

U.K.O.O.A. P1/90 POST PLOT DATA EXCHANGE TAPE

1990 FORMAT

Prepared by

The Surveying and Positioning Committee

For The

U.K.O.O.A. Exploration Committee

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U.K.O.O.A. P1/90 POST PLOT POSITIONING DATA FORMAT

1. **General**

The data required for conventional 2-D Seismic Surveys is the position of shotpoints (energy source, common mid point, etc.) as defined in the header.

In this document the term 'shotpoint' refers to the 'centre of source' and the term 'common mid point' refers to the 'mid point between the centre of source and the near trace'.

For all other surveys there are two ways of exchanging data; "pre-stacked" or "post-stacked". The post-stacked data are "bin" positions which are stored in the same way as 2-D shotpoint positions.

The pre-stacked data should contain all the information that is required for binning; i.e. the position of the energy source and all receiver groups. This makes for consistency of data format/content and allows for re-binning on a purely positional basis.

For 3-D offshore surveys the co-ordinates of each defined receiver group are listed following each shotpoint. For onshore 3-D surveys and for onshore 2-D surveys requiring special processing it is necessary to establish three data files. A separate file for each of the two main elements, source positions and receiver positions, with a third file to define the relationship between source and receiver groups. These files are :

- a) Source positions - this is for a 2-D shotpoint record.
- b) Receiver group positions - this is for a 2-D shotpoint record.
- c) A relation record - this details which receiver groups were being recorded at a specific shot.

In view of the large number of traces/receiver groups per shotpoint it is necessary to minimise storage. This is achieved by using only grid co-ordinates for trace positions, combining several traces in one record and by storing receiver group positions of onshore surveys only once.

It is assumed that this format is for the exchange of data from a single survey, and not for compiled databases including multiple surveys.

2. Tape specification

Half inch magnetic tape: IBM compatible
Number of tracks : 9
Number of bytes per inch: 6250 – standard
(1600 or 800 are permissible)
Mode : Coded EBCDIC or ASCII
Record Length : 80 bytes
Block Size : 8000 bytes
Blocks physically separated by inter-record gap.
(1600 bytes for 1600/800 bpi)

Disk specification

Format : MS-DOS IBM PC compatible
Size/Capacity/Density : 3.5 in / 720k / Double (1.4Mbtes since approx.
1992)
Mode : Coded ASCII
Record length : 80 bytes with CR/LF after character 80.

In the interest of standardisation 3.5 in x 720k (1.4Mbtes since approx. 1992) disks have been chosen as standard. Other formats and media are acceptable by prior arrangement between the affected parties e.g. client, contractor, broker.

File description

A tape or disk may contain one or more files depending on the type of survey. Each file is started by a number of “Header Records” followed by data records and closed by an EOF statement in col 1-3 of the final record.

A tape file is closed by one IBM file mark.
A tape must be closed by two IBM file marks.

Multiple lines per file are allowed, as long as all data and header records are consistent.

Tape and disk labelling

Each tape or disk should be adequately labelled so that its format and content can be readily ascertained. This labelling shall include, as a minimum :

SURVEY AREA/NAME : CONTRACTOR : SURVEY TYPE

TAPE DATA FORMAT : MODE : DENSITY : BLOCK SIZE : RECORD
e.g. IBM : EBCDIC : 6250 bpi : 8000 bytes : 80 bytes

DISK DATA FORMAT : MODE : DENSITY : CAPACITY : RECORD
e.g. MS-DOS : ASCII : DOUBLE : 720K : 80 bytes

3. Header record specification

General

Each file should start with a number of header records which contain information about, and parameters controlling, all of the data records which follow.

The general format for header record is :-

	<u>COLS</u>	<u>FORMAT</u>
a) Record Identifier "H"	1	A1
b) Header Record Type	2 – 3	I2
c) Header Record Type Modifier	4 – 5	I2
d) Parameter Description	6 – 32	A27
e) Parameter Data	33 – 80	See Below

Header record types 0100 to 0800 and 1200 to 2000 inclusive are mandatory for all surveys even if a "N/A" entry is required. Header record types 0900 and 1000 are additionally mandatory for all offshore surveys. Header record type 1100 is also mandatory for offshore 3-D surveys but is not needed for other surveys. Header records of types 2100 to 2500 are mandatory as far as they are applicable to the projection used.

