part of the relevant person when reporting information to the NSTA. This document explains how information should be formatted and how the action of reporting is to be carried out.

The NSTA is not bound by this document and where it departs from this document it will explain why. This document is issued in support of the relevant guidance and is not a substitute for any regulation or law and is not legal advice.

This document will be kept under review and may be revised as appropriate in the light of further experience and developing law and practice, and any change to the NSTA's powers and responsibilities.

If the NSTA changes this information in a material way, it will publish a revised document.

2. Introduction and Context

The NSTA Digital Strategy 2020-2025[1] describes how the NSTA will deliver, promote, and influence digital excellence through digitalisation to support the OGA Strategy.

Aiming to be an innovator and a catalyst, the NSTA is helping industry, academia, and the supply chain to use digitalisation to unlock the huge value from data, whilst at the same time providing excellent digital services to its stakeholders in support of regulatory excellence.

The NSTA's ambition is to enable digital services that ensure digital, data and technology work for all.

The requirement for relevant persons to retain petroleum-related Information and Samples (as defined in section 9A(1)(b) of the Petroleum Act 1998), and to report certain of them to the NSTA via the NDR, is explained in Petroleum Operations Notice 9. Such information and samples may be disclosed by the NSTA, at its discretion.

Broadly similar requirements for such retention and disclosure are also set out in the Retention Regulations and the Disclosure Regulations in relation to information and samples in the Energy Act 2016 and supporting guidance documents.

A main aim of these regulatory requirements is to "ensure greater access to the timely and transparent data necessary for a competitive market".

What is information?

In this document, the term 'information' means 'petroleum-related information' which is defined in section 27(1) of the Energy Act 2016. The Retention Regulations (and the supporting guidance) set out what categories, and the information and sample types within those categories, that must be retained; these also include those that must be reported.

[1] https://www.nstauthority.co.uk/media/7381/oga-digital-strategy.pdf

3. Reporting of Information

Form and Manner

This document sets out the form of and manner in which the NSTA will normally require information to be reported. i.e., what digital format or industry standard (for instance, in the case of certain geophysical datasets) and through which mechanism (e.g., online submission or on physical media such as a portable media storage device).

The costs of reporting information will be for the account of the relevant person(s).

Specified information that has been acquired or created pursuant to an offshore petroleum licence, such as well logs and reports or seismic volumes, is to be reported to the National Data Repository (NDR) https://ndr.nstauthority.co.uk

General or “summary” information about wells should be reported via the Energy Portal.

General or “summary” information about surveys should be reported via the ISC mailbox ISC@nstauthority.co.uk

4. General Reporting Requirements

Coordinate Reference System

Required map projections for data containing projected XY coordinates in reportable information are listed in *Table 1. NDR Compliant Coordinate Reference Systems.*

Note: ETRF89 and ETRS89 are equivalent to WGS84 for these offshore positioning purposes.

Table 1. NDR compliant coordinate reference systems

Map Projection	Datum	EPSG code	Area of use	Range of use (Degrees)
UTM 31 North	ED50	23031-1311	UKCS offshore	-2, 6, 40, 70
		23031-1613	Norway - offshore South of 62°N	
		23031-1612	Norway - offshore North of 62°N	
	WGS84	32631	UK - North Sea	
UTM 30 North	ED50	23030-1311	UKCS offshore	-5, 6, 40, 70
		23030-1613	Norway - offshore South of 62°N	
		23030-1612	Norway - offshore North of 62°N	
	WGS84	32630	UK - North Sea	
UTM 29 North	ETRF89 ETRS89	25829-1149	Europe, onshore and offshore	-11, -6, 40, 70
	WGS84	32629	UK	
UTM 28 North	ETRF89 ETRS89	25828-1149	Europe, onshore and offshore	-17, -12, 40, 70
	WGS84	32628	Greenland. Iceland. Ireland - offshore	
UTM 27 North	WGS84	32627	Greenland. Iceland.	-23, -18, 40, 70
TM 0 North	ED50	23090-1311	Offshore United Kingdom - Denmark – Ireland – Netherlands	-6, 5, 50, 63
British National Grid	OSGB 1936	27700	UK Onshore	-7, 3, 49, 61

File Extensions

Information that is reported to the NDR must align to the formats described in this document. No other file formats are to be submitted to the NDR.

Table 2. NDR Compliant file extensions for reportable information sets out the file extensions that are required according to the permitted file format.

Table 2. NDR compliant file extensions for reportable information

File Type	File Extension
DLIS Digital log data	.dlis
LAS Digital log data	.las
PDF Portable document format	.pdf
ASCII text	.txt
CSV comma separated values text file	.csv
Tag Image File Format	.tiff (preferred); .tif (accepted)
SEG-D seismic data	.segd (preferred); .sgd (accepted)
SEG-Y seismic data	.segy (preferred); .sgy (accepted)
Seismic raw navigation P format	.p286, .p291, .p294 or .p211
Seismic processed navigation P format	.p184, .p190 or .p111
Seismic bin grid navigation P format	.p698, .p611
Seismic OBN node navigation SEG SPS V2.1	.sps, .rsps, .ssps or .xsps
Seismic onshore navigation SEG-P3	.segp3
Wellbore positioning - P7/2000	.p72, .p717
Velocity DISKOSV98	.v98
JPEG Images	.jpg
PNG Portable network graphics	.png
Video MPEG-4	.mp4
GeoTIFF maps	.geotiff

5. Wellbore Information

Specific wellbore information reporting requirements

The effective reuse of information that is obtained from the NDR is dependent on information being aligned to standard formats. Those formats of well information that may be reported to the NDR are set out in *Table 3. NDR compliant wellbore data formats*.
This is to apply generally to information of any vintage, regardless of the original format.

Table 3. NDR compliant wellbore data formats

Data format	Applicable data types	Requirements
PDF	Reports Log images	All modern reportable documents and data are required to be in machine readable digital formats, where "machine readable" means the data format can be easily processed by a computer without human intervention while ensuring no semantic meaning is lost. PDF must not be password protected or encrypted.
P7/2000, P7/17	Digital deviation data	Complies with IOGP format definitions https://www.iogp.org/workstreams/engineering/geomatics/surveying-and-positioning/
LAS	Digital log data	Format definition https://www.cwls.org/products/#products-las Header information block must include the Wellbore Registration ID in the "WELL." section. The Wellbore Registration ID must be a match for the Well ID in WONS, including spaces where appropriate, special characters (/ and -) and no leading or other additional characters.
DLIS	Digital log data	Format definition https://energistics.org/sites/default/files/RP66/V2/Toc/main.html
SEG-Y	Wellbore seismic	Data can be SEG-Y format rev 0, rev 1 or rev 2. SEG-Y data should comply with the requirements of the "SEG-Y Data format requirements" section in this document.
JPEG, PNG	Images, photographs	Images/photos must have a minimum resolution of 300 pixels per inch.
ASCII, CSV	Supporting information	Should only contain UTF-8 characters.
TIFF	Log images	May be reported for wells completed prior to 1st January 2018. Width cannot exceed 100,000 pixels; length cannot exceed 1,000,000 pixels. Resolution must be between 200 and 2,000 ppi. Orientation must have value '1'

Wellbore information types, classification and required formats

Classification of wellbore information in the NDR owes itself to the classification systems developed and applied by industry in preceding services. The NSTA intends that the investment to date in developing and adhering to the CS8 system should persist in the NDR. Indeed, the framework will be continuously developed by the NSTA in collaboration with industry representatives and, where appropriate, other users of the NDR service.

Table 4. Wellbore information types and classification sets out the classifications that are required to be assigned to information as it is reported to the NDR, with a summary description for each information type. This table also specifies the required format in which each information type should be reported.

Table 4. Wellbore information types and classification

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Pre drill	Authority for expenditure, partner consents, etc.	A summary in the Operator's End of Well Report would be adequate.	PRE_PROP PRE_GEN	PDF
Pre drill	Geological/well proposals	Providing basic details of well location, seismic structure, basic well evaluation, mud programme and well evaluation plan. May otherwise be included in geological and/or drilling programme.	PRE_PROP	PDF
Pre drill	Geological programme	Describing the full structural geological setting, cross sections, stratigraphic column, well evaluation programme – (including coring, logging (wireline/LWD/MWD), mud logging etc.), pore pressure and temperature profiles and other information from geological models, etc. Basic details of contractors, the well operator, and equity partners must also be reported. Alternatively, this may be included in drilling programme.	PRE_GPROG	PDF
Pre drill	Drilling/ operations programme	Describing the planned design of the well/wellbore such as drill bit diameters, casing types, shoe depths, kick-off points, deviation, plug depths etc. May be combined with the geological programme above. For non-drilling operations, a similar level of appropriate information for the type of activity is required.	PRE_DPROG	PDF

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Pre drill	Site survey	Report on rig site conditions, shallow gas, other hazards, bathymetry for the proposed well. Information arising from 2D shallow seismic surveys must be reported as specified in the geophysics section.	PRE_SITE	PDF
Pre drill	Rig positioning report	Documents the actual siting of the rig.	PRE_MOVE	PDF
Drilling operations	Drilling reports	May be reported as separate reports or included in contractor daily operations reports. Full reports must be reported in addition to any summary included in the end of well report.	DRILL_GEN, DRILL_HSE, DRILL_FLUID	PDF
Drilling operations	Definitive deviation survey report	The final, definitive deviation survey as approved by the well operator on behalf of the other licensees, including the finalised deviation survey data used as a positional reference for all the other data that requires positional referencing.	DRILL_DEV	PDF
Drilling operations	Definitive deviation survey data	The final, definitive deviation survey as approved by the well operator on behalf of the other licensees, including the finalised deviation survey data used as a positional reference for all the other data that requires positional referencing.	WDD_FILE	P7/2000 P7/17
Drilling operations	Casing/cementing end of well report	Details of casing and cementing operations during the drilling operations phase. Full reports must be reported in addition to any summary in the operator's end of well report.	DRILL_CEMENT	PDF
Drilling operations	Mud contractor end of well report	Full reports must be reported in addition to any summary in the operator's end of well report.	DRILL_GEN	PDF
Drilling operations	LWD/MWD end of well report	Full reports must be reported in addition to any summary in the operator's end of well report.	DRILL_MWD	PDF
Drilling operations	Well Examiner Reports	Audit report to verify that drilling and other well operations have been carried out in accordance with all plans and safety criteria.	WELL_EXAM	PDF
Completion Operations	Completions and Workovers Programme	Reports detailing plans for Completions and Workovers before the operations take place.	COMPL_PROG	PDF

