

DEP SPECIFICATION

PROCEDURE FOR GLOBAL TECHNICAL STANDARDS PUBLICATIONS

DEP 00.00.00.30-Gen.

February 2017

ECCN EAR99

DESIGN AND ENGINEERING PRACTICE



© 2017 Shell Group of companies
All rights reserved. No part of this document may be reproduced, stored in a retrieval system, published or transmitted, in any form or by any means, without the prior written permission of the copyright owner or Shell Global Solutions International BV.

This document contains information that is classified as EAR99 and, as a consequence, can neither be exported nor re-exported to any country which is under an embargo of the U.S. government pursuant to Part 746 of the Export Administration Regulations (15 C.F.R. Part 746) nor can be made available to any national of such country. In addition, the information in this document cannot be exported nor re-exported to an end-user or for an end-use that is prohibited by Part 744 of the Export Administration Regulations (15 C.F.R. Part 744).

This document has been supplied under license by Shell to:
UOP Honeywell ted.fuger@honeywell.com 19/01/2018 05:36:11

AVA Documents
Document Sharing Hub

PREFACE

DEP (Design and Engineering Practice) publications reflect the views, at the time of publication, of Shell Global Solutions International B.V. (Shell GSI) and, in some cases, of other Shell Companies.

These views are based on the experience acquired during involvement with the design, construction, operation and maintenance of processing units and facilities. Where deemed appropriate DEPs are based on, or reference international, regional, national and industry standards.

The objective is to set the standard for good design and engineering practice to be applied by Shell companies in oil and gas production, oil refining, gas handling, gasification, chemical processing, or any other such facility, and thereby to help achieve maximum technical and economic benefit from standardization.

The information set forth in these publications is provided to Shell companies for their consideration and decision to implement. This is of particular importance where DEPs may not cover every requirement or diversity of condition at each locality. The system of DEPs is expected to be sufficiently flexible to allow individual Operating Units to adapt the information set forth in DEPs to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use DEPs, they shall be solely responsible for such use, including the quality of their work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Principal will typically expect them to follow those design and engineering practices that will achieve at least the same level of integrity as reflected in the DEPs. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the Principal.

The right to obtain and to use DEPs is restricted, and is typically granted by Shell GSI (and in some cases by other Shell Companies) under a Service Agreement or a License Agreement. This right is granted primarily to Shell companies and other companies receiving technical advice and services from Shell GSI or another Shell Company. Consequently, three categories of users of DEPs can be distinguished:

- 1) Operating Units having a Service Agreement with Shell GSI or another Shell Company. The use of DEPs by these Operating Units is subject in all respects to the terms and conditions of the relevant Service Agreement.
- 2) Other parties who are authorised to use DEPs subject to appropriate contractual arrangements (whether as part of a Service Agreement or otherwise).
- 3) Contractors/subcontractors and Manufacturers/Suppliers under a contract with users referred to under 1) or 2) which requires that tenders for projects, materials supplied or - generally - work performed on behalf of the said users comply with the relevant standards.

Subject to any particular terms and conditions as may be set forth in specific agreements with users, Shell GSI disclaims any liability of whatsoever nature for any damage (including injury or death) suffered by any company or person whomsoever as a result of or in connection with the use, application or implementation of any DEP, combination of DEPs or any part thereof, even if it is wholly or partly caused by negligence on the part of Shell GSI or other Shell Company. The benefit of this disclaimer shall inure in all respects to Shell GSI and/or any Shell Company, or companies affiliated to these companies, that may issue DEPs or advise or require the use of DEPs.

Without prejudice to any specific terms in respect of confidentiality under relevant contractual arrangements, DEPs shall not, without the prior written consent of Shell GSI, be disclosed by users to any company or person whomsoever and the DEPs shall be used exclusively for the purpose for which they have been provided to the user. They shall be returned after use, including any copies which shall only be made by users with the express prior written consent of Shell GSI. The copyright of DEPs vests in Shell Group of companies. Users shall arrange for DEPs to be held in safe custody and Shell GSI may at any time require information satisfactory to them in order to ascertain how users implement this requirement.

