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Guidance on Practice for Route Selection for Pipelines

GP 43-10

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of BP Engineering Technical Practice (ETP) BP GP 43-10. This document will be updated on a periodic basis to include new BP experiences and any additional mandatory requirements. This is not a standalone document; it must be used in accordance with the requirements of ETP document PR 43: Status of ETP Pipeline Documents. In addition to the requirements for this document, those of relevant BP group standards such as getting HSE right policy (gHSEr) and Process Safety/Integrity Management standard (PS/IM) must also be fulfilled.

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Introduction

This BP Engineering Technical Practice (ETP) GP 43-10 Route data acquisition and route selection for pipelines provides an overview of the issues to be considered while routing a pipeline and provides a guideline for defining route data acquisition requirements to support the route development efforts. This document is applicable to both onshore and offshore pipelines. This document shall be used in conjunction with other Guidance on Practice (GP) documents to fully determine complete requirements.

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1. Scope

This GP describes the key influences affecting the selection of preferred and alternative pipeline routes and the acquisition of data that influence the route selection process without regard to geographical location. Routing considerations include design, construction, operation, maintenance, routine inspection, and abandonment of a pipeline. Public safety and environmental protection are of utmost importance.

Not all topics and issues addressed herein are applicable to each and every pipeline project as routing considerations may vary depending on the nature of the project including geographical location and the specific requirements of the national and/or local regulatory authorities. Detailed design and constructability issues are addressed only if such issues impact the route selection process.

Pipeline systems are generally addressed in GP 43-00 and detailed design and construction issues are discussed in GP 43-01 for on-shore pipelines and GP 43-02 for offshore pipelines. These and other issues are more fully covered by other GP documents listed in Clause 2.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, based on this GP parties are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP

GP 43-00	Guidance on Practice for pipeline systems.
GP 43-01	Guidance on Practice for Principals of onshore pipeline design and construction.
GP 43-02	Guidance on Practice for Principals of offshore pipeline design and construction.
GP 43-07	Guidance on Practice for Selection of design basis for pipelines.
GP 43-08	Guidance on Industry Standard for Selection and use of industry codes and standards for pipelines.
GP 43-09	Guidance on Practice for Hydraulic design of pipelines.
GP 43-13	Guidance on Practice for Cost and Schedule estimation and reporting for pipelines.
GP 43-16	Guidance on Practice for Regulatory approvals for pipelines.
GP 43-17	Guidance on Practice for Risk management for pipelines.
GP 43-20	Guidance on Practice for Onshore pipeline design.
GP 43-21	Guidance on Practice for Offshore pipeline design and construction.
GP 43-23	Guidance on Practice for Facilities for pipelines.
GP 43-24	Guidance on Practice for GIS and mapping for pipelines.
GP 43-27	Guidance on Practice for Terrain evaluation and ground hazard assessment for pipelines.
GP 43-28	Guidance on Practice for Crossings for pipelines.
GP 43-40	Guidance on Practice for Onshore construction engineering issues for pipelines.
GP 43-42	Guidance on Practice for Construction HSE practices for pipelines.
GP 43-43	Guidance on Practice for Construction camp requirements for pipelines.



GP 43-44	Guidance on Practice for Pipeline construction in fragile environments.
GP 43-45	Guidance on Practice for Site restoration for pipelines.
GP 43-50	Guidance on Practice for Operational pigging considerations.
GP 43-55	Guidance on Practice for Pipeline Right-of-way management.

British Standards Institution (BSI)

BS 5930	Code of Practice for Site Investigation.
BS 8010-1	Code of Practice for Pipelines – Part 1: Pipelines on Land: General
BS 8010; Section 2.8	Code of Practice for Pipelines – Part 2: Pipelines on land: design, construction and installation
BS 8010-3	Code of Practice for Pipelines – Part 2: Pipelines subsea: design, construction and installation

U.S. Department of Transportation, Research & Special Programs Administration

CFR Title 49, Part 192	Transportation of Natural and Other Gas by Pipeline: Minimum National Safety Standards National Register
CFR Title 49, Part 195	Transportation of Hazardous Liquids by Pipeline: Minimum National Safety Standards National Register

International Standards Organization (ISO)

ISO 13623	Petroleum and natural gas industries – Pipeline transportation systems. Annex A – Safety evaluation of pipelines. Annex B – Supplementary requirements for public safety of pipelines for category D and E fluids on land. Annex C – Pipeline route selection process.
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3. Terms and definitions

For the purposes of this GP, the following terms and definitions apply:

Internal Design Pressure

Maximum internal pressure at which the pipeline or Clause thereof is designed in compliance with the applicable regulation

Fabricated assembly

Grouping of pipe and components assembled as a unit and installed as a subunit of a pipeline

Location class

Geographic area classified according to criteria based on population density

Maximum allowable operating pressure

Maximum pressure at which a pipeline system, or parts thereof, is allowed to be operated

Offshore pipeline

Pipeline laid in maritime waters and estuaries seaward of the ordinary high water mark

Pipeline

Those facilities through which fluids are conveyed, including pipe, pig traps, components and appurtenances, up to and including the isolation valves



Onshore pipeline

Pipelines laid on or in land, including lines laid under inland water ways

Pipeline system

Pipeline with compressor or pump stations, pressure control stations, flow control stations, metering, tankage, supervisory control and data acquisition system (SCADA), and any other equipment, facility or building used in the transportation of fluids

Right-of-way

Corridor of land within which the pipeline operator has the right to conduct activities in accordance with the agreement(s) with the landowner(s)

Sour gas

Natural gas containing hydrogen sulphide gas or carbon dioxide

4. Symbols and abbreviations

For the purpose of this GP, the following symbols and abbreviations apply:

CZM	Coastal Zone Management
DGPS	Differential Global Positioning System
DOT	U.S. Department of Transportation
gHSEr	BP's Getting HSE Right Policy
GIS	Geographic Information System
GPS	Global Positioning System
NOAA	National Oceanic & Atmospheric Administration
PDOP	Position Dilution of Precision
PS/IM	BP's Process Safety/Integrity Management Standard
RTK	Real Time Kinematics
SHIPO	State Historical Preservation Officer
SOLAS	Safety of Life at Sea

5. Pipeline design requisites**5.1. General**

- a. If the country(ies) or local region(s) in which the pipeline is to be installed do not have specific design regulations, then the design of the pipeline system shall be in accordance with ISO 13623 and BP's Guidance on Practice documents.

Pipeline design requirements may vary depending on the nature of the pipeline system being designed and the geographic location in which it will be installed. Pipeline design considerations are addressed in detail in GP 43-01, GP 43-02, GP 43-20, GP 43-21, GP 43-40, and GP 43-41. Additionally, design considerations