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Completion Operations	Completion and Workover Operations Reports	Reports detailing Completions and Workovers after the operations have taken place. Details of well stimulation, hydraulic fracturing and production engineering.	COMPL_HSE, COMPL_DAILY, COMPL_EOJR, WELL_ENG	PDF
Data Collection & Interpretation	Mud logging end of well report	Report typically includes expected prognosis, drilling dynamics data, lithology and provisional formation tops, and includes associated logs (formation evaluation, ditch gas, temperature, pressure evaluation, etc.)	GEOL_MUD, LOG_MUD,	PDF PDF, TIFF
Data Collection & Interpretation	Digital mud log	Digital record of a borehole derived through examination of rock cuttings brought to the surface by drilling fluids (i.e. drilling mud).	DWL_MUD	LAS, DLIS
Data Collection & Interpretation	Mud data file	Digital record of a borehole derived through examination of rock cuttings brought to the surface by drilling fluids (i.e. drilling mud). Legacy records may not be available as LAS or DLIS format (see DWL_MUD). Plain text ASCII or CSV are accepted where data was not originally written to DWL formats.	MUD_FILE	ASCII, CSV
Data Collection & Interpretation	Core operations report	Report from the coring contractor. Alternatively, may be included in the Operator's End of Well Report (Conventional or Rotary cut core only).	CORE_GEN	PDF
Data Collection & Interpretation	Sidewall Core Reports	All reports on acquisition, analysis and interpretation of Sidewall Core.	CORE_SIDEWALL	PDF
Data Collection & Interpretation	Biostratigraphy, Palaeontology and palynology, reports	Typically provided by the contractor. Includes reports on palaeontological and palynological analysis, interpretations and conclusions. Will include zones, species listings and range charts, and includes report from wellsite services.	GEOL_BIO, LOG_BIO	PDF PDF, TIFF
Data Collection & Interpretation	Geochemistry report	Typically provided by the contractor. Includes details of methodology, results, and interpretations.	GEOL_CHEM	PDF
Data Collection & Interpretation	Conventional core analysis report	Typically provided by the contractor. Details of conventional core analysis activity and results. Includes lithological descriptions, porosity, permeability, saturations, matrix densities.	CORE_CCA	PDF
Data Collection & Interpretation	Core photographs	Core photographs typically referenced using driller's depths.	CORE_PHOTO	PDF, JPEG, or PNG

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Data Collection & Interpretation	Conventional core analysis data	Digital conventional core analysis data supplied in a digital file, usually as a table.	CCA_FILE	ASCII, CSV
Data Collection & Interpretation	Special core analysis (SCAL) report	Special core analysis performed on preserved samples, including relative permeability data, capillary pressure test data, any other contractor derived data and results.	CORE_SCAL, CORE_PERM, SCAL_FILE	PDF
Data Collection & Interpretation	Sedimentology, petrography.	Reports detailing rock properties determined by logging and/or facies descriptions of core.	GEOL_SED	PDF
Well Testing	Pressure, volume, temperature (PVT) and other fluid analysis	Details of measurement of phase behaviour and pressure/volume /temperature of reservoir fluids, as typically performed on samples from wireline well testing e.g. MDT, or drill stem testing. e.g. MDT, RFT, Flowing and Shut-in Bottom Hole Pressure Surveys. Pressure data during production and injection operations if recorded, and including reference depth information where available (TVD, MD, etc.). Frac Pressure Data (via Leak Off tests). Characterisation of all fluids (water and hydrocarbons) within the hydrocarbon leg and if recorded, within the aquifer leg. Chromatographic data if recorded.	TEST_FLUID, TEST_PLT, TEST_LUM	PDF
Well Testing	Well testing reports	Reports arising from drill stem tests, Gauge Reports (Flowing Tubing Wellhead Pressure and Temperature, Shut-In Tubing Wellhead Pressure and Temperature or equivalent).	TEST_GEN, TEST_DST	PDF
Well Testing	Well test data	Well Test data in tabulated digital format, including from Distributed Temperature Systems.	TEST_FILE	ASCII, CSV
Data Collection & Interpretation	Other bespoke contractor reports (engineering, geological, geophysical, petrophysical)	Other specialist reports provided by various contractors, e.g. Rock Properties (strength, compressibility, stress studies) chemo stratigraphy, goniometry on cores, etc.	GEOL_GEN, CORE_GEN, GEOL_PPHYS, GEOL_DIP	PDF
Data Collection & Interpretation	Open hole Wireline data	Digital data arising from all logs run (includes gamma ray, sonic, density and neutron logs). All logs recorded using wireline, slickline, TLC pipe conveyed or coiled tubing tool conveyance methods.	DWL_WIRE	LAS, DLIS

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Data Collection & Interpretation	Open hole Wireline images	Images arising from all logs run (includes gamma ray, sonic, density and neutron logs). Logs recorded using wireline, slickline, TLC pipe conveyed or coiled tubing tool conveyance methods.	LOG_WIRE	PDF, TIFF, JPEG, PNG
Data Collection & Interpretation	Other digital well log data	Digital data arising from log runs that may not align to specific digital well log information types detailed elsewhere in this table.	DWL_OTHER	LAS, DLIS
Data Collection & Interpretation	Core data curves	Including core gamma ray. Typically referenced to driller's depths and used to adjust cores to log depths on the composite log.	LOG_CORE	PDF, TIFF
Data Collection & Interpretation	Cased hole and tubing wireline	Images and digital data arising from all logs run (includes cement bond logs, perforation logs and slickline logs).	LOG_CASE	PDF, TIFF
Data Collection & Interpretation	Well test/ formation test images	Images and reports arising from formation testing tools (e.g. PLT, RFT, TDT, MDT etc.). May include details of samples collected.	LOG_TEST	PDF, TIFF
Data Collection & Interpretation	Well test/ formation test logs	Logs arising from formation testing tools e.g. PLT, RFT, TDT, MDT.	DWL_TEST DWL_PROD	LAS, DLIS
Data Collection & Interpretation	Composite well logs	Image log with full well header information, showing all primary wellbore measurements, including formation tops, lithologies, chrono stratigraphy, lithostratigraphy, selected log curves, DST intervals (with summary results), cored intervals (depth shifted), sidewall cores, formation tester results, background gas, hydrocarbon shows, casing/liner depths, casing shoe depth, deviation data, measured 2-way times to formation tops.	LOG_COMP	PDF, TIFF
Data Collection & Interpretation	Joined well logs data	Joined set of digital log curves spliced together over full depth range of wellbore. Typically used for correlation purposes it will be the most accurate and complete record of the main log measurements such as sonic, density, neutron and resistivity. Information on the processing of well logs, including a full audit trail, must also be reported.	JWL_FILE	LAS, DLIS
Data Collection & Interpretation	Joined well logs audit trail report	Information on the processing of Joined well logs, including a full audit trail, must also be reported.	JWL_AUDIT	PDF

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Data Collection & Interpretation	Computer processed interpretations (CPI)/ petrophysical data log	Spliced, environmentally corrected log curves for use in petrophysical interpretation. Will normally be specialist curves not normally included in a standard composite log. Associated audit trails should also be reported.	LOG_CPI	PDF, TIFF
Data Collection & Interpretation	Borehole seismic reports	Reports obtained as part of VSP profile, offset VSP, Velocity survey etc.	GPHYS_VSP GPHYS_QCVSP GPHYS_CSHOT GPHYS_GEN	PDF
Data Collection & Interpretation	Borehole seismic logs	All sonic/velocity and two-way time (TWT) logs including calibrated sonic and density logs and any derived calculations. Obtained as part of VSP profile, offset VSP, Velocity survey etc.	LOG_VEL, LOG_SEIS,	PDF, TIFF
Data Collection & Interpretation	Borehole seismic checkshots	Checkshot or Time/Depth data in tabulated digital format. Obtained as part of VSP profile, offset VSP, Velocity survey etc.	CSHOT_FILE VSP_FILE	ASCII, CSV
Data Collection & Interpretation	Borehole seismic data	Raw and processed VSP seismic data. Synthetic seismograms obtained as part of VSP profile, offset VSP, Velocity survey etc. Data acquired by Distributed Acoustic Sensing techniques for Vertical Seismic Profiling purposes only. Where used for 4D surveillance, baseline and final DAS datasets only should be reported. Interim datasets are not required.	VSP_SEGY	SEG-Y
Data Collection & Interpretation	Borehole seismic reports	Reports obtained during acquisition, processing and interpretation of array sonic, DSI, waveforms.	GPHYS_SONIC	PDF
Data Collection & Interpretation	LWD/MWD log data	Data and measurements collected while drilling.	DWL_MWD	LAS, DLIS
Data Collection & Interpretation	LWD/MWD log images	Images collected while drilling.	LOG_MWD	PDF, TIFF
Data Collection & Interpretation	Dipmeter and borehole imaging data	Reports and logs from dipmeter, borehole televiewer and images, etc.	GEOL_DIP LOG_DIP	PDF PDF, TIFF

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Data Collection & Interpretation	Wellsite lithology log	As provided by the wellsite geologist.	LOG_LITH	PDF, TIFF
Data Collection & Interpretation	Wellsite core logs	Core descriptions as provided by the wellsite geologist.	LOG_CORE	PDF, TIFF
Drilling operations	Operator's drilling end of well report	Also known as the drilling report, end of well report or Drilling Well History. Includes summaries of all contractor activities and is generated at the end of each well lifecycle activity. Multiple reports may exist for a single well / wellbore. Typically includes Daily Drilling Reports, LWD/MWD, mud, mud logging, casing, cementing, surveys etc. plus final well schematic, lessons learned, cementing, mud logging summary, QC reports, well examiner certificate, and barrier pressure test/leak off test summary.	DRILL_EOWR, DRILL_GEN, DRILL_DAILY	PDF
Data Collection & Interpretation	Operator's geological end of well reports	Includes final formation tops, stratigraphy, logging summary, coring summary, core depth shifts (driller to logger) where relevant. Samples collected, and fluid descriptions. Perforated intervals. Studies conducted. Formation pressures and gradients from formation pressure logs. May contain petrophysical interpretation with audit trail. For some wells there may be a Well Summary Report containing an executive summary of all aspects of well operations and results. This is not a substitute for detailed geological and operational reporting.	GEOL_GEOW, GEOL_DAILY, WELL_SUMMARY	PDF
Data Collection & Interpretation	Operator's petrophysical end of well report	Petrophysical interpretation with audit trail if not included as part of the geological end of well report.	GEOL_PPHYS	PDF
Data Collection & Interpretation	Perforation / reperforation reports and logs	Report on perforating and perforated or reperforated intervals.	LOG_CASE,	PDF, TIFF
Data Collection & Interpretation	Other summary chart information	Summary images and charts arising from reports not covered elsewhere in this table.	LOG_SUM	PDF, TIFF
Abandonment Operations	Well Abandonment Programme	Reports detailing plans for well abandonment / decommissioning operations (before the operations take place).	ABANDON_PROG	PDF