Text fields should be left justified, and numeric fields right justified unless otherwise stated.

Configuration details

For multi vessel, multi source, multi streamer operations the format allows unique identification of each of these components.

Header records H0101, H0102, H0103, H0104 are used to define the survey details, and the source / streamer / tailbuoy configuration associated with each vessel.

For consistency, the following order convention has been adopted:

From Starboard, Top, Back through Front, Bottom, Port

e.g. Vessel 1 : Sources 2 : Streamers 3 (Stb Top & Btm, Port)

Vessel 2 : Sources 2 : Streamers 2 (mini, main)

		NAME	VESSEL ID	SRCE ID	STRMR ID	TB ID	OTHER ID
H0102	Vessel Details	M/V Oilfinder	1				
H0103	Source Details	Stb Source	1	1			
H0103	Source Details	Port Source	1	2			
H0104	Streamer Details	Stb Upper 240 ch	1		1	1	
H0104	Streamer Details	Stb Lower 240 ch	1		2	2	
H0104	Streamer Details	Port Cable 120 ch	1		3	3	
H0102	Vessel Details	M/V Dryhole	2				
H0103	Source Details	Stb Source	2	3			
H0103	Source Details	Port Source	2	4			
H0104	Streamer Details	Back main 190 ch	2		4	4	
H0104	Streamer Details	Front mini 20 ch	2		5	5	
H0105	Other Details	Front Nav. Float	2				1

Vessel Ids should be used for all survey details e.g. in H09XX

H0105 Other details can be used when a towed body, such as a float, is used for acoustic ranging. A full description should be put in H2600.

Line prefix

H0203 should be used only where the line name exceeds 12 characters.

Offset definitions

The offset code defines the type of offset data expected.

The code is 1 for polar data
2 for rectangular data

Code 1 : Polar : Offset A = radical distance from ship's reference point to the offset point.

Offset B = angle from ship's head (clockwise)

Code 2 : Rectangular:Offset A = X axis offset across ship's axis, positive to starboard.

Offset B = Y axis offset along ship's axis, positive towards the bows.

The units for linear and angular measurements are as described in H2000 and H2002.

Note that the offset orientation is always with the ship's head (gyro) and that the origin is the ship's reference point unless otherwise specified.

Datum and spheroid information

H1600 and H1601 require datum transformation parameters. These are defined by the Bursa-Wolfe Transformation model:

$$\begin{pmatrix} X \\ Y \\ Z \end{pmatrix}_{(2)} = \begin{pmatrix} DX \\ DY \\ DZ \end{pmatrix} + (\text{SCALE}) \begin{pmatrix} 1 & -RZ & +RY \\ +RZ & 1 & -RX \\ -RY & +RX & 1 \end{pmatrix} \cdot \begin{pmatrix} X \\ Y \\ Z \end{pmatrix}_{(1)}$$

where X, Y, Z are geocentric cartesian coordinates in metres,
 DX, DY, DZ are translation parameters in metres,
 RX, RY, RZ are clockwise rotations defined in arc secs, but
 converted to radians for use in formula,
 SCALE = [1 + S. (10e-6)] where S is in parts per million.

EXAMPLE: [For checking formula only.]

FROM	<u>Datum 1 : WGS72</u>	TO	<u>Datum 2 : WGS84</u>
Semi Major Axis a	6378135.0 metres		6378137.0 metres
1/f	298.26		298.257223563
Latitude	39 13 26.5782 N		39 13 26.6976 N
Longitude	98 32 32.2870 W		98 32 31.7330 W
Spheroidal Height :	570.88 metres		573.249 metres
X	-734985.205		-734972.229
Y	-4893185.191		-4893188.272
Z	4011976.605		4011982.012
DX	0.0		
DY	0.0		
DZ	+4.5 metres		
RX	0.0		
RY	0.0		
RZ	+0.554 arc secs = 0.000002686 radians		
S	+0.2263 ppm		

Vertical datum

Header record H1700 must specify the vertical datum

e.g. LAT Lowest Astronomic Tide
 MSL Mean Sea Level
 SL Sea Level
 ES Echo Sounder

The units of measurement are specified in H2001. These should, wherever possible, be consistent with the position data.

