

DEP SPECIFICATION

EMERGENCY DEPRESSURING AND SECTIONALISING

DEP 80.45.10.12-Gen.

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DESIGN AND ENGINEERING PRACTICE

DEM1



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TABLE OF CONTENTS

1.	INTRODUCTION	4
1.1	SCOPE	4
1.2	DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS	4
1.3	DEFINITIONS	4
1.4	CROSS REFERENCES	5
1.5	SUMMARY OF MAIN CHANGES.....	6
1.6	COMMENTS ON THIS DEP	6
1.7	DUAL UNITS.....	7
1.8	NON NORMATIVE TEXT (COMMENTARY).....	7
2.	EMERGENCY DEPRESSURING SYSTEMS	8
2.1	OBJECTIVES.....	8
2.2	DEPRESSURING DESIGN CRITERIA	8
2.3	APPLICATIONS FOR EMERGENCY DEPRESSURING.....	9
2.4	ACTIVATION	10
2.5	AVAILABILITY	11
2.6	DESIGN	11
2.7	BRITTLE FRACTURE	13
2.8	PRESSURE ASSUMPTIONS FOR VALVE SIZING	13
2.9	SIZING FOR FIRE CASE	13
2.10	SIZING FOR NON-FIRE CASE	14
2.11	VALVE LOCATION	15
2.12	HARDWARE	15
3.	SECTIONALISING OF PROCESS SYSTEMS FOR EMERGENCY DEPRESSURING	16
3.1	GENERAL.....	16
3.2	EXTENT OF SECTIONALISING	16
3.3	OPERATION.....	17
3.4	SECTIONALISATION VALVES	17
3.5	DOCUMENTATION	18
4.	REFERENCES	19

1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for emergency depressuring, and sectionalising.

For the instrumentation and configuration of depressuring systems reference is made to DEP 32.45.10.10-Gen.

This DEP contains mandatory requirements to mitigate process safety risks in accordance with Design Engineering Manual (DEM) 1 – Application of Technical Standards.

This is a revision of the DEP of the same number dated February 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 authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to oil and gas production, gas handling, oil refining, chemical processing, gasification, distribution and supply/marketing. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall 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** indicates a requirement.

The capitalised term **SHALL [PS]** indicates a process safety requirement.

The word **should** indicates a recommendation.

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

1.3.2 Specific definitions

Term	Definition
Blowdown	Liquid de-inventory and depressurization of a plant or part of a plant, and equipment usually via liquid dump valves Some documents and standards have used the term "blowdown" to mean vapour depressuring.
Depressuring	Depressurization of a plant or part of a plant, and equipment usually via vapour depressuring valves.
Pressure, temperature and toxicity terms	Refer to DEP 01.00.01.30-Gen.
Project's Design Philosophy	Project documents such as Fire and Explosion Strategy, Emergency Response Strategy, HSE Philosophy, etc. that would define the high level HSE related design requirements. This philosophy could affect emergency depressuring and sectionalisation system applications and design.
Sectionalising	Isolating sections of a unit to limit the volume that is exposed to leaks, thereby making depressuring more effective.

1.3.3 Abbreviations

Term	Definition
ALARP	As Low As Reasonably Practicable
BLEVE	Boiling Liquid Expanding Vapour Explosion
Cd	coefficients of discharge
EDV	Emergency Depressuring Valve
ESD	Emergency Shutdown
IPF	Instrumented Protective Function, now known as SIF (Safety Instrumented Function)
PRV	Pressure Relief Valve
SIF	Safety Instrumented Function (also referred to as IPF in Shell DEPs)
SIL	Safety Integrity Level

1.4 CROSS REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section or clause number is shown in brackets (). Other documents referenced by this DEP are listed in (4).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a full revision of the DEP of the same number dated February 2011. The following are the main, non-editorial changes.

Section/Clause	Change
General	Removed sections that are defined in DEP 32.45.10.10-Gen.
General	Reorganized order of content and rationalized requirements
2.3.1.1	Increased SHALL [PS] volume criteria from 4 m ³ to 20 m ³ (706 ft ³) for on-shore BLEVE protection.
2.3.1.2	Added a criteria for equipment that can create a vapour volume exceeding 5000 m ³ (175,000 ft ³)
2.2.2	Made it clearer that depressuring criteria can be performance based. Added details for determining acceptability of a performance based criteria.
2.2.3	Defined that low rate depressuring can be specified by process engineering
2.3.4	Revised other-applications section
2.6, Item 4	Expanded design requirements for piping and equipment related to high velocities, brittle fracture, etc.
2.7	Reworded brittle fracture section
2.8	Added section for pressure assumptions to use in valve sizing.

1.6 COMMENTS ON THIS DEP

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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://swwww.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.