Well life cycle phase	Information type	Description of reportable information	Classification tag	Format
Abandonment Operations	Well Abandonment HSE Notification	Notification of well abandonment / decommissioning operations to HSE.	ABANDON_HSE	PDF
Abandonment Operations	Daily Well Abandonment operations reports	Well abandonment/decommissioning daily operations reports.	ABANDON_DAILY	PDF
Abandonment Operations	Well Abandonment / Decommissioning End of Job Reports	Reports detailing well abandonment / decommissioning operations after the operations have taken place. Includes details of pressure tests on all barriers put in place as part of the well abandonment process and details of stratigraphy for all flowing formations encountered.	ABANDON_EOJR	PDF
Abandonment Operations	Well Abandonment / Decommissioning Cementing Reports	Reports detailing cementing operations during well abandonment / decommissioning. Includes cement evaluation, pressure tests and weight tests on casing cement and isolation plugs.	ABANDON_CEMENT	PDF
Abandonment Operations	Abandonment / Decommissioning Logs	Digital well logs generated in Well abandonment / Decommissioning operations including cement evaluation tools and casing imaging tools (e.g. pulsed eddy current).	DWL_ABANDON	LAS, DLIS
Abandonment Operations	Abandonment / Decommissioning Logs	Well log images generated in Well abandonment / Decommissioning operations including cement evaluation tools and casing imaging tools (e.g. pulsed eddy current).	LOG_ABANDON	PDF, TIFF
Abandonment Operations	Well schematic	The final (or most current) well schematic for the well as included in the drilling programme (as-is and planned) and in the end of well report, as submitted to WONS. Includes details for all plugs, barriers, casing strings and shoes against MD and TVDSS where available. Final Abandonment (AB3) schematic showing casing cut depths relative to the Mudline.	WELL_SCHEM	PDF
Abandonment Operations	Seabed clearance certificate	A seabed clearance certificate may be applicable to more than one well. Normally included in the end of well report or abandonment report and also provided to WONS.	ABANDON_SEABED	PDF

6. Wellbore data classification tags

Detailed descriptions of each classification tag for reportable wellbore information.

Table 5. Data classification tags for wellbore information

File Type	Classification Tag	Information Type	Description
REPORT IMAGE	PRE_GEN	Pre-drill reports (general)	Prepared before drilling. Any Pre-Drill report not covered in the other PRE_ C Tags.
REPORT IMAGE	PRE_PROP	Well proposal	To present the business case for drilling the well. AFE may be included.
REPORT IMAGE	PRE_GPROG	Geological programme	Report detailing the expected geological considerations and aims and how the well design will be influenced by geology. Target information and geological context.
REPORT IMAGE	PRE_DPROG	Drilling programme	Report detailing the well design from an engineering and operations perspective.
REPORT IMAGE	PRE_SITE	Site survey	Report detailing rig site conditions, shallow gas considerations and location factors such as bathymetry and anchorages. Shallow seismic often included as enclosures.
REPORT IMAGE	PRE_MOVE	Rig move, rig positioning	Report detailing the planning and operations of siting the rig accurately on location.

File Type	Classification Tag	Information Type	Description
REPORT IMAGE	DRILL_GEN	Drilling reports (general)	Reports on any aspect of drilling not covered elsewhere. This section is for Post Drilling activity not covered specifically in other DRILL_ codes.
REPORT IMAGE	DRILL_HSE	Drilling HSE notification	Notification of Well Operations to HSE.
REPORT IMAGE	DRILL_DAILY	Daily drilling and operations report	Reports produced daily for drilling and/or operations.
REPORT IMAGE	DRILL_EOWR	Drilling end of well report	Previously called DRILLING HISTORY this is the Operator End of Well Report for drilling activity.
REPORT IMAGE	DRILL_CEMENT	Drilling cementing report	Reports detailing Cementing (in relation to Drilling) operations.
REPORT IMAGE	DRILL_FLUID	Drilling fluid report	Reports detailing drilling fluid related operations.
REPORT IMAGE	DRILL_DEV	Deviation survey report	Report detailing the deviations in the wellbore trajectory from vertical. Report will contain lists of values which may also be stored digitally.
REPORT IMAGE	DRILL_MWD	MWD/LWD end of well report	Contractor report detailing MWD and LWD logging activity and results.
REPORT IMAGE	CORE_GEN	Core reports (general)	General core reports from coring operations - Conventional & Rotary Cut Core only.
REPORT IMAGE	CORE_CCA	Conventional core analysis report	Report detailing routine or conventional core analysis methodology and results on Conventional or Rotary Cut core samples.
REPORT IMAGE	CORE_PHOTO	Core photographs	High resolution photographs of slabbed core samples, usually acquired during conventional core analysis.
REPORT IMAGE	CORE_SCAL	Special core analysis report	Report detailing special core analysis methodology and results.
REPORT IMAGE	CORE_PERM	Core permeametry report	Detailing acquisition, results and interpretation of core permeability measurements.
REPORT IMAGE	CORE_SIDEWALL	Reports for sidewall core	Any reports to do with acquisition, analysis or testing of Sidewall Core.

File Type	Classification Tag	Information Type	Description
REPORT IMAGE	GEOL_GEN	General geologic reports	General reports on geology or geological analysis & interpretation.
REPORT IMAGE	GEOL_DAILY	Daily geology reports	Reports of geological observations, produced daily during drilling.
REPORT IMAGE	GEOL_MUD	Mudlogging end of well report	Contractor report detailing mudlogging activity and results.
REPORT IMAGE	GEOL_GEOW	Geological end of well report	Report detailing geological operations, results and interpretation. May include the Composite Log as an enclosure.
REPORT IMAGE	GEOL_BIO	Biostratigraphy	Analysis and interpretation of fossil organisms to determine rock age and sequence stratigraphy. Will include micropalaeontology and palynology.
REPORT IMAGE	GEOL_DIP	Dipmeter	Report detailing dipmeter operations & interpretation, including Image Log analysis.
REPORT IMAGE	GEOL_SED	Sedimentology, petrography/petrology	Report detailing sedimentological facies description and interpretation and/or the detailed description and classification of rock type.
REPORT IMAGE	GEOL_PPHYS	Petrophysical report	Report detailing rock properties determined by wireline and MWD logging. Details of logging programmes, processing and analysis and results in a geological context.
REPORT IMAGE	GEOL_CHEM	Geochemistry report	Report detailing methodology, results and interpretation of any geochemical work undertaken on samples collected.
REPORT IMAGE	GPHYS_GEN	General geophysical report	General - geophysics, borehole seismic, velocity surveys not covered elsewhere.
REPORT IMAGE	GPHYS_VSP	VSP report	Detailing borehole seismic acquisition, processing and interpretation.
REPORT IMAGE	GPHYS_QCVSP	QC report on VSP	Detailing the operations and positioning information for offset VSPs.
REPORT IMAGE	GPHYS_CSHOT	Checkshot report	Detailing checkshot velocity analysis operations, time depth listing and results.

File Type	Classification Tag	Information Type	Description
REPORT IMAGE	GPHYS_SONIC	Array sonic, DSI, waveforms report	Report detailing acquisition, processing and interpretation of array sonic data.
REPORT IMAGE	TEST_GEN	Testing reports (general)	Testing reports including well production tests, laboratory tests and downhole measurements not covered elsewhere.
REPORT IMAGE	TEST_FLUID	Fluid analysis, RFT	Detailing analysis and interpretation of fluid samples and formation fluid pressure.
REPORT IMAGE	TEST_PLT	PLT, TDT report	Detailing PLT and TDT cased hole monitoring of reservoir flow and performance.
REPORT IMAGE	TEST_DST	DST report	Detailing well testing through the drill stem for reservoir performance evaluation.
REPORT IMAGE	TEST_LUM	Luminescence fingerprinting	Reports detailing acquisition, results & interpretation of luminescence fingerprinting measurements, primarily to differentiate oil-based mud from crude oil in drill cuttings.
REPORT IMAGE	COMPL_PROG	Completions / workover programme	Reports detailing plans for Completion and/or Workover operations before activity has taken place.
REPORT IMAGE	COMPL_HSE	Completion/ workover HSE notification	Notification of Completion and/or Workover operations to HSE.
REPORT IMAGE	COMPL_DAILY	Daily completions / workovers report	Completions and/or Workovers Daily Operations Reports.
REPORT IMAGE	COMPL_EOJR	Completion/ workover end of job reports	Detailing Completion and/or Workover Operations after activity has taken place.
REPORT IMAGE	ABANDON_PROG	Well abandonment programme	Programme for well abandonment/decommissioning operations produced before the activity takes place.
REPORT IMAGE	ABANDON_HSE	Well abandonment HSE notification	Notification of well abandonment/decommissioning operations to HSE.
REPORT IMAGE	ABANDON_DAILY	Daily well abandonment/ decommissioning operations reports	Well abandonment/decommissioning Daily Operations Reports.