Depths will be referred to the coordinated data point, unless otherwise stated in header record H1700.

e.g. H1700 LAT : Centre of Source
 or H1700 SL : Echo Sounder

Header H2600 should be used to specify details of depth data reduction – e.g. tide / velocity / transducer correction.

Projection data

Projection data is specified in header records H1800 – H2509.

The following projection type codes have been defined:

- 001 - U.T.M. Northern Hemisphere
- 002 - U.T.M. Southern Hemisphere
- 003 - Transverse Mercator (North Orientated)
- 004 - Transverse Mercator (South Orientated)
- 005 - Lambert Conic Conformal, one standard parallel
- 006 - Lambert Conic Conformal, two standard parallels
- 007 - Mercator
- 008 - Cassini-Soldner
- 009 - Skew Orthomorphic
- 010 - Stereographic
- 011 - New Zealand Map Grid
- 999 - Any other projection or non-standard variation of the above projections.

Requirements for projection definition include the following header records:-

Transverse Mercator	2200	2301	2302	2401	2402				
U.T.M	1900	2200							
Oblique Mercator	2301	2302	2401	2402	2509	and	2506 or	2507	
							or	2508	
Lambert Conformal (1SP)	2100	2200	2301	2302	2401	2402			
Lambert Conformal (2SP)	2100	2200	2301	2302	2401	2402			
Stereographic	2301	2302	2401	2402					

Where a survey crosses the equator from South to North, and the whole survey is shot on a Southern hemisphere UTM zone, then coordinates may exceed 9,999,999.9. The format cannot accept this, so a warning note must be written to H2600 advising that 10,000,000 must be added to such coordinates.

Definition of units

H2000 Grid unit code is 1 for metres, 2 for any other unit.

H2001 Height unit code is 1 for metres, 2 for any other unit.

H2002 Angular unit code is 1 for degrees, 2 for grads.

Other relevant information

Header record type H2600 is a free format statement of any other relevant information such as base station coordinates and geodetic control, description of additional data in receiver group records, survey adjustments done/not done, misclosures etc. H2600 may be repeated as often as required.

Formats of parameter data fields for each of the header record types are: -

<u>TYPES</u>	<u>ITEM</u>	<u>COLS</u>	<u>FORMAT</u>
H0100	Description of survey area	33-80	A48
H0101	General survey details	33-80	A48
H0102	Vessel details – Name : Ids	33-76	A24 5(I4)
H0103	Source details – Name : Ids	33-76	A24 5(I4)
H0104	Streamer details – Description : Ids	33-76	A24 5(I4)
H0105	Other details – Descriptions : Ids	33-76	A24 5(I4)
H0200	Date of survey	33-80	A48
H0201	Date of issue of post-plot tape (d.m.y.)	33-80	A48
H0202	Tape version identifier	33-80	A48
H0203	Line prefix	33-80	A48
H0300	Details of client	33-80	A48
H0400	Details of geophysical contractor	33-80	A48
H0500	Details of positioning contractor	33-80	A48
H0600	Details of positioning processing contractor	33-80	A48
H0700	Descriptions of positioning and onboard computer system(s).	33-80	A48
H0800	Co-ordinate location e.g. centre of source	33-80	A48
H0900	Offset from ship system position to co-ordinate location – Vessel ID : Code : A : B	33-56	I4, I4 2 (F8.2)
H09XX	Other specified offsets e.g. antenna, XX in range 1-99 – Vessel ID : Code : A : B	33-56	I4, I4 2 (F8.2)
H1000	Clock time in respect of GMT (clock display in advance of GMT expressed as GMT + N hours)	33-80	A48
H1100	Number of receiver groups per shot	33-36	I4
H1400	Geodetic datum description as used for survey Datum name: Spheroid name: a : 1/f	33-80	2(A12) F12.3, F12.7
H1401	Transformation parameters for H1400 to WGS84 dx= :dy= :dz- :rx= :ry= :rz= :s=	33-78	3(F6.1) 3(F6.3), F10.7
H1500	Geodetic datum description as used for post Datum name : Spheroid name : a : 1/f	33-80	2(A12) F12.3, F12.7
H1501	Transformation parameters for H1500 to WGS84 3(F6.1) dx= :dy= :dz- :rx= :ry= :rz= :s=	33-78	3(F6.3), F10.7

