U.K. OFFSHORE OPERATORS ASSOCIATION
(Surveying and Positioning Committee)

UKOOA DATA EXCHANGE FORMAT

P5/94

PIPELINE POSITION DATA

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Executive Summary

The P5/94 format is available to members to facilitate the exchange of pipeline, other subsea flowlines, umbilicals and power cables' position data.

Use of this format, which is a revision of the P5/86 format is not mandatory but it is strongly recommended that it be used wherever possible.

Comments and suggestions for improvement of the format are welcome and should be addressed to:

The Chairman
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UKOOA Data Exchange Format

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1. Introduction

UKOOA format P5/94 is intended to facilitate the exchange of position data for pipelines, flowlines, umbilicals and power cables offshore. (Collectively referred to here as pipelines). It allows the inclusion of some data in addition to pure coordinate data but is not intended to be used as an inventory of pipeline condition.

The data required for pipeline position are the Latitude and Longitude, Easting (E), Northing (N), Depth, Kilometre Point (KP), and feature where applicable, together with coordinate datum and projection parameters.

All coordinates within a file must be in a single coordinate system as given in the header records, i.e. if a pipeline crosses a grid zone boundary then a separate file for each zone is required. Similarly a separate file is required for each pipeline within a zone, i.e. if a feeder line is joined by tee-piece to a gathering line then one file is required for each pipeline.

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2. Media Specification

2.1 Tape

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)

2.2 Disk

Format	:	MS-DOS IBM PC Compatible
Size/Capacity/Density	:	3.5 in / 1.4MB / Double
Mode	:	Coded ASCII
Record Length	:	80 bytes with CR/LF after character 80.

In the interest of standardisation 3.5 x 1.4MB disks have been chosen as standard. Other formats and media are acceptable by prior arrangement between the affected parties.

Where floppy disks are used the filename should be the pipeline number e.g. PL999.UKA.

2.3 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: -

PIPELINE NUMBER AND NAME

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	: 720 k	: 80 bytes

Variations in the above specification may be allowed but only with the express agreement of all parties involved in the data exchange. In any event the tape reel should always be labelled with the specifications of the stored data.

Each pipeline shall form a logical file which shall consist of a complete set of "Header Records" followed by "Data Records". An EOF statement followed by an IBM file mark should be written at the end of a file.

In general a tape may consist of one or more files, and a tape should be closed by two IBM file marks.

3. Header Record Specification

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

TYPES	ITEM	COLS	FORMAT
H31	"Name of pipeline:" Pipeline name (from - to)	5-21 33-80	A17 A48
H32	"Diameter of pipeline:" Pipeline diameter, e.g. 12 inch	5-25 33-80	A21 A48
H33	"Fluid in pipeline:" Pipeline contents (Oil/gas/condensate/water)	5-22 33-80	A18 A48
H34	"Pipeline operator:" Name of pipeline operator	5-22 33-80	A18 A48
H35	"Date of issue of tape:" Tape issue date (dd mm yyyy)	5-26 33-42	A22 2(I2,X),I4
H36X	"Positioning Contractor:" Details of positioning contractor	5-27 33-80	A23 A48
H37X	"Date of Survey:" Date survey carried out (mm yyyy)	5-19 33-39	A15 I2,X,I4
H38X	"Positioning system:" Description of positioning system	5-23 33-80	A19 A48
H39X	"KP Range for Survey:" KP limits of data for particular survey	5-22 33-48	A18 2F8.3
H40X	"Scale of Digitisation:" Chart scale if coordinates produced by digitisation	5-26 33-80	A22 A48
H411	"KP Origin:" Description KP origin	5-14 33-80	A10 A48
H412	"KP Origin Grid Coords:" KP origin grid coords (East, North) Grid description if different from file	5-26 33-56 57-80	A22 2(F11.2, A1) A24