File Type	Classification Tag	Information Type	Description
REPORT IMAGE	ABANDON_EOJR	Well abandonment / decommissioning end of job reports	Reports detailing well abandonment/decommissioning operations after activity has taken place.
REPORT IMAGE	ABANDON_CEMENT	Well abandonment / decommissioning cementing reports	Reports detailing Cementing operations as part of well abandonment/decommissioning.
REPORT IMAGE	ABANDON_SEABED	Well abandonment / decommission seabed clearance certificate	Seabed Clearance Certificate issued after Well Origin is fully Decommissioned (AB3 Status).
REPORT IMAGE	WELL_ENG	Well engineering reports (general)	Reports detailing well engineering operations not covered elsewhere.
REPORT IMAGE	WELL_SUMMARY	Well summary report	General summary report detailing in brief the operations, geology, data collection, interpretation and well results.
REPORT IMAGE	WELL_SCHEM	Well schematic	Well Schematic Diagram. Required at the end of any phase of operations in a well that results in a change of Wellbore Status or Well Origin Status. The most up to date version at any particular time is required.
REPORT IMAGE	WELL_EXAM	Drilling well examiner report	Well Examiner Report which may be produced at several stages of the well life cycle such as Drilling, Completions, Workovers and Abandonment.
LOG IMAGE	LOG_BIO	Biostratigraphical data log	Summary log or chart detailing the results of biostratigraphical (palaeontological and palynological) analysis.
LOG IMAGE	LOG_COMP	Composite log, final well log	Final well log showing well header information, lithology, casing joints, core intervals, geological zones, tops and basic petrophysical logs.
LOG IMAGE	LOG_CORE	Core description log, core gamma log	Logs depicting core descriptions and gamma response from core.
LOG IMAGE	LOG_CPI	Computer processed interpretation log	CPI generated from wireline or LWD/MWD log data, correlation panels (Not dipmeter).
LOG IMAGE	LOG_DIP	Dipmeter, imaging log	Graphical plot of dipmeter results or Imaging Logs.

File Type	Classification Tag	Information Type	Description
LOG IMAGE	LOG_CASE	Casing and tubing log	Engineering logs including CBL, CCL, perforating and junk catching usually correlated by GR to Surface.
LOG IMAGE	LOG_LITH	Lithological log	Log of lithological descriptions.
LOG IMAGE	LOG_MUD	Mud log, FEL, PEL	Mud log, Formation Evaluation Log, Pressure Evaluation Log, Gas Detection Log and any other drilling data logs.
LOG IMAGE	LOG_MWD	Measurement and/or logging while drilling	Logs recorded by Measurement While Drilling (MWD) or Logging While Drilling (LWD) techniques.
LOG IMAGE	LOG_SEIS	Borehole seismic display	Graphical plots of Borehole seismic logs, VSP plots and Synthetic Seismograms.
LOG IMAGE	LOG_ABANDON	Abandonment logs, cement evaluation	Logs run during or associated with well abandonment or decommissioning operations including Cement Evaluation Tools.
LOG IMAGE	LOG_VEL	Velocity log, seismic calibration log	Velocity Log and Two-Way Travel Time Log.
LOG IMAGE	LOG_WIRE	Wireline logs	Logs recorded by sensors on wireline or on coiled tubing not covered elsewhere.
LOG IMAGE	LOG_TEST	Test log image	Testing logs run in casing or open hole – e.g. PLT, TDT, RFT, MDT.
LOG IMAGE	LOG_SUM	Summary charts	Summary charts not covered elsewhere.
DWL FILE	DWL_MUD	Digital mud log data	Mud log, Formation Evaluation Log, Pressure Evaluation Log, Gas Detection Log and any other drilling data logs.
DWL FILE	DWL_MWD	Digital MWD/LWD data	Logs recorded by MWD or LWD techniques.
DWL FILE	DWL_WIRE	Digital wireline log data	Logs recorded by sensors on wireline or on coiled tubing.
DWL FILE	DWL_PROD	Digital production logs	Production logs, TDT and PLT logging data.
DWL FILE	DWL_TEST	Digital well test data	Testing logs run in casing or open hole.

File Type	Classification Tag	Information Type	Description
DWL FILE	DWL_ABANDON	Digital abandonment logs	Digital Logs run during or associated with well abandonment/decommissioning operations including Cement Evaluation Tools.
DWL FILE	DWL_OTHER	Other digital log data	Any other digital log data not covered elsewhere.
JWL FILE	JWL_FILE	Joined well log	Composited, environmentally corrected, depth matched joined well log curves.
JWL AUDIT	JWL_AUDIT	Joined well log audit	Audit trail document for JWL File.
WDD FILE	WDD_FILE	Digital deviation data	Deviation Data stored as a digital ASCII text file format.
VSP FILE	VSP_FILE	Digital VSP data	Digital Borehole seismic logs, VSP data and Synthetic Seismograms - non SEG-Y.
VSP FILE	VSP_SEGY	Digital VSP SEG-Y data	Digital Borehole seismic logs, VSP data, Synthetic Seismograms in SEG-Y format.
WELL DIGITAL CORE	CCA_FILE	Digital conventional core analysis data	Conventional core analysis data supplied in digital, usually as a table.
WELL DIGITAL CORE	SCAL_FILE	Digital special core analysis data	Special core analysis data supplied in digital, usually as a table (results not interpretation).
WELL DIGITAL SEISMIC	CSHOT_FILE	Digital checkshot data	Checkshot or Time/Depth data in tabulated digital format (not scanned image).
WELL DIGITAL TEST	TEST_FILE	Digital well test data	Well Test data in tabulated digital format (not scanned image).
WELL DIGITAL MUD	MUD_FILE	Mud data file	Mud log information in digital format, where DWL formats (LAS/DLIS) are not available.

7. Geophysical Information

Geophysical data reporting requirements

The effective reuse of information that is obtained from the NDR is dependent on information being aligned to standard formats. Those formats of geophysical information that may be reported to the NDR are set out in this section.

Seismic information formats are detailed in *Table 7. NDR compliant seismic survey data formats* (following page). This is to generally apply to information of any vintage, regardless of the original format, however it is acknowledged that in cases of older seismic data there may be little value in upgrading data to later formats. Such data may be reported in older revisions of relevant standards. While certain data can be reported in older revisions, it is still subject to the conditions set out in *Table 7* below.

Required reporting of site surveys data

Information pertaining to Site Surveys is to be reported to the NDR in the formats set out in *Table 6. NDR compliant site survey data formats*.

Table 6. NDR compliant site survey data formats

Type	Format	Remarks
Reports (Acquisition, processing and interpretation)	PDF	PDF including machine readable text and must not be password protected or encrypted.
Sub-bottom profiler data	SEG-Y rev 0, rev 1 or rev 2	SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.
High resolution seismic data	SEG-Y rev 0, rev 1 or rev 2	SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.
Processed single or multibeam bathymetric data as x, y, z data	ASCII or GeoTIFF	GeoTIFF standard https://www.ogc.org/docs/is
Sidescan Sonar	GeoTIFF	GeoTIFF standard https://www.ogc.org/docs/is
Site investigation photos	JPEG	Referenced in the reports.
Site investigation videos	MPEG-4	Referenced in the reports.
Hazard maps	GeoTIFF	Referenced in the reports.

Table 7. NDR compliant seismic survey data formats

Information type	Remarks	Online upload data formats	Physical media and data formats
Field data: **Recorded trace data** **Or** **Group formed** **Or** **Final field produced**	Including auxiliary channels and source signature, where available Where partial processing has occurred during acquisition. Including de-ghosted data Nodal data in common receiver order	SEG-D rev 2.1, rev 3.0 or rev 3.1.	SEG-D rev 2.1, rev 3.0 or rev 3.1. Single copy to be provided on either 3592 JA/JC tape or USB 3/C storage device. Data supplied on non-tape media must be without encapsulation. Data in earlier SEG-D versions and in SEG-A, B, or C formats can be processed, subject to additional charges for conversion to a compliant format before upload. **Conversion of such data to nav-seis merged data in SEG-Y is encouraged.**
Field data: **Final field produced** **as used in processing** **Or** **Nav-seis merge data**	Source /receiver navigation data assigned to CMP positions Nodal data in common receiver order	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB 3/C storage device. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements in this document.
Pre-stack time migrated data	Raw and final PSTM gathers	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements in this document.

Information type	Remarks	Online upload data formats	Physical media and data formats
Pre-stack depth migrated data	Raw and final Pre-Stack Depth Migration gathers	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in SEG-Y data: file format mandatory requirements in this document.
Post stack data	The final migrated stack after full pre-stack processing	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.
Final migrated stack	Includes angle and offset stacks	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements in this document.
Final migrated stack after full pre-stack and post stack processing	Includes post stack time migrated volumes if created	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.

Information type	Remarks	Online upload data formats	Physical media and data formats
All other post stack depth migrated volumes	If created as part of a PSDM project	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.
Post stack time migrated volumes	The final migrated stack after full pre-stack processing	SEG-Y rev 0, rev 1 or rev 2. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1 or rev 2. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. SEG-Y data must comply with the requirements set out in the SEG-Y data: file format mandatory requirements section in this document.

Required reporting of positional information

Positional information for geophysical surveys is to be reported to the NDR in the formats set out in *Table 8. NDR compatible positional data formats*

Table 8. NDR compatible positional data formats

Type	Remarks	Online Upload Data Format	Physical Media
Raw navigation	Includes raw navigation, source-receiver navigation, final processed navigation, bathymetry data, and 3D survey bin grids	P2/86, P2/91, P2/94 or P2/11 ASCII for offshore surveys or SEG-P3 for onshore surveys.	P2/86, P2/91, P2/94 or P2/11 ASCII for offshore surveys or SEG-P3 for on-shore surveys. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Processed Navigation and bathymetric / topographic data		P1/84, P1/90 or P1/11 ASCII for offshore surveys or SEG-P3 for onshore surveys. SEG SPS Rev 2.1 if applicable.	P1/84, P1/90 or P1/11 ASCII Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Projected and Geographic coordinate reference systems for processed data		UKOOA P6/98 ASCII or IOGP P6/11.	UKOOA P6/98 ASCII or IOGP P6/11. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Acquisition, including QC reports and sources / receivers / navigation details	Detailing the acquisition and quality check of seismic surveys, including weekly reports and the final deliverables or outputs from surveys. To include shot point base maps and maps showing the full fold of coverage	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Field tape listings	Field QC output listing	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.