H1510	Township system data flag (Type 2) and a description of the specific township used.	33-80	A6, A42
H1600	Transformation parameters between H1400 (Datum 1) and H1500 (Datum 2) dx= :dy= :dz- :rx= :ry= :rz= :s=	33-78	3(F6.1) 3(F6.3), F10.7
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.) A48	33-80	
H1910	For Township & Range, description of principal meridian	33-80	A48
H2000	Description of grid units - Code : Unit of measurement : Conversion factor to International Metres	33-72	I1, A24, F15.12
H2001	Description of height units – Code : Unit of measurement : Conversion factor to International Metres	33-72	I1, A24 F15.12
H2002	Descripton of angular units – Code : Unit of measurement	33-57	I1, A24
H2100	Latitude of standard parallel(s) (d.m.s. N/S) (grads N/S)	33-56	2(I3, I2 F6.3, A1) 2(F11.7, A1)
H2200	Longitude of central meridian (d.m.s. E/W) (grads E/W)	33-44	I3, I2 F6.3, A1) F11.7, A1
H2301	Grid origin (Latitude, Longitude, (d.m.s. N/E) (grads N/E)	33-56	2(I3,I2 F6.3, A1) 2(F11.7, A1)
H2302	Grid co-ordinates at grid origin (E,N)	33-56	2(F11.2 A1)
H2401	Scale factor	33-44	F12.10
H2402	Latitude/Longitude at which scale factor is defined (grads N/E)	33-56	2(I3, I2 F6.3, A1) 2(F11.7, A1)
H2506	Latitude/Longitude of two points defining initial line of projection (d.m.s.) (grads)	33-80	4(I3, I2 F6.3, A1) 4(F11.7,A1)
H2507	Circular bearing of initial line of projection (d.m.s.) (grads)	33-44	I3, I2 F7.4 F12.7

H2508	Quadrant bearing of initial line of projection (N/S, d.m.s., E/W) (N/S, grads, E/W)	33-44	A1, 2I2, F6.3, A1 A1, F10.7, A1
H2509	Angle from skew to rectified grid (d.m.s.) (grads)	33-44	I3, I2, F7.4 F12.7
H2600	Any other relevant information.	6-80	A74
N.B.	SEE HEADER RECORD SPECIFICATION (PAGES 4 TO 7) FOR DETAILED EXPLANATIONS OF HEADER INFORMATION.		

4. **Data record specification**

The data record will vary depending on the type of survey and the data content. The general content of offshore and onshore surveys is given separately. For conventional surveys a series of data records is required.

Where spare characters are available in the format, these can be used at the discretion of the client/contactor. The definition must then be included in H2600.

Two types of data record exist: Type 1 for coordinates quoted in terms of grid or graticule values, and Type 2 for those quoted as local offsets from Townships or Section Markers. A file may contain either Type 1 or Type 2 data records but not a mixture of both. If Type 2 data is present, then the flag must be set in header record H1510.

The Type 2 record applies only to some North American Onshore surveys.

Offshore surveys

Conventional 2-D Surveys:

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

When one parameter changes the complete header record should be rewritten.

Other surveys:

The data set contains one file. Following the header the position of the shotpoint is given in a data record and the positions of the receiver groups in "Receiver Group Records" immediately following the data record.

Onshore surveys

Conventional 2-D Surveys:

The data set consists of one file with data records. Each record contains data for one point ('shotpoint', 'cmp' etc. as specified in header record H0800).

Other surveys:

The data set consists of three files with an identical block of header records:

First File : Data records with positions of receiver groups.