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

TABLE OF CONTENTS

1.	INTRODUCTION	5
1.1	SCOPE.....	5
1.2	DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS	5
1.3	DEFINITIONS	5
1.4	CROSS-REFERENCES	8
1.5	SUMMARY OF MAIN CHANGES.....	8
1.6	COMMENTS ON THIS DEP	9
1.7	NON NORMATIVE TEXT (COMMENTARY).....	9
2.	POLICY, GOVERNANCE AND STANDARDS STRUCTURE.....	10
2.1	POLICY	10
2.2	USER INVOLVEMENT	10
2.3	PROJECT EXECUTION COMMUNITY	11
2.4	CONTRACTOR AND MANUFACTURER/SUPPLIER INVOLVEMENT	11
2.5	STANDARDS STRUCTURE.....	11
2.6	TYPES OF DEPS	12
2.7	OTHER GLOBAL TECHNICAL STANDARDS	13
2.8	PHASES IN DEP PROCESSING	14
2.9	CONTENT OF DEPS AND OTHER TECHNICAL STANDARDS.....	14
3.	PLANNING CYCLE	14
3.1	GENERAL	14
3.2	OPERATING PLANS	14
3.3	PROPOSAL FOR TECHNICAL STANDARDS WORK	15
4.	WRITING NEW AND UPDATING STANDARDS.....	15
4.1	GENERAL	15
4.2	INITIAL DRAFT	15
4.3	COMMENT ROUND	16
4.4	SECOND DRAFT	16
4.5	APPROVAL.....	17
4.6	DISTRIBUTION.....	17
4.7	DEP FEEDBACK	17
4.8	PROGRESS AND EXPENDITURE MONITORING	18
4.9	FILE NAMING CONVENTIONS.....	18
5.	MAINTENANCE	19
5.1	GENERAL	19
5.2	APPLICATION OF PROJECT TECHNICAL SPECIFICATIONS.....	19
5.3	REVISION OF EXISTING DEPS	20
5.4	PROCEDURE FOR WITHDRAWAL, DEACTIVATION OR REAFFIRMATION OF DEPS.....	21
5.5	DEP INDEX REVISION	21
6.	SPECIFIC RULES FOR STANDARDS CONTENTS	22
6.1	CLARITY OF REQUIREMENTS.....	22
6.2	MINIMUM REQUIREMENTS.....	24
6.3	REFERENCED STANDARDS	24
6.4	MIXING OF EXTERNAL STANDARDS.....	25
6.5	COMMERCIAL STATEMENTS	25
6.6	COPYRIGHT	25
6.7	TRADE-NAMES AND COMPANY NAMES	25
6.8	PROPRIETARY OR LICENSABLE INFORMATION	26
6.9	CROSS-REFERENCES WITHIN A DEP	26
6.10	VALUES AND TOLERANCES.....	26
6.11	UNITS	26
6.12	DEM1 STATEMENTS	26
7.	REQUISITIONS AND STANDARD FORMS	27
8.	REFERENCES	28

9. BIBLIOGRAPHY 28

10. FIGURES 29

APPENDICES

APPENDIX A STANDARD STRUCTURE OF DEP SPECIFICATION 37

APPENDIX B STANDARD STRUCTURE OF DEP INFORMATIVES 42

APPENDIX C EDITORIAL AND TYPOGRAPHICAL REQUIREMENTS 45

APPENDIX D MANAGEMENT SYSTEM FOR PORTFOLIO REQUIREMENTS
SPECIFICATIONS.....48

1. INTRODUCTION

1.1 SCOPE

This DEP provides policies, specifies requirements and gives recommendations for the initiation, writing and maintenance of DEPs and other Global Technical Standards.

The target users of this DEP are Authors and Custodians of DEPs.

Requirements relating to the distribution of standards, and the authorisation to receive or purchase DEPs or other technical standards are not covered in this DEP. The commercial and licensing focal point in the Technical Standards Team may be contacted for information on this topic. Packaged Equipment Solutions standards such as SPEPs and GFS that support replication in projects are not covered in this DEP; see PES 00.00.00.31-Gen.