Type	Remarks	Online Upload Data Format	Physical Media
Observer logs	Observer logs	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Source logs	Source logs	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Processing reports	Information on processing system and sequence, final products, input data etc.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.
Navigation logs, reports and QC reports		PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information.	PDF including machine readable text and must not be password protected or encrypted. CSV ASCII for supporting information. Single copy to be provided on either 3592 JA/JC tape or USB-3/C device.

Required reporting of sub surface parameter information

Velocity surveys and other sub surface parameter data are to be reported to the NDR in the formats set out in *Table 9. NDR compliant Sub surface parameters data formats*.

Table 9. NDR compliant sub surface parameters data formats (velocity, anisotropy, attenuation etc.)

Type	Online upload data formats	Physical media form and data formats
Stacking, migration, anisotropy and water column Velocities **Time to depth velocity datasets.** **Seismic attenuation**	SEG-Y rev 0, rev 1, rev 2 or DISKOSV98 as appropriate to the sampling of the model. Velocity data must comply with the "Seismic velocity data format requirements" section in this document and if applicable, the SEG-Y data: file format mandatory requirements section in this document.	SEG-Y rev 0, rev 1, rev 2 or DISKOSV98 as appropriate to the sampling of the model. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device. Velocity data must comply with the "Seismic velocity data format requirements" section in this document and if applicable the SEG-Y data: file format mandatory requirements section in this document.

Required reporting of supporting geophysical information

Ancillary reports that support reportable geophysical survey information are to be reported to the NDR in the formats set out in *Table 10. NDR Compliant supporting geophysical data formats*.

Table 10. NDR compliant supporting geophysical data formats

Type	Online upload data format	Physical media form and manner
Source signature	ASCII files, recorded or modelled far field (with and without source + receiver ghost).	ASCII files recorded or modelled far field (with and without source + receiver ghost). Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device.
Transcription reports		CSV ASCII format. Single copy to be provided on either 3592 JA/JC tape or USB-3/C storage device.

SEG-Y data: file format mandatory requirements

SEG-Y formats accepted are rev 0 using rev 1 trace header locations, rev 1, rev 2 and newer (https://library.seg.org/seg-technical-standards).

The requirements as set out are normally fulfilled automatically in the creation of SEG-Y datasets. As a minimum SEG-Y data being submitted must comply with the following requirements:

1. The data must be the original precision, data that has been reduced to 8 bit and exported as 32 bit will not be accepted.
2. All SEG-Y must be of fixed length traces, i.e. all traces in a file must be the same number of samples and the sample rate must remain constant.
3. All SEG-Y rev 0 and rev 1 datasets must be written as Big Endian ordered data.
4. The information in *Table 11. SEG-Y Binary header - mandatory byte locations* must be present in SEG-Y Binary Header.

Table 11. SEG-Y Binary header – mandatory byte locations

Byte location	Description
3213-3214	Number of data traces per ensemble, (1 for post stack).
3215-3216	Number of auxiliary traces per ensemble (0 for post stack).
3217-3218	Sample interval. Microseconds for time data, meters/feet for depth data.
3221-3222	Number of samples per data trace.
3225-3226	Data sample format code.
3227-3228	Ensemble fold, (1 for post stack).
3229-3230	Trace sorting code (type of ensemble).
3255-3256	Measurement system (1 = Meters, 2 = Feet).
3501-3502	SEG-Y Format Revision Number.

5. SEG-Y Trace headers - 2D and 3D Post-stack datasets must have CDP/CMP projected XY coordinates for each trace (referencing a CRS included in Table 1 NDR Compliant Coordinate Reference Systems).
6. SEG-Y Trace headers - 2D and 3D Pre-stack datasets pre-binning (un-regularized) must have source and receiver projected XY coordinates for each trace (referencing a CRS included in Table 1 NDR Compliant Coordinate Reference Systems).
7. SEG-Y Trace headers - 2D and 3D Pre-stack datasets post-binning (regularized) must have CDP/CMP Projected XY coordinates for each trace (referencing a CRS included in Table 1 NDR Compliant Coordinate Reference Systems).

SEG-Y data: file format recommendations

1. The EBCDIC (Textual) header should contain the coordinate reference system used for the trace XY headers, either as EPSG codes or a CRS description. This CRS system must be the same as that which is detailed in the processed navigation data.
2. The preferred data sample type is 4-byte IEEE floating-point (SEG format code 5).

3. *Table 12. SEG-Y Trace Header: Recommended byte locations* sets out the recommendation. Alternate locations for information in trace headers are accepted.

Table 12. SEG-Y trace header: recommended byte locations

Byte location	Description
1-4	Trace sequence number within line.
5-8	Trace sequence number within SEG-Y file.
13-16	Channel/Receiver number (if applicable).
17-20	Source point number (if applicable).
21-24	Unique ensemble number (CDP, CMP, CRP, CDPLBL etc.) (if applicable).
29-30	Trace identification code (1 = Time domain, 25 = Depth domain).
37-40	Offset/Angle header (Pre-stack only).
71-72	Scalar to be applied to all coordinates (negative = divisor).
73-76	Map projected X coordinate relating to Source location for unregularised data or trace location for regularised pre-stack and post-stack data.
77-80	Map projected Y coordinate relating to Source location for unregularised data or trace location for regularised pre-stack and post-stack data.
81-84	Map projected X coordinate relating to Receiver location for unregularised data.
85-88	Map projected Y coordinate relating to Receiver location for unregularised data.
89-90	XY Coordinate units (1 as should be in metres or feet).
103-104	Total static applied in milliseconds (Zero if none applied).
181-184	Map projected X coordinate of this trace (alternatives of 73-76 and or 81-84 in post migration data).
185-188	Map projected Y coordinate of this trace (alternatives of 77-80 and or 85-88 in post migration data).
189-192	Inline number (if applicable).
193-196	Crossline number (if applicable).

4. Textual header (EBCDIC Header) - The recommended information contained in the SEG-Y Textual header as shown in Figure 1 below, the header should contain Geographic coordinate reference systems for the data. Additional information such as processing flow details can be included within spare rows. Merged datasets can have multiple NDR ProjectIDs of the various inputs listed in the Textual header.

Figure 1 EBCDIC Header: Recommended Layout

```
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
C01 CLIENT: NAME OF OPERATOR                ; PROCESSED BY:
C02 DATA TYPE: FINAL GATHERS        ;DOMAIN: TIME OR DEPTH ;DATE: JUNE 2014
C03 OGA PROJECTID PREFIX: CCCCYYYYtype
C04 PROJECT NAME:
C05
C06 ACQ BY:                  ;VESSEL:                              ;YEAR: 2012
C07 NUM SOURCES:    ;VOL:       CU; DEPTH:  M; SP INT:  M
C08 NUM CABLES:     ;LENGTH:     M;DEPTH:    M; CHANS/CABLE:     ;CHAN SEP:    M
C09 SOURCE SEPARATION:     M;CABLE SEPARATION:        M   OR AS APPROPRIATE
C10 TRACES/RECORD:    ;SAMP INT:   MS;SAMP/TRACE:
C11
C12 PROCESSING DATE:  2014;
C13 PROCESSING: SEGD READ; NAV SEIS MERGE; ............;
C14 MORE PROCESSING INFORMATION ….........
C15 MORE PROCESSING INFORMATION ….........
C16 MORE PROCESSING INFORMATION ….........
C17 MORE PROCESSING INFORMATION ….........
C18 MORE PROCESSING INFORMATION ….........
C19 MORE PROCESSING INFORMATION ….........
C20 MORE PROCESSING INFORMATION ….........
C21 MORE PROCESSING INFORMATION ….........
C22 MORE PROCESSING INFORMATION ….........
C23 MORE PROCESSING INFORMATION ….........
C24 MORE PROCESSING INFORMATION ….........
C25 HDR BYTE POSITIONS: NAME BYTE POS LEN; INLINE 189 4; XLINE 193 4
C26 CDPLBL 21 4; CDP-X 181 4; CDP-Y 185 4;
C27
C28 PROJ EPSG CODE: 23031-1311
C29 ELLIPSOID:Int 1924; DATUM: ED50 ; PROJ: UTM; ZONE: 31N
C30
C31 INLINE BIN:  12.5 M ;INCR: 1 ; XLINE BIN: 12.5 M ;INCR: 1
C32 INLINE AXIS: 15.415 ;DEG (CLOCKWISE FROM NORTH)
C33 CROSSLINE AXIS:  105.415 ; DEG (CLOCKWISE FROM NORTH)
C34 ORIGIN IL,XL:     ,     ; X:          UNIT ;Y:           UNIT
C35 DATA CORNER COORDINATES:
C36 IL        XL            X             Y
C37 IL        XL            X             Y
C38 IL        XL            X             Y
C39 IL        XL            X             Y
C40 END TEXTUAL HEADER
```

SEG-D data: mandatory file format requirements

SEG-D formats accepted are rev 2.1, rev 3.0 or rev 3.1 and newer as defined by the SEG. (https://library.seg.org/seg-technical-standards).

SEG-D data must be supplied with sufficient metadata in the form of observers logs and tape or disk listings to be able to verify the line sequence number or line identifier for each file. If the line sequence number or line identifier is contained within the SEG-D extended or external headers, then information should accompany the data submission to indicate where it can be found.

If the SEG-D channel sets, extended or external headers contain near field hydrophone data, the submission should include an explanation as to how to locate and read the data.

Data supplied on non-tape media must be without encapsulation and must be multiple native acquisition data grouping per file.

Streamer data must have a separate file per sailline and be grouped by source within the file. A sailline should be supplied to the NDR as either one file or less than ten files, where each file has multiple source locations in it. A sailline must not be supplied to the NDR as one file per source location.

Nodal data supplied to the NDR must have each file grouped by recording location or multiple recording locations. Each file must have multiple source records per recording location. Recording location files must not be supplied to the NDR as one file per source location.

If the SEG-D file contains headers or blocks of data that are outside the SEG-D specification, the submission will be rejected.

Data in earlier SEG-D versions and in SEG-A, B, or C formats can be processed, subject to additional charges for conversion, to a compliant format before upload. Conversion of such data to nav-seis merged data in SEG-Y is encouraged

Original data that is marked with 'NTBP' was identified as ***Not To Be Processed*** at the time of acquisition. Such data would have been reacquired during the original survey acquisition. Under no circumstances should files marked as NTBP be loaded to the NDR.