Second File: Data records with positions of shotpoints

Third File : Relation records specifying for each shot the relation between recording channel numbers and receiver groups.

In order to avoid ambiguities, each physical position in the field (shotpoint or receiver group) must have a unique name.

TYPE 1 : GRID OR GEOGRAPHICAL COORDINATES

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>COL</u>	<u>FORMAT</u>
1.	Record identification "S" = Centre of Source "G" = Receiver Group "Q" = Bin Centre "A" = Antenna Position "T" = Tailbuoy Position "C" = Common Mid Point "V" = Vessel Reference Point "E" = Echo Sounder "Z" = Other, defined in H0800	1	A1
2.	Line name (left justified, including reshoot code)	2-13	A12
3.	Spare	14-16	A3
4.	Vessel ID	17	A1
5.	Source ID	18	A1
6.	Tailbuoy / Other ID	19	A1
7.	Point number (right justified)	20-25	A6
8.	Latitude (d.m.s. N/S) (grads N/S)	26-35	2(I2), F5.2, A1 F9.6, A1
9.	Longitude (d.m.s. E/W) (grads E/W)	36-46	I3, I2 F5.2, A1 F10.6, A1
10.	Map grid Easting (metres) (non metric)	47-55	F9.1 I9
11.	Map grid Northing (metres) (non metric)	56-64	F9.1 I9
12.	Water depth (datum defined in H1700) or elevation (non metric)	65-70	F6.1 I6
13.	Julian Day of year	71-73	I3
14.	Time (h.m.s., GMT or as stated in H1000)	74-79	3I2
15.	Spare	80	1X
16.	Applicable to 3-D Offshore Surveys – see ITEM 16 (over)	1-80	

ITEM 16. RECEIVER GROUP RECORDS (3-D OFFSHORE SURVEYS)

<u>ITEM</u>	<u>DESCRIPTIONS</u>	<u>COL</u>	<u>FORMAT</u>
16a	Record identification "R"	1	A1
16b	Receiver group number	2-5	I4
16c	Map grid Easting (metres) (non metric)	6-14	F9.1 I9
16d	Map grid Northing (metres) (non metric)	15-23	F9.1 I9
16e	Cable depth (metres) (or additional information as specified in H2600) (non metric)	24-27	F4.1 I4
16f	Receiver group number	28-31	I4
16g	Map grid Easting (metres) (non metric)	32-40	F9.1 I9
16h	Map grid Northing (metres) (non metric)	41-49	F9.1 I9
16i	Cable depth (etc.)	50-53	F4.1
16j	Receiver group number	54-57	I4
16k	Map grid Easting (metric) (non metric)	58-66	F9.1 I9
16l	Map grid Northing (metric) (non metric)	67-75	F9.1 I9
16m	Cable depth (etc.)	76-79	I4
16n	Streamer ID	80	I1

N.B. A cable 'depth' above the vertical datum (e.g. Transition Zone Survey) will be recorded as a negative value.

TYPE 2 : COORDINATE DATA AS LOCAL OFFSETS FROM TOWNSHIP/SECTION CORNERS

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>COL</u>	<u>FORMAT</u>
1.	Record type identifier, "L"	1	A1
2.	Line name (left justified) including reshoot code	2-13	A12
3.	Point number (right justified)	14-18	A5
4.	Suffix to point number for fractional intervals (plus chainages, decimals of SP interval or suffixes) or point descriptors (e.g. for skidded point, no hole etc.) as described in H2600 records.	19-21	A3
5.	Record identification "S" = Centre of Source "G" = Receiver Group "Q" = Bin Centre "A" = Antenna Position "T" = Tailbuoy Position "C" = Common Mid Point "V" = Vessel Reference Point "E" = Echo Sounder "Z" = Other, defined in H0800	22	A1
6.	Offset of point from ref. point in Northerly direction (N=+ve, S=-ve)	23-29	F7.1
7.	Offset of point from ref. point in Easterly direction (E=+ve, W=-ve)	30-36	F7.1
8.	Elevation or water depth	37-42	F6.1
9.	Reference point name	43-58	A16
10.	Reference point latitude (d.m.s. N/S)	59-68	I2, I2, F5.2, A1
11.	Reference point longitude (d.m.s. E/W)	69-79	I3,I2 F5.2, A1
12.	Spare	80	1X

RELATION RECORDS – (3-D ONSHORE SURVEYS)

This record type is used to define the relation between recording channels and receiver groups.