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TYPES	ITEM	COLS	FORMAT
H413	"KP Origin Lat/Long:"	5-23	A19
	KP origin coords (Lat, Long)	33-56	2 (I3, I2, F6.3, A1)
H42	"Spheroid:"	5-13	A9
	Definition of spheroid used for data	33-56	A24
	(name, semi-major axis, reciprocal	57-68	F12.3
	flattening 1/f)	69-80	F12.7
H43	"Geodetic datum:"	5-19	A15
	Geodetic datum description	33-80	A48
H44	"Vertical datum:"	5-19	A15
	Description of vertical datum for		
	water depths (offshore survey) or		
	elevations (onshore survey)	33-80	A48
H45	"Projection type:"	5-20	A16
	Type of projection	33-80	A48
H46	"Projection zone:"	5-20	A16
	Projection zone (including		
	hemisphere for UTM)	33-80	A48
H47	"Grid units: "	5-15	A11
	Description of grid units	33-56	A24
H48	"Standard parallel(s):"	5-25	A21
	Latitude of standard parallels	33-56	2(I3, I2,
	(d.m.s N/S)		F6.3, A1)
H49	"Central meridian:"	5-21	A17
	Longitude of c.m. (d.m.s E/W)	33-44	I3, I2, F6.3, A1
H501	"Grid Origin:"	5-16	A12
	Grid origin (Latitude, Longitude,	33-56	2(I3, I2, F6.3, A1)
	d.m.s hemisphere)		
H502	"Coordinates at grid origin:"	5-31	A27
	Grid coordinates at grid origin (E, N)	33-56	2(F11.2, A1)
H511	" Scale factor:"	5-17	A13
	Scale factor at point given in H512	33-44	F12.10

TYPES	ITEM	COLS	FORMAT
H512	"Scale origin" Latitude/longitude at which scale factor is defined (d.m.s/hemisphere)	5-17 33-56	A13 2(I3, I2, F6.3, A1)
H526	"Initial line of projection:" Latitude/Longitude of two points defining initial line of projection	5-31 33-56	A27 4(I3, I2, F6.3, A1)
H527	"Bearing of initial line:" Circular bearing of initial line of projection (d.m.s)	5-28 33-44	A24 I3, I2, F7.4
H528	"Bearing of initial line:" Quadrant bearing, of initial line of projection (N/S, d.m.s, E/W)	5-28 33-44	A24 A1, 2I2, F6.3, A1
H529	"Skew angle:" Angle from skew to rectified grid (d.m.s)	5-15 33-44	A11 I3, I2, F7.4
· H53	Any other relevant information	5-80	A76

Notes   Columns 1 to 4 of each Header Record are devoted to code for "type" of header e.g. H42, H501 etc.

Header "types" H36X to H40X may be repeated to cater for different sections of pipeline surveyed at different times or with different positioning systems, or derived by digitisation. (X in the range 1 to 9) e.g. H361 to H401 may be first survey whilst H362 to H402 may be a second survey etc. H40X should be set to 1 if not applicable.

Header record H53 may be repeated as often as necessary.

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4. Data Record Specification

The general format for a data record is as follows:

Item	Description	Col	Format
1.	Record Identification for pipeline = "P"	1	A1
2.	Pipeline Identification Number e.g. PL999	2-17	A16
3.	Kilometre Post (KP) in kilometres to nearest metre	18-25	F8.3
4.	Latitude (d.m.s N/S)	26-35	I2, I2, F5.2, A1
5.	Longitude (d.m.s E/W)	36-46	I3, I2, F5.2, A1
6.	Map Grid Easting (metres)	47-55	F9.1
7.	Map Grid Northing (metres)	56-64	F9.1
8.	Water depth in metres to local seabed level (datum defined in header)	65-70	F6.1
9.	Feature code	71-73	I3
I 0.	Buried (B) / Exposed (E) Indicator	74	A1
11.	Trenched (T) / Untrenched (U) Indicator	75	A1
12.	Coordinate accuracy factor (metres)	76-79	I3
13.	Blank	80	

Notes Item 3. If KP distances are not computed for a particular pipeline columns 18-25 should be left blank.

Item 9. Features are identified by a three figure code as given in list below. Feature code can be extended but only by mutual agreement between parties involved in data exchange.

Item 12. An estimate of the absolute accuracy of the surveyed feature should be supplied since this will assist in planning future operations. Positional accuracy will obviously depend on methods employed to survey the pipeline and its features.

Feature Code	Feature Description
000	Pipeline Position
001	Spool Piece
002	500 m point from platform
003	T piece
310	Debris
500	Anode
501	Buckle Arrester
502	Pipe bend
503	Flange
504	Valve
505	Protective structure (igloo)
506	Pipe clamp
507	Mechanical Connector
508	Other pipeline crossing over
509	Other pipeline crossing under
510	Grout Bag Support
511	Grout mattress
512	Anchor or saddle block
513	Remote CP potential monitor
514	Anode assembly (frame anode)
700	Other
701	Anchor scar
800	Field joint

Each feature must be assigned the most relevant code.

5. End of File Record

Each file is terminated by an EOF statement in columns 1 - 3 followed by an IBM file mark or two IBM file marks if also end of tape.

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