Seabed Recorded Field Data

Seabed located field data includes Ocean Bottom Node (OBN) and Ocean Bottom Cable (OBC) acquisitions. These may be referred to collectively as Ocean Bottom Seismic (OBS).

Seabed located field data has been produced in many different data formats. Various recording devices and systems have been used, with various survey design specifications. Variation in the collection of this data type means it is not possible to standardise on a specific format for this to be reported.

The purpose of reporting data to the NSTA via the NDR is to ensure that the information can be reused, by the appropriate user at the appropriate time. The NSTA considers that it is the field dataset that was or will be used as the input to the main processing exercise following the acquisition that should be reported to the NDR.

Points to consider include:

Data Collection and Processing: Seabed field data is collected in various formats and may undergo several preparation steps, such as instrument response removal, time alignment, and component rotation. Multiple outputs with different record lengths may be generated.

Quality and Specification: Extra data recorded outside the survey specifications may vary in quality and relevance to the data product. ‘Continuous recording’ data and other records that are not included in the processed product are not relevant to the survey and should not be reported. Hydrophone and geophone datasets are processed differently and may only partially contribute to the final processing.

The NSTA requires licensees to report:

- Datasets used as input to the full processing sequence. This is likely to be determined after processing is complete.
- Alternatively, report datasets after initial processing stages like navigation updates, source deblending and noise reduction.
- Nodal data should be reported in common receiver gathers, and seabed cable data can be reported per cable, or common shot gather.
- For data that has been recorded into many separate SEG-Y files (1000's), these should be grouped based on a shared spatial connection and then written to fewer SEG-Y format files. For example, grouping the node data based on either receiver line or receiver area into single SEG-Y files that, individually, could be up to 400 GB in size.
- For data that has been recorded into many separate SEG-D files, these should be grouped based on a shared spatial connection and then written to fewer TAR-SEG-D format files (see *add reference to relevant section in F&M*).

The NSTA expressly prohibits upload of non-reportable information, including but not limited to:

- Continuous recordings when there is no active acoustic source relating to the survey,
- Proprietary interim or component products that are only useable by the acquisition company

Reporting data on physical media: mandatory requirements

The NDR User Interface includes workflows that enable all reportable information to be uploaded. These workflows are available to users that have been granted the "Company Data Manager" role by their Company Administrator.

Alternatively, licensees have the option to report licence information on physical media, to be uploaded by the NDR Service Provider. Optional use of such services is chargeable according to the latest schedule of rates.

The most recent version of the upload submission charges is available via the NDR Support Centre here: https://support.uk-ndr.co.uk/hc/en-gb/articles/4402396433170

It is expected that data submitted on physical media will be ordered and structured with meaningful file names, ready to be loaded to the NDR, without the requirement for any pre-conditioning of the data or metadata. Where pre-conditioning is necessary, or insufficient information is provided, the fulfilment of reporting activities may be delayed or media may be returned to the sender without any action having been taken, at the discretion of the NSTA and its agents.

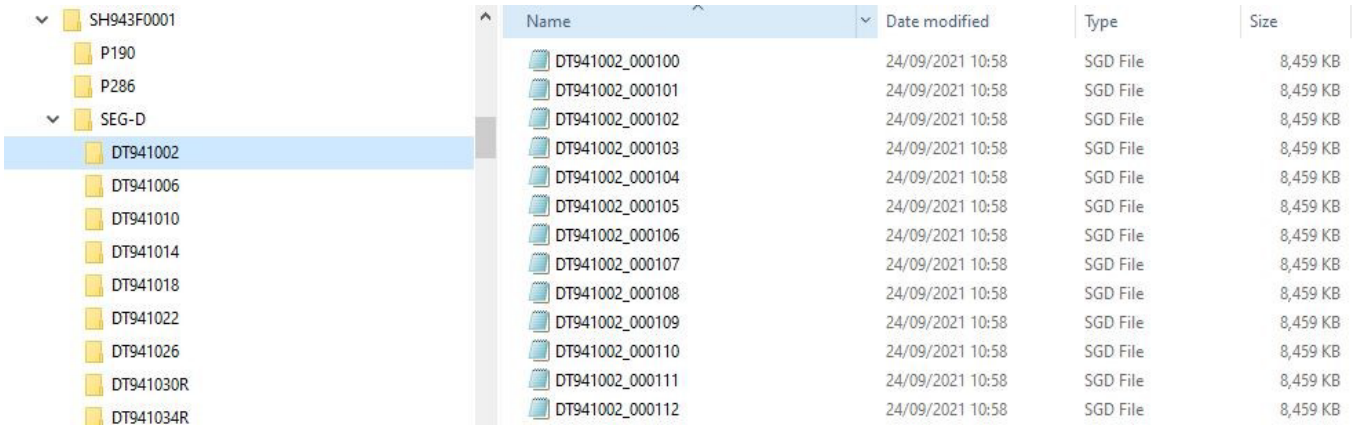
Costs relating to pre-conditioning of reported information that is necessary to meet submission criteria, or return of media to the sender, are to be borne by the submitter or owner of the information. The responsible party will be notified of such costs prior to any work being carried out. The responsible party can, at its discretion, appoint a service provider of its choice to carry out pre-conditioning of reportable information.

For streamer survey datasets, the data is expected and required to be arranged in a logical 2D line or 3D sequence folder directory structure, with a corresponding single UKOOA P1 file per navigation line/sequence.

Files for each line/sequence are to be clearly labelled with line name and/or sequence number.

This requirement is also essential for any data that has previously been transcribed where multiple lines now exist on a single tape.

Figure 2. Example directory structure for streamer survey datasets



SEG-D field data must be supplied with adequate information to enable the naming convention of each file. SEG-D field data must always be accompanied by appropriately formatted navigation data files.

For Ocean Bottom Seismic datasets (including OBC and OBN), it is required that the field recording sort order will be maintained, and that data on media will be arranged in a logical file structure, for example: /receiver_line/node/sequence/SP.

Any datasets reported on physical media (including tapes and USB or RJ45 connected portable devices etc.) must be labelled with the information listed below, which should also be included on a 'Physical Media Submission Information' form.

https://support.uk-ndr.co.uk/hc/en-gb/articles/4403099504146-Physical-Media-Data-Submission

Dataset information, must be clearly described including data format and revision, number of sequences, number of media etc. The form should be submitted digitally as an attachment to the 'Submit a Request' workflow.

1. Data owner
2. NDR service ticket ID reference for on-media reporting
3. Unique survey identifier (NDR9 Code or Project ID)
4. Project or Survey name/alias
5. Survey type: 2D, 3D, 4D, OBN, OBC, VSP, Site survey (as applicable)
6. Date of acquisition or creation of the data set (not date written to media)
7. Data type: e.g., velocities, navigation, seismic
8. Data format and revision: e.g., SEG-D rev 3, SEG-D 2.1, UKOOA P1/90 etc.
9. Processed data description (if applicable) e.g., stack, migration, gather etc.
10. Data range (if applicable)
11. Tape/device number if multiple tapes/devices are submitted (i.e., 1 of 2, 2 of 2)
12. Geographical area: e.g., Quad15, Southern North Sea, West of Shetlands

The submitter will be notified by the NDR Support Team should any information be missing or unclear. If the data has previously been transcribed, the transcription report must also be included.

New Project IDs

Where a new NDR Project ID is to be created, the following information is to be provided:

1. Coordinate Reference System
2. Polygon coordinates (the approximate extent of survey, encompassing all lines).
3. Project “Processing Completion Date”
4. Project type (2D, 3D, 4D, OBN, OBS, Site Survey)
5. Licence(s)
6. Contractor
7. NDR9 code (if available)
8. Brief project description

The NSTA and its agents have no obligation to receive any shipments where advanced notice of their delivery has not been provided.

Advanced notification of any shipments of media should be raised to support@ndr-uk.co.uk

Delivery address for reporting on physical media

Information that is reported on physical media should be addressed to:

NSTA National Data Repository
c/o Moveout Data Seismic Services Ltd
The Stable Block
Lockwood Park
Brewery Drive
Huddersfield
HD4 6EN
United Kingdom

By default, the media submitted to the NDR will not be returned to the submitter.

Once the content has been verified in the NDR, media will be repurposed or sent for managed disposal.

Information will be removed or otherwise made unreadable prior to disposal.

Seismic velocity data: mandatory file format requirements

Velocities should be submitted in the form that they were used in processing the data. See *Table 13. NDR compliant seismic velocity formats* for accepted formats for common velocity data types. Gridded velocity models are to be provided in SEG-Y format.

SEG-Y data must comply with the requirements of the "SEG-Y Data format requirements" section in this document.

Non regularly sampled velocities are to be provided in DISKOSV98 format, as defined in the NPD Yellow book: https://www.sodir.no/globalassets/1-sodir/regelverk/forskrifter/en/geophysical-guidelines.pdf

Table 13. NDR compliant seismic velocity formats

Velocity data type	Online upload data format
RMS Stacking	DISKOSV98 (sparse, and/or non-regular sampling) or SEG-Y (dense regular sampling).
RMS migration	DISKOSV98 (sparse, and/or non-regular sampling) or SEG-Y (dense regular sampling).
Interval migration – Time or Depth	SEG-Y.
Anisotropy components	SEG-Y.
Time to depth	DISKOSV98 (sparse, and/or non-regular sampling) or SEG-Y (dense regular sampling).
Other velocity datasets	DISKOSV98 (sparse, and/or non-regular sampling) or SEG-Y (dense regular sampling).

8. Geophysical data classification tags

Classification of seismic information in the NDR builds on the classification systems developed and applied by industry in preceding services.

Geophysical information is to be reported under a project code that is descriptive of the type of geophysical survey information acquired or produced. *Table 14. Geophysical project types and codes* describes the scope of each geophysical project type.

Table 14. Geophysical project types and codes

Code	Geophysical project type
seis	Seismic projects - Acquisition, processing, or reprocessing projects. This includes all acquisition types (e.g., 2D, 3D, 4D) and all data types, supporting information, reports etc.
mhaz	Near surface high resolution site survey projects - shallow investigation seismic, shallow boreholes, acoustic, sonar, bathymetry surveys, shallow hazard reports. All data types, supporting information and reports etc.
rems	Remote sensing, potential and diffusive field projects - CSEM surveys, stand-alone gravity and/or magnetic surveys, Lidar, satellite observations. All data types, supporting information and reports etc.
intp	General studies projects - Projects that combine multiple data sources for multiple spatial locations to report on a larger area than the items covered by the other project type codes. e.g., Reservoir studies, CCS potential studies, Hydrocarbon studies, Basin Studies, Reservoir models, earth models, field reports etc.