For each shotpoint there is at least one relation record. Each of these records specifies a section of consecutively numbered channels and receiver groups. After a numbering gap or a change in line name for the receiver groups a new relation record has to be given (see example).

Channel numbers should be in ascending order.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>COL</u>	<u>FORMAT</u>
1.	Record identification "X"	1	A1
2.	Line name of shotpoint (left justified)	2-17	A16
3.	Shotpoint number (right justified)	18-25	A8
4.	FROM: Channel Number	26-29	I4
5.	To: Channel Number	30-33	I4
6.	Line number of receiver group (left justified)	34-49	A8
7.	FROM: Receiver group number (right justified)	50-57	A8
8.	TO: Receiver group number	58-65	A8
9.	Spare	66-80	15X

APPENDIX I

Example of a Header Record for
an Offshore 2-D Seismic Survey.

EXAMPLE OF OFFSHORE 2-D SEISMIC SURVEY - DATA

0000000001111111111222222222333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890

S89-100	11	101214333.48N114	552.59E	510120.0	580276.0	250.5305170253	
S89-100	11	102214333.61N114	553.50E	510146.1	580280.2	250.9305170300	
S89-100	11	103214333.59N114	554.33E	510169.8	580279.5	252.1305170307	
S89-100	11	104214333.55N114	555.20E	510195.0	580278.3	256.3305170315	
S89-100	11	105214333.50N114	556.12E	510221.3	580276.5	257.1305170322	
S89-100	11	106214333.45N114	556.94E	510244.8	580275.2	255.8305170329	
S89-100	11	107214333.38N114	557.82E	510270.2	580273.1	256.9305170336	

S89-101A	11	10001212153.72N114	1157.73E	520650.0	540362.0	320.7307	12500
S89-101A	11	10002212152.12N114	1157.66E	520648.2	540335.3	325.6307	12507
S89-101A	11	10003212152.12N114	1157.49E	520643.5	540312.9	326.1307	12514
S89-101A	11	10004212151.40N114	1157.52E	520644.2	540287.1	328.7307	13521

EOF

0000000001111111111222222222333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890

APPENDIX II

Example of Data Record for an
Offshore 2-D Seismic Survey.

EXAMPLE OF AN OFFSHORE 2-D SEISMIC SURVEY

000000000111111111222222222233333333334444444444555555555566666666667777777777
 1234567890123456789012345678901234567890123456789012345678901234567890123456789

