

DEP SPECIFICATION

PRECOMMISSIONING OF PIPELINES

DEP 31.40.50.30-Gen.

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DESIGN AND ENGINEERING PRACTICE



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All administrative queries should be directed to the DEP Administrator in Shell GSI.

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1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements for the dewatering, cleaning, drying and preservation of pipelines. These activities are termed pre-commissioning and may be necessary to prevent unacceptable internal corrosion and fluid contamination during commissioning and operation of the pipeline.

The requirements for preparing the pre-commissioning work, the health, safety and environmental precautions, and the equipment and media are also specified in this DEP.

This DEP should be used as a technical specification to be incorporated into a pre-commissioning or construction contract. The Principal is responsible for providing in the scope of work, the relevant pipeline and hydrotest water data and defining the activities to be performed, media to be used and other requirements as stated in this DEP.

This DEP is applicable to onshore and offshore carbon steel pipelines, flow coated and non-flow coated, and GRP/GRE pipelines which have passed the hydrostatic pressure test and are filled with the hydrotest water. Appendix A specifies the additional requirements for duplex stainless steel pipelines and pipelines with internal CRA steel cladding.

This DEP is not applicable to commissioning activities.

NOTES: 1) Activities requiring the introduction into the pipeline of fluid to be conveyed become part of commissioning. Relevant requirements of this DEP may be incorporated in the commissioning procedure.

2) Methanol swabbing shall only be performed with the final product as a driving medium.

This is a revision of the DEP of the same number dated September 2011; see (1.5) regarding the changes.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorization to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to oil refineries, chemical plants, gas plants and exploration and production facilities and supply/distribution installations. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process should be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regards to the safety, environmental, economic and legal aspects. In all cases the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Contractor** is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party that manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicate a requirement.

The word **should** indicate a recommendation.

The word **may** indicates a permitted option.

1.3.2 Specific definitions

Term	Definition
Commissioning	Activity where the fluid to be transported is initially introduced into the pipeline.
Equipment	All temporary fittings, piping, pumps, compressors, pigs, materials and consumables used in pre-commissioning of the pipeline.
Final cleaning	Cleaning of the pipeline and its components beyond that carried out as part of the hydrostatic testing activities specified in DEP 31.40.40.38-Gen
Fluid	Fluid(s) to be conveyed in the pipeline during operation.
Golden weld	Weld that is not subjected to a hydrostatic pressure test and is therefore subjected to additional non-destructive inspection.
Hydrostatic pressure test	That part of the testing operations where the pipeline is pressurised. The hydrostatic pressure test includes a strength test and a leak tightness test.
Isolation valve	Valve used for interrupting the flow or isolating one section of a pipeline from an adjacent section or a facility connected to the pipeline. An isolation valve is normally either fully opened or fully closed. Also referred to as a block valve.
Key personnel	Personnel appointed and specially named by the Contractor to be in full charge of all pre-commissioning operations.
Pipeline	Section of a system of pipes and other components or the entire system used for the transport of fluids, between plants. A pipeline extends from pig trap to pig trap (including the pig traps), or, if no pig trap is fitted, to the first isolation valve within the plant.
Pre-commissioning	Series of activities that can include fresh water swabbing, dewatering, final cleaning and drying to prepare the pipeline internally for commissioning.
Pre-commissioning plan	Contractor's plan for the preparation and execution of pre-commissioning activities including the equipment to be used.
Scope of work	Part of a contract which states the overall scope of pre-commissioning operations.
Shore (A)	A measure of hardness for rubbers/elastomers. The higher the number the greater the resistance to indentation.
Sleeping pig	Pig present in the pipeline at the commencement of pre-commissioning.

1.3.3 ABBREVIATIONS

Term	Definition
CRA	Corrosion Resistant Alloy
GRP/GRE	Glass-fibre Reinforced Plastics / Glass-fibre Reinforced Epoxy
MAOP	Maximum Allowable Operating Pressure

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets. Other documents referenced by this DEP are listed in (10).

1.5 SUMMARY OF MAIN CHANGES

Section/Clause	Change
All	Restructured and clarified requirements, enforced shall/should.

1.6 COMMENTS ON THIS DEP

Comments on this DEP may be submitted to the Administrator using one of the following options:

Shell DEPs Online (Users with access to Shell DEPs Online)	Enter the Shell DEPs Online system at https://www.shelldeps.com Select a DEP and then go to the details screen for that DEP. Click on the "Give feedback" link, fill in the online form and submit.
DEP Feedback System (Users with access to Shell Wide Web)	Enter comments directly in the DEP Feedback System which is accessible from the Technical Standards Portal http://www.shell.com/standards . Select "Submit DEP Feedback", fill in the online form and submit.
DEP Standard Form (other users)	Use DEP Standard Form 00.00.05.80-Gen. to record feedback and email the form to the Administrator at standards@shell.com .

Feedback that has been registered in the DEP Feedback System by using one of the above options will be reviewed by the DEP Custodian for potential improvements to the DEP.

1.7 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

1.8 NON NORMATIVE TEXT (COMMENTARY)

Text shown in italic style in this DEP indicates text that is non-normative and is provided as explanation or background information only.

Non-normative text is normally indented slightly to the right of the relevant DEP clause.

1.9 ACTION ITEMS

An (S) in the margin is shown when the Principal is required to make a decision or to give the particular specification value of a parameter.

NOTE: If the Principal's decision is only required under certain circumstances, this is not shown by a margin marker.

An (A) in the margin is shown when the Contractor is required to obtain the Principal's approval for a particular action or procedure.

NOTE: Most, if not all, of these approvals are normally part of the test procedure which has to be approved by the Principal prior to the commencement of the hydrostatic testing operations.

2. GENERAL REQUIREMENTS

2.1 BASIC REQUIREMENTS

1. (S) The Contractor shall perform the pre-commissioning in accordance with the requirements of the scope of work and this DEP. The scope of work shall take precedence in case of conflict between the requirements of this DEP and the scope of work.
2. Hydrotest water and all water required for the pre-commissioning shall be supplied and disposed of in accordance with DEP 31.40.40.38-Gen.
3. Media other than water that will be introduced into the pipeline for pre-commissioning shall meet the following requirements:
 - a. they shall be clean and free of oil;
 - b. they shall not have any detrimental impact on the pipeline materials, including internal coating, if applicable;
 - c. nitrogen, methanol and glycol shall have a purity of at least 99%;
 - d. the temperature of the media when entering the pipeline shall not be less than 0°C or the minimum pipeline design temperature, whichever is the highest, and not more than 50°C or the maximum pipeline design temperature, whichever is the lowest.

2.2 PRECOMMISSIONING PLAN

1. (A) The Contractor shall execute the work in accordance with the pre-commissioning plan approved by the Principal before commencement of the work.
2. The pre-commissioning plan shall include the following as a minimum:
 - a. an outline description of the required pre-commissioning work including sequence of activities and programme. For the individual activities, the programme includes the start and completion dates, and the dates of mobilisation and demobilisation of equipment, personnel and supplies to the work sites;
 - b. a procedure for each main activity covering:
 - i. a step by step description of the work;
 - ii. description of the required personnel, equipment and consumables, certification, monitoring, records and verifications;
 - iii. location and layouts with hazardous area classifications for equipment and supplies, including water supply and disposal facilities;
 - iv. calculations and any other evidence necessary to demonstrate that the work will be executed in accordance with project specific requirements.
 - c. contingency procedure(s) for the removal of stuck pigs;
 - d. the "Table of Contents" for the "Final Pre-commissioning Report" with sample copies of Contractor's standard forms and sheets.