This DEP is a revision of the DEP of the same number dated February 2015; 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 by those individuals responsible for maintaining the standards (primarily the Administrator and the relevant Custodians and Authors).

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 word **should** indicates a recommendation.

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

1.3.2 Specific definitions

Term	Definition
Action Items	Indicated in the left margin of the standard. Identifies that a position has to be clarified during the specification phase of a project or an order.
Administrator	Person responsible for the administration of the standards. The Administrator can be contacted at standards@shell.com .
Auditable (requirement)	Requirement that is observable and measurable, is neither vague nor ambiguous, and has finite acceptance/rejection criteria.
Author	Person appointed by the Custodian to be responsible for writing or revising a Global Technical Standard. The Author is typically an SME for the subject concerned.
Champion	Person appointed by the GDH to be responsible for the day-to-day coordination of Global Technical Standards planning, delivery and cost control.
Custodian	Person within the discipline appointed by the GDH to be responsible for the contents, upkeep and approval of a specific DEP or other standard. The Custodian is normally the technical authority on the contents of the document. The Custodian also acts as the focal point for questions relating to the content, meaning and application of the Global Technical Standard. The Custodian is typically the relevant senior discipline specialist.
DEP Amendment	Historically issued as an interim update between DEP revisions. May contain both editorial changes (corrections) as well as minor changes to the content of the DEP. Amendments are identified by both the amendment number and date on the cover page (e.g., Amendment A01 incorporated September 2012). DEP Amendments are no longer used.
DEP Circular	A letter previously issued to inform DEP users about the issue, revision, amendment or withdrawal of a DEP. Each letter was uniquely numbered. DEP Circulars are no longer used.
DEP IM Tool	A web based database containing all items in the DEP system. The database provides information pertaining to each DEP item, the annual DEP plan and status of tracking revisions until publication.
DEP Informative	A companion to the DEP Specification document of the same number. Explains the background and reasons for certain requirements in the DEP Specification.
DEP Specification	Design and Engineering Practice Specification; for project use - provides a basis for understanding between the Principal, Contractor and Manufacturer/Supplier, specifying requirements for a product, process or service.
DW Standard	Deepwater Standard; provides a basis for understanding between the Principal, Contractor and Manufacturer/Supplier, specifying requirements for a product, material or process specifically for deepwater installations.
External standard	Standard (e.g., ISO, EN, ASME, BS, API, etc.) issued under the auspices of a non-Shell standards body.
Global Discipline Head	Person accountable for the contents of the Global Technical Standards and who is responsible for the assignment of Custodians.
Inactive DEP	A DEP that is not maintained and is not mandated but is kept on the DEPs Online library for reference by the project. Use of the DEP content is optional at the discretion of the discipline engineer.

Term	Definition
OU Variation	Supplement to a DEP, generated by an Operating Unit (OU) to reflect the regional/local requirements of that OU. OU Variations are no longer in use.
Project Technical Specification	The specification generated by a project to reflect the specific technical requirements of that project.
PRS Informative	A companion to the PRS Specification document of the same number. Explains the background and reasons for content in the PRS Specification.
PRS Specification	A Portfolio Requirements Specification (PRS) is a DEM1 compliant technical specification developed for a specific business portfolio that contains consolidated requirements from the individual DEPs applicable to the portfolio. Within the boundary conditions defined in the PRS Specification, the PRS may be selected and applied by projects in lieu of the individual DEPs. Selection of the PRS is determined by the project during selection of standards. The management system for PRS is defined in (Appendix E).
PS Table	A table located in the DEP Informative for a DEM1 DEP listing the associated process safety risks for each process safety mandatory technical requirement, as well as its associated Risk Assessment Matrix rating.
Requirements Database	A structured repository of the technical requirements and supporting information contained in the DEPs. It is used to generate collections of requirements including DEPs and project technical specifications.
RM Practice	Run and Maintain Practice; defines a recommended practice that is intended to meet a desired performance standard. Applies to the “operate, inspect and maintain” phase of asset life..
Servco	Service Company of the Shell Group.
Standard	Document, established by consensus and approved by a recognised body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. NOTE: From ISO/IEC Guide 2.
WS Standard	Wells Standard; provides a basis for understanding between the Principal, Contractor and Manufacturer/Supplier, specifying requirements for a product, material or process specifically for oil and gas wells.