H0100	SURVEY AREA	SOUTH CHINA SEA UNIFIED AREA					
H0102	VESSEL DETAILS	M.V.CONTRACTOR				1	
H0103	SOURCE DETAILS	AIRGUN				1	1
H0104	STREAMER DETAILS	240 CHANNELS				1	1 1
H0200	SURVEY DATE	SEPTEMBER 1989 TO MARCH 1990					
H0201	TAPE DATE (D.M.Y.)	09.05.90					
H0202	TAPE VERSION	UKOOA P1/90-1990-TAPE1					
H0203	LINE PREFIX	GP/					
H0300	CLIENT	GROUP PARTICIPANTS					
H0400	GEOPHYSICAL CONTACTOR	CONTRACTOR A					
H0500	POSITIONING CONTRACTOR	CONTRACTOR B					
H0600	POSITIONING PROCESSING	CONTRACTOR A					
H0700	POSITIONING SYSTEM	ARGO DMS4, SATNAV/DOPPLER, CMS-II					
H0800	SHOTPOINT POSITION	CENTRE OF AIRGUN ARRAY					
H0900	OFFSET SHIP SYSTEM TO SP	1	2	0.00	-56.00		
H1000	CLOCK TIME	GMT					
H1400	GEODETTIC DATUM SURVEYED	WGS-72	BE	NWL10D	6378135.0	298.26	
H1401	TRANSFORMATION PARAMETERS	-5.0	6.0	27.0	0	0	0
H1500	GEODETTIC DATUM AS PLOTTED	TOKYO	BESSEL	1841	6377397.155	299.1528128	
H1501	TRANSFORMATION PARAMETERS	-145.0-510.0-646.0			0	0	0
H1600	DATUM SHIFTS	+140.0+516.0_673.0			0	0	0
H1700	VERTICAL DATUM	SL	ECHO SOUNDER				
H1800	PROJECTION	006 LAMBERT CONIC CONFORMAL WITH 2 S.P.					
H1900	ZONE	UNIFIED AREA					
H2000	GRID UNITS	1	INTERNATIONALMETRE	1.00			
H2001	HEIGHT UNITS	1	INTERNATIONALMETRE	1.00			
H2002	ANGULAR UNITS	1	DEGREES				
H2100	STANDARD PARALLELS	24 0 0.0	N	18 0 0.0	N		
H2200	CENTRAL MERIDIAN	114 0 0.0	E				
H2301	GRID ORIGIN	21 0 0.0	N	114 0 0.0	E		
H2302	GRID COORDINATES AT ORIGIN	500000.0	E	500000.0	N		
H2600	BASE STATION 1	231256.00	N	1164718.67	E		
H2600	BASE STATION 2	224443.94	N	1154903.81	E		
H2600	BASE STATION 3	224009.69	N	1144443.01	E		
H2600	BASE STATION 4	213709.73	N	1120008.01	E		
H2600	ARGO LANE WIDTH	92.190432 METRES					
H2600	DEPTH DATA REDUCTION	UNCORRECTED FOR TIDE OR VELOCITY					
H2600	DEPTH DATA REDUCTION	VELOCITY SET IN E/S = 1500 M/SEC					
H2600	DEPTH DATA REDUCTION	CORRECTED FOR TRANSDUCER DEPTH					

APPENDIX III

Example of a Header Record for
an Offshore 3-D Seismic Survey.

EXAMPLE OF AN OFFSHORE 3-D SURVEY

0000000001111111112222222222333333333344444444445555555555666666666677777777778
 12345678901234567890123456789012345678901234567890123456789012345678901234567890