Table 15. Geophysical information types and classification sets out the classifications that are required to be assigned to geophysical information as it is reported to the NDR, with a summary description for each type. This table also specifies the required format in which each information type should be reported.

Table 15. Geophysical information types and classification

Project types	Information type	Classification Tag	File Format
	Seismic Reports		
mhaz, seis, rems	Data acquisition and navigation reports	Report_acquisition	PDF
mhaz, seis, rems, intp	Reports on the interpretation of data	Report_interpretation	PDF
mhaz, seis, rems, intp	Reports on the processing of data	Report_processing	PDF
mhaz, seis	Summary data loading parameters from legacy systems (not user assigned)	Legacy_loading_sheet	PDF
mhaz, seis	Other supporting documents and reports	Supporting_information	PDF
	Survey Acquisition Information		
mhaz, seis	Navigation data	Navigation	P formats or SEG format
mhaz, seis	Seismic field data	Data_acquired	SEG-D
mhaz, seis	Seismic field or navigation seismic merge data	Data_acquired	SEG-Y
mhaz, seis	Seismic field data - SEG-D and supporting acquisition information	Data_acquired	SEG-D-GZIP
mhaz, seis	Raw Navigation data	Raw_Navigation	P2/86, P2/91, P2/94, P2/11 SEG P2
mhaz, seis	Processed Navigation data	Final_Navigation	P1/84, P1/90, P1/11 SEG P1
mhaz, seis	Rationalised navigation defining the start, end and turning points in 2D lines	Ends_and_Bends	P1/90
mhaz, seis	3D Binning Grid Navigation data	Binning_grid	P6/98, P6/11

Project types	Information type	Classification Tag	File Format
rems	Acquisition data	Data_acquired	TXT (ASCII)
mhaz	Digital video images - subsea infrastructure etc.	Video	MPEG-4
mhaz, seis	Observer logs created during survey acquisition	Observer_log	PDF
mhaz, seis, rems	Source signature	Source_Signature	TXT (ASCII) or PDF
mhaz, seis	Plot of acquisition spatial coverage	Coverage_Plot	TXT (ASCII) or PDF
mhaz, seis, rems	List of lines included in the survey	Line_listing	TXT (ASCII)
mhaz, seis	Supporting data, source signatures, tide measurements etc	Data_supporting	TXT (ASCII)
	Pre stack data (Time)		
mhaz, seis	Pre-stack seismic - time domain from intermediate processing step	Gathers_raw_time	SEG-Y
mhaz, seis	Final processed pre-stack seismic - time domain	Gathers_final_time	SEG-Y
	Pre stack data (Depth)		
mhaz, seis	Pre-stack seismic - depth domain from intermediate processing step	Gathers_raw_depth	SEG-Y
mhaz, seis	Final processed pre-stack seismic – depth domain	Gathers_final_depth	SEG-Y
	Post stack data (Time)		
mhaz, seis	Final processed stacked seismic - time domain	Final_post_stack_time	SEG-Y
mhaz, seis	Intermediate processed stacked seismic - time domain	Post_stack_time	SEG-Y
mhaz, seis	Stacked data from limited angle range - time domain	Angle_stack_time	SEG-Y
mhaz, seis	Stacked data from limited offset range - time domain	Offset_stack_time	SEG-Y
mhaz, seis	Inversion process output - time domain	Inversion_time	SEG-Y
mhaz, seis	Velocity profile data - time domain	Velocity_time	SEG-Y or DISKOSv98

Project types	Information type	Classification Tag	File Format
rems	Processed data	Data_processed_time	TXT (ASCII)
rems	Processed data spatially referenced	Data_processed_time	GeoTIFF
	Post stack data (Depth)		
mhaz, seis	Final processed stacked seismic - depth domain	Final_post_stack_depth	SEG-Y
mhaz, seis	Intermediate processed stacked seismic - depth domain	Post_stack_depth	SEG-Y
mhaz, seis	Stacked data from limited angle range - depth domain	Angle_stack_depth	SEG-Y
mhaz, seis	Stacked data from limited offset range - depth domain	Offset_stack_depth	SEG-Y
mhaz, seis	Inversion process output - depth domain	Inversion_depth	SEG-Y
mhaz, seis	Velocity profile data - depth domain	Velocity_depth	SEG-Y
rems	Processed data	Data_processed_depth	TXT (ASCII)
rems	Processed data spatially referenced	Data_processed_depth	GeoTIFF
	Other geophysical data		
mhaz, seis	Velocity data	Velocity	DISKOSV98 (ASCII)
	Interpretation data		
mhaz, seis, rems, intp	Horizon, fault, grid and other interpretive data	Interpretation_time	TXT (ASCII)
mhaz, seis, rems, intp	Spatially referenced horizons and other interpretations	Interpretation_time	GeoTIFF
	Interpretation data (Depth)		
mhaz, seis, rems, intp	Horizon, fault, grid and other interpretive data	Interpretation_depth	TXT (ASCII)
mhaz, seis, rems, intp	Spatially referenced horizons and other interpretations	Interpretation_depth	GeoTIFF

9. TAR-SEG-D Specification

For uploading seismic field data

To upload previously non-compliant seismic field data, e.g. SEG-D rev 0 or many SEG-D files per acquisition line, the files can be combined into a gzipped TAR file per acquisition line (unless file size > ~400 Gbyte in which case multiple files per acquisition line or equivalent should be made).

Each TAR-SEG-D file also requires its own supporting information file to be created. This will allow NDR users to easily determine the content of a TAR-SEG-D file prior to download.

The relevant Project must have two supporting information files present to allow NDR users to easily determine the format of the contents of the TAR-SEG-D without having to download them. These are the 'project_info' and 'project_line_listing' files.

The TAR-SEG-D files and respective supporting files must follow the naming convention detailed below and please note that spaces are not permitted in any filenames.

1. filename.segd.tar.gz
2. filename_segd_listing.txt - one file for each *filename.segd.tar.gz*
3. surveyname_field_data_project_line_listing.txt – (one file per project)
4. surveyname_field_data_project_info.txt – (one file per project)

Examples of these file names for a survey called TT112D0002 would be:

1. TT112D0002_TOB13-0990P1-033.segd.tar.gz
2. TT112D0002_TOB13-0990P1-033_segd_listing.txt
3. TT112D0002_field_data_project_line_listing.txt
4. TT112D0002_field_data_project_info.txt

All of these files must be present to upload the TAR-SEG-D dataset.

The specification and examples of these files in a TAR-SEG-D dataset are detailed below:

1) **filename.segd.tar.gz** - a gzipped TAR file made from multiple SEG-D files, the filename must not contain any spaces. Example command to create a suitable TAR file:

tar --numeric-owner -cvzf AH963F0003_AH10106Q.segd.tar.gz AH96-15-0106Q_93714_000*.sgd l

or, using pigz software to run the compression in parallel (much faster)

tar --use-compress-program="pigz -k --best" --numeric-owner -cvf AH963F0003_AH10106Q.segd.tar.gz AH96-15-0106Q_93714_000*.sgd

2) **filename_segd_listing.txt** file - For each TAR-SEG-D file is the user must create a matching SEG-D listing file, the naming must match the filename with the ".segd.tar.gz" in the end of the TAR-SEG-D file replaced with "_segd_listing.txt". The file must contain three sections denoted by leading "## " and on their own line, the three sections are:

A. "## Header" - Required Header information following the format below: (items in quotes to be replaced with appropriate information)

NDR TAR-SEG-D field files for "Survey ID" "Sail-line name"
Produced by "company name"
Date dd-mm-yyyy "DD-MM-YYYY"
Created with tar --numeric-owner -czf
Read using tar -xf
Info "some information on how the file naming relates to the data"

B. "## File info" - Listing of all the SEG-D files expected in the TAR-SEG-D file, SEG-D file names must not contain spaces. Each line must contain a minimum of SEG-D filename and the file number (FFID) for that file in the form:

Filename.segd FFID: AAAAAA

C. "## Tar listing" - Tar listing of all the files in the TAR-SEG-D file created by reading the tar file back with the -t (--list) option, this provides a cross check against the expected list of SEG-D files. It is created from the output of command:

tar --full-time -tvf **filename.segd.tar.gz**

Example contents of **filename_segd_listing.txt** file

Header
NDR TAR-SEG-D field files for AH963F0003 AH10106Q
Produced by Example Company Name Ltd
Date dd-mm-yyyy 04-08-2021
Created with tar --numeric-owner -czf
Read using tar -xf
Info Individual files in TAR archives are named by linename/linename_ffid.segd (or .sgd)
File info
AH96-15-0106Q_93714_000007.sgd FFID: 106 DATE: 96:111:15:12:11
AH96-15-0106Q_93714_000008.sgd FFID: 107 DATE: 96:111:15:12:23
AH96-15-0106Q_93714_000009.sgd FFID: 108 DATE: 96:111:15:12:35
AH96-15-0106Q_93714_000010.sgd FFID: 109 DATE: 96:111:15:12:47
AH96-15-0106Q_93714_000011.sgd FFID: 110 DATE: 96:111:15:12:59
Tar listing
-rw-r--r-- 1000/1000 15964128 2021-01-21 14:11:21 AH96-15-0106Q_93714_000007.sgd
-rw-r--r-- 1000/1000 15964128 2021-01-21 14:11:22 AH96-15-0106Q_93714_000008.sgd
-rw-r--r-- 1000/1000 15964128 2021-01-21 14:11:23 AH96-15-0106Q_93714_000009.sgd
-rw-r--r-- 1000/1000 15964128 2021-01-21 14:11:24 AH96-15-0106Q_93714_000010.sgd
-rw-r--r-- 1000/1000 15964128 2021-01-21 14:11:26 AH96-15-0106Q_93714_000011.sgd

---

3) **surveyname_field_data_project_line_listing.txt**- A text file containing the spatially related acquisition ordering, that corresponds to the field data files being uploaded to the NDR, e.g. sail-lines. All the lines in the survey are written as one line name per line. The file is required to have one section titled "## Survey line listing" on the first line of the file.