1.3.3 Abbreviations

Term	Definition
CMT	Catalogue Management Tool, which includes the MESC data.
DEM1	Design and Engineering Manual – Number 1
DEP	Design and Engineering Practice
GDH	Global Discipline Head
GFS	General Functional Specification
MESC	Materials and Equipment Standards and Code
OU	Operating Unit of the Shell Group
PES	Packaged Equipment Solutions
PRS	Portfolio Requirements Specification

Term	Definition
PS	Process Safety
PTE	Principal Technical Expert – acknowledged as the person with the Technical Authority in their area.
P&T	Projects and Technology; the organisation in Shell with ownership of the DEPs.
RAM	Risk Assessment Matrix as defined in the HSSE Control Framework
Shell GSI	Shell Global Solutions International
Shell P&T	Shell Projects & Technology
SIEP	Shell International Exploration and Production
SME	Subject Matter Expert – acknowledged expert in a very specific area of the business. The SME actively supports and contributes to the DEPs.
SPEP	Shell Pre-Engineered Package

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 (8).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a revision of the DEP of the same number dated February 2015. The following are the main, non-editorial changes:

Section/Clause	Change
1.3	Updated definitions
2.2	Deleted ETSB section, sections renumbered
2.12	Deleted Specific Rules for Contents of Technical Standards
2.13	Deleted Controls Section
4	Section updated
5	Section updated, added Inactive DEPs
6.12	Added section on DEM1 statements
Appendix D	Deleted Word processor settings, Appendices renumbered.

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://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.

1.7 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.

2. POLICY, GOVERNANCE AND STANDARDS STRUCTURE

2.1 POLICY

Global Technical Standards are maintained with the specific aim of providing a means to:

- *execute project work efficiently and cost effectively;*
- *enhance asset integrity;*
- *transfer knowledge and share best practice.*

The policy aims to achieve the following:

- *to maximise the use of external standards;*
- *to maintain a single set of DEPs in which requirements additional to the relevant external standards are minimised;*
- *to discontinue local, regional and business-specific variations;*
- *to develop and apply Project Technical Specifications during project execution, using a selection of applicable requirements from the DEPs, supplemented by the minimum number of project-specific requirements;*
- *to constantly improve the quality of Technical Standards by creating and maintaining feedback loops between users and Custodians (owners) of the standards;*
- *to influence external standards bodies through participation, thereby endeavouring to reduce the need for additional Shell standards.*

1. DEPs shall make maximum use of external standards by referring to them wherever appropriate.
 - a. A DEP should refer to an external standard and not duplicate its content.
2. The order of preference for the selection of an external standard on which to base the DEP, or to refer to in a DEP shall be:
 - a. International (e.g., IEC)
 - b. Regional;
 - c. National;
 - d. Industry.

At the discretion of the Administrator and the Custodian, it is acceptable to select a lower standard in the hierarchy when this lower standard is considered technically more suitable. Under current circumstances, this could be relevant for cases where the connection between an international (ISO) standard and the industry standard (API) has been lost and maintenance of the API standard is more up to date than the ISO one.

2.2 USER INVOLVEMENT

1. The DEP work process shall facilitate the involvement of DEP users (including Projects, Operating Units, Contractors and Suppliers) during DEP creation and DEP revision (e.g., comment rounds).

User involvement is considered critical to driving continuous improvement in the DEPs.

2. DEPs that are issued on comment round shall be posted on the Technical Standards web portal.

Interested individuals within Shell can participate in the comment round by providing comments.

2.3 PROJECT EXECUTION COMMUNITY

DEPs are written for project discipline engineers (and Contractors) to apply and are not written as purchase specifications. Projects are expected to select the applicable requirements, adapt them as necessary and combine them to make a project-specific technical specification for a Contract or Purchase Order. These project-specific technical specifications can be replicated if appropriate for future projects.

1. Project Technical Specifications should be subject to a technical and commercial authorisation process to demonstrate that they contain the minimum requirements in addition to applicable industry standards.
2. Project Technical Specifications should be used as feedback (input) into subsequent DEP revisions (5.3.3).
3. Project lessons learned that relate to DEPs and technical standards should be inputted into the DEP feedback system for consideration as opportunities for improvement.

2.4 CONTRACTOR AND MANUFACTURER/SUPPLIER INVOLVEMENT

1. Selected Contractors and Manufacturers/Suppliers should be involved in commenting on DEPs during the creation and revision process.
 - a. The DEP Author and Custodian shall identify the parties to be included in the comment round when submitting a draft DEP to the Technical Standards Team.
2. A confidentiality agreement addressing DEPs shall be in place when including 3rd parties in the comment round.
3. Feedback to a 3rd party at the end of the comment round shall only include the comments raised by the 3rd party and responses to those comments from the Author and Custodian.

2.5 STANDARDS STRUCTURE

The relationship of DEPs to Industry standards and project standards is illustrated in Figure 1.

The objectives of the standards structure are to provide:

- *transparency (clear understanding) of the relationships;*
- *cost efficiency through maximum focus on the external world;*
- *a clear management structure to control variations and to obtain feedback of knowledge;*
- *a reduction in administrative effort by centralising information as much as possible.*

The main elements of the standards structure for a particular standard are:

- *maximum use of the external standard (where available);*
- *the DEP, which supplements the external standard reflects a minimum of additional Shell Group requirements;*
- *each project applies Project Technical Specifications, which select the applicable DEP requirements and supplement them as necessary to reflect the specific requirements of a project.*

1. Each DEP shall have an external standards strategy identifying the following:
 - a. The applicable external standards;
 - b. How the DEP is maximising the use of these standards.

- c. Strategy for involvement in the external standard body, if practical, to minimise the need for Shell variations.
2. DEPs that are based on an external standard shall be written either in the form of an endorsement of, or amendments/supplements to the external standard (Appendix A).

Where endorsement is not practical, the preferred method is to base the DEP directly on an external standard as an amendment/supplement. However, this will not be possible if a suitable external standard does not exist, or if basing the DEP on one would require extensive amendments. Typically, if more than 25 % of the external standard's paragraphs would require amendment, it is impractical to structure the DEP as an amendment/supplement of the external standard.

2.6 TYPES OF DEPS

2.6.1 General

1. The DEPs shall consist of the DEP Specification, and in most cases, a companion DEP Informative document, which are defined in Table 1.

Table 1 DEP Documents

DEP Specification	These provide a basis for understanding between the Principal, Contractor and Manufacturer/Supplier, specifying requirements for a product, process or service and indicating the criteria whereby compliance can be assessed.
DEP Informative	These are companion documents to each DEP Specification. The DEP Informative documents the background and reason for certain requirements, particularly where those requirements have raised questions in the past. The principal purpose of the DEP Informative is to assist the discipline in retaining knowledge about certain requirements in the DEPs and how they should be applied. In some cases, the DEP Informative may also contain examples or addenda to assist with project specific application of the DEP. It is NOT intended for the DEP Informative to be a lengthy tutorial on any particular subject.
DEP Excel	A spreadsheet format of the Specification and Informative content that allows the project to select and apply the appropriate content when preparing a project specific technical specification.

2. DEP Informatives should not be distributed to Contractors or Manufacturers/Suppliers.

By their nature, DEP Informatives can contain Shell intellectual property and are directed towards Shell personnel rather than to Contractors and Manufacturers.
3. DEP Excls shall be stripped of Informative content before sharing with Contractors or Manufacturer/Suppliers.

2.6.2 DEP supporting