H0100	SURVEY AREA	EXAMPLE FIELD UKCS BLOCKS 311/7 AND 311/2							
H0102	VESSEL DETAILS	M.V.CONTRACTOR	1						
H0102	VESSEL DETAILS	M.V.PROSPECTOR	2						
H0103	SOURCE DETAILS	STDB SOURCE	1	1					
H0103	SOURCE DETAILS	PORT SOURCE	1	2					
H0103	SOURCE DETAILS	STBD SOURCE	2	3					
H0103	SOURCE DETAILS	PORT SOURCE	2	4					
H0104	STREAMER DETAILS	STDB 240 CHANNEL	1	1	1				
H0104	STREAMER DETAILS	PORT 240 CHANNEL	1	2	2				
H0104	STREAMER DETAILS	STBD 120 CHANNEL	2	3	3				
H0104	STREAMER DETAILS	PORT 120 CHANNEL	2	4	4				
H0105	OTHER DETAILS	FRONT NAV. FLOAT	1						5
H0200	SURVEY DATE	JANUARY - FEBRUARY 1990							
H0201	TAPE DATE (D.M.Y.)	02.03.90							
H0202	TAPE VERSION	UKOOA P1/1990 - 1990 TAPE 2							
H0300	CLIENT	PETROLEUM PLC							
H0400	GEOPHYSICAL CONTRACTOR	A.N.OTHER							
H0500	POSITIONING CONTRACTOR	A.N.OTHER							
H0600	POSITIONING PROCESSING	XYZ LTD							
H0700	POSITIONING SYSTEM	PREIMARY SYSTEM HYPERFIX WITH SYLEDIS							
H0700		FOR CALIBRATION AND SECONDARY SYSTEM							
H0700		TAILBUOY POS'N BY DIFFERENTIAL PULSE 8							
H0800	SHOTPOINT POSITION	CENTRE OF SOURCE							
H0900	OFFSET SHIP SYSTEM TO SP	1 1 0.00 -150.00							
H0901	OFFSET ANTENNA TO SYSTEM	1 1 2.50 -3.00							
H0900	OFFSET SHIP SYSTEM TO SP	2 1 0.00 -150.00							
H0901	OFFSET ANTENNA TO SYSTEM	2 1 -1.50 2.10							
H1000	CLOCK TIME	GMT							
H1100	RECEIVER GROUPS PER SHOT	480							
H1400	GEODETC DATUM AS SURVEYED	ED50 INTERNAT1924	6378388.000	297.0					
H1401	TRANSFORMATION PARAMETERS	89.5 93.8 123.1 0.000	0.000	0.000	0.000	0.0			
H1500	GEODETC DATUM AS PLOTTED	ED50 INTERNAT1924	6378388.000	297.0					
H1501	TRANSFORMATION PARAMETERS	89.5 93.8 123.1 0.000	0.000	0.000	0.000	0.0			
H1600	DATUM SHIFTS	N/A							
H1601	DATUM SHIFTS	N/A							
H1700	VERTICAL DATUM	MSL CENTRE OF SOURCE							
H1800	PROJECTION	001 UTM							
H1900	ZONE	31 N							
H2000	GRID UNITS	1 INTERNATIONAL METRE	1.00						
H2001	HEIGHT UNITS	1 INTERNATIONAL METRE	1.00						
H2002	ANGULAR UNITS	1 DEGREES							
H2200	CENTRAL MERIDIAN	3 DEG							
H2600	STREAMER AND SOURCE POSITIONING BY LEAST SQUARES	ADJUSTMENT OF							
H2600	COMBINED NETWORK OF ACOUSTIC RANGES, COMPASSES AND LASER RANGE AND								
H2600	BEARING FROM EACH VESSEL. ACOUSTIC NETWORK ALSO USED TO POSITION TAIL OF								
H2600	STREAMERS. DEPTHS GIVEN IN SOURCE RECORD RELATE TO VESSEL								
H2600	FIRING THE SOURCE ARRAY. DEPTHS UNCORRECTED FOR DRAUGHT OR SPEED OF SOUND.								

0000000001111111112222222222333333333344444444445555555555666666666677777777778
 12345678901234567890123456789012345678901234567890123456789012345678901234567890

APPENDIX IV

Example of a Data Record for an
Offshore 3-D Seismic Survey.

EXAMPLE OF OFFSHORE 3-D SEISMIC SURVEY - DATA

000000000111111111122222222223333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890

V90-124 1 10151 145.98N 43442.86E 610700.05654400.0 311.5120134500
T90-124 1 1 10151 8.88N 43440.84E 610725.05651400.0 311.5120134500
T90-124 1 2 10151 8.92N 43438.28E 610675.05651400.0 311.5120134500
S90-124 11 10151 141.12N 43442.69E 610700.05654250.0 311.5120134500
R 1 610725.15654260.315.4 2 610725.85654272.815.8 3 610725.15654285.315.11
R 4 610725.75654297.815.0 5 610725.55654310.314.9 6 610725.85654322.815.41
R 94 610725.45655435.815.1 95 610725.85655448.315.2 96 610725.55655460.815.11
ETC
R 1 610675.15654260.315.0 2 610675.05654272.515.1 3 610675.85654485.315.32
R 94 610675.15655435.815.7 95 610675.55655448.315.6 96 610675.95655460.815.32
ETC
R 1 610625.05654260.015.4 2 610625.05654272.515.7 3 610625.05654285.015.23
ETC
R 1 610575.05654260.015.3 2 610575.05654272.515.6 3 610575.05654285.015.34
ETC
V90-124 2 10151 146.05N 43437.73E 610600.05654400.0 311.5120134500
T90-124 2 3 10151 8.95N 43435.71E 610625.05651400.0 311.5120134500
T90-124 2 4 10151 8.98N 43433.15E 610575.05651400.0 311.5120134500
ETC
ETC

EOF

000000000111111111122222222223333333333344444444445555555555666666666677777777778
12345678901234567890123456789012345678901234567890123456789012345678901234567890