   Example contents of **surveyname_field_data_project_line_listing.txt**:

Survey line listing
NDR TAR-SEG-D field files for AH963F0003
Produced by Example Company Name Ltd
Date dd-mm-yyyy 04-08-2021
AH10106Q
AH10108A
AH10116A

---

4) **surveyname_field_data_project_info.txt** - one required for each survey, this metadata file details the SEG-D formats used in the survey and the range of field file index (ffid) in each TAR-SEG-D file.

   A partially filled template is generated by previewing one of the filename.segd.tar.gz files in the NDR upload interface. This populates sections A and B of the file. The file must contain three sections denoted by leading "##" and on their own line, the sections are:

   A. "## Header" - Required Header information following the format below: (items in quotes to be replaced with appropriate information)

      NDR TAR-SEG-D survey file for "NDR9 code"
      Produced by "company name"
      Date dd-mm-yyyy "DD-MM-YYYY"
      Metadata for SEG-D
      Info "if required, some information on how the file naming relates to the data"

   B. "## SEG-D info" - Metadata extracted from the SEG-D (example of each SEG-D format used in the survey) must contain a minimum of:

      1. Number of chanSets
      2. List of all channel sets, with number of traces and samples per channel set
      3. SEG-D data format code and its definition
      4. Manufacturer code
      5. Recording date in YY:DOY:HHH:MM:SS
      6. SEG-D revision number
      7. Base Sample Rate - (from general or extended header)
      8. Number of Samples per trace - either from general or extended header
      9. Record length in ms

C. "## Tar Files" - Line per TAR-SEG-D filename and the field file index (FFID) range for that file in the form:

Filename.segd.tar.gz FFIDmin: AAA FFIDmax: BBB

Example contents of **surveyname_field_data_project_info.txt**:

Header
NDR TAR-SEG-D survey file for AH963F0003
Produced by Example Company Name Ltd
Date dd-mm-yyyy 04-08-2021
Metadata for SEG-D
Info Individual files in TAR archives are named by linename/linename_ffid.segd (or .sgd)
SEG-D info
SEG-D Revision Number : 0.0
Manufacturer : Syntron Inc (34)
Format Code : 20 bit binary demultiplexed (8015)
Date / Time (YY:DOY:HH:MM:SS) : 96:111:15:12:35
Date / Time Stamp (s from 1970) : 830013155
File Number : 108
Number of General Headers : 1
Record Length (ms) : 7168.0
File Base Sample Scan Interval (ms) : 2.0
Number of Scan Types Per Record : 1
Number of Channel Sets Per Scan Type : 7
Number of Channels/Traces In Scan : 1776
Set: 1 streamer no.: 0 scale: -3.00 no. chans: 288 samples: 3584 exp: 0 type: Seismic
Set: 2 streamer no.: 0 scale: -3.00 no. chans: 288 samples: 3584 exp: 0 type: Seismic
Set: 3 streamer no.: 0 scale: -3.00 no. chans: 48 samples: 3584 exp: 0 type: External
Set: 4 streamer no.: 0 scale: -3.00 no. chans: 288 samples: 3584 exp: 0 type: Seismic
Set: 5 streamer no.: 0 scale: -3.00 no. chans: 288 samples: 3584 exp: 0 type: Seismic
Set: 6 streamer no.: 0 scale: -3.00 no. chans: 288 samples: 3584 exp: 0 type: Seismic
Number of Channels In All Scans : 1776
Number of Skew Headers Per Scan Type : 0
Number of Extended Headers : 19
Number of External Headers : 78
Number of Manufacturers Headers : 384
Number of Trailer Headers : 0
Number of Bytes in File : 15964128
Number of Bytes in All File Headers : 15648 Number 32 byte records: 489
Number of Bytes in Trailer Headers : 0
Source Line Number : 0
Source Point Number : 0
Line Name/Number : AH10106Q
Tar Files
AH963F0003_AH10106Q.segd.tar.gz FFIDmin: 106 FFIDmax: 210
AH963F0003_AH10108A.segd.tar.gz FFIDmin: 101 FFIDmax: 1009
AH963F0003_AH10116A.segd.tar.gz FFIDmin: 106 FFIDmax: 974

10. Definition of Terms

Table 16. Definition of terms

Term or Abbreviation	Description/Definition
2D	Two-dimensional seismic data.
3D	Three-dimensional seismic data.
4D	Four dimensional - 3D seismic data acquired at times over the same area to monitor change.
AB3	The status of a fully abandoned well, where the well origin at the surface has been permanently removed.
AFE	Application or Authorization for expenditure.
ASCII	American Standard Code for Information Interchange - a standard representing text in digital file format.
BGS	British Geological Survey.
CBL	Cement bond log.
CCL	Casing collar locator.
CCS	Carbon Capture and Storage.
CDP	Common depth point.
CMP	Common mid-point.
CPI	Computer processed interpretation.
CRP	Common reflection point.
CRS	Coordinate Reference System.
CS8	A common standard for wellbore information classification, developed by CDA and industry.
CSEM	Controlled source electro-magnetic.
CSV	Comma-separated values file format used to store tabular data.
DLIS	Digital Log Interchange Standard - structured binary files for well information and logging.
DSI	Dipole sonic imager.
DST	Drill stem test.

Term or Abbreviation	Description/Definition
EBCDIC	Extended Binary Coded Decimal Interchange Code - an eight-bit character encoding format.
Energy Portal	An NSTA/BEIS online gateway to software applications that allow industry to apply for and receive consent for a range of regulated operational activities.
EPSG	European Petroleum Survey Group.
FEL	Formation Evaluation Log.
FFID	Field File ID – a filename given to raw seismic data files during seismic acquisition
GeoTIFF	A metadata standard allowing georeferencing information in a file including images and data.
HSE	The Health and Safety Executive.
IOGP	The International Association of Oil & Gas Producers.
JPEG	The Joint Photographic Experts Group - creator of a commonly used method of compression for digital images, especially those produced by digital photography.
Licensee	A holder (or former holder) of an offshore petroleum licence.
LWD	Logging while drilling.
MDT	Modular formation dynamics testing.
MER	Maximising economic recovery.
MPEG	Standard for media coding, especially audio, video and graphics and transmission and file formats.
MWD	Measurement whilst drilling.
NSTA	The North Sea Transition Authority.
OBC	Ocean bottom cable - seismic surveying apparatus and method using fixed cables to power the apparatus.
OBN	Ocean bottom node - seismic surveying apparatus and method using battery-powered cableless receivers.
OGA	The Oil and Gas Authority.
P format	An umbrella term of the standardised formats for positional data, developed and implemented by UKOOA, for seismic surveys and well trajectories.
PDF	Portable Document Format - a standard file format developed by Adobe.
PEL	Pressure Evaluation Log.
Information and samples	As defined in Section 27 (1) of the Energy Act 2016.
PLT	Production log test.

Term or Abbreviation	Description/Definition
PNG	Portable Network Graphics - a raster-graphics file format that supports data compression.
PPI	Pixels per inch - the density of pixels within a digital image.
ProjectID	NDR Project Identification code – assigned in the NDR as a logical container for reported information.
PSDM	Post-stack depth migration.
PSTM	Pre-stack time migration.
PVT	Pressure, volume, temperature.
QC	Quality control.
Relevant person	A person listed under 9A(1) (b) of the Petroleum Act 1998.
Reporting	the provision of information and/or samples to the NSTA.
RFT	Repeat formation testing.
SCAL	Special core analysis laboratory.
SEG	Society of Exploration Geophysicists.
SPS	Shell Processing Support - a format for geophysical positioning data.
TDT	Thermal decay time.
TIFF	Tag Image File Format – a digital image file format.
TLC	Trough logging conditions.
TVD	True Vertical Depth.
TWT	Two-way time.
UKCS	United Kingdom Continental Shelf.
UKOOA	UK Offshore Operators Association, former name of the oil & gas trade association, OEUK.
UTF-8	Unicode Transformation Format 8-bit - variable-width character encoding of text in files.
VSP	Vertical seismic profile.
WONS	Well Operations and Notifications System - Energy Portal application for well consents and notifications.

11. Version amendments

Table 17. Amendments from the preceding version of this document (November 2024)

Section	Sub Section	Amendment
4. General Reporting Requirements	Table 2. NDR compliant file extensions for reportable information	Detailed file extensions for compliant raw seismic navigation P formats: .p286, .p291, .p294 or .p211
4. General Reporting Requirements	Table 2. NDR compliant file extensions for reportable information	Detailed file extensions for compliant processed navigation P formats: .p184, .p190 or .p111
4. General Reporting Requirements	Table 2. NDR compliant file extensions for reportable information	Detailed file extensions for compliant wellbore deviation survey P formats: .p72 or .p717
5. Wellbore Information	Table 4. Wellbore information types and classification	Deviation Survey compliant reporting formats updated to include both P7/2000 and P7/17
7. Geophysical Information	Page 37. Seabed Recorded Field Data	A new section outlining the NSTA's required approach to reporting of field data for Ocean Bottom Seismic data, including Ocean Bottom Node (OBN) surveys.
7. Geophysical Information	Table 8. NDR compatible positional data formats	Raw navigation compliant reporting formats updated to include: P2/86, P2/91, P2/94 or P2/11
7. Geophysical Information	Table 8. NDR compatible positional data formats	Processed Navigation and bathymetric / topographic data compliant reporting formats updated to include: P1/84, P1/90 or P1/11
7. Geophysical Information	Table 7. NDR compliant seismic survey data formats	Field data sections amended to include statements that, for both SEG-D and SEG-Y, nodal data should be provided in common receiver order. For SEG-Y, it is emphasised that for Final field produced data, it is the version that was subsequently used in processing that is required to be reported.
7. Geophysical Information	Table 15. Geophysical information types and classification	Raw navigation compliant reporting formats updated to include: P2/86, P2/91, P2/94, P2/11 or SEG P2
7. Geophysical Information	Table 15. Geophysical information types and classification	Processed Navigation compliant reporting formats updated to include: P1/84, P1/90, P1/11 or SEG P1

12. Contacts

Questions or comments in relation to this document, should be directed to ndr@nstauthority.co.uk

North Sea Transition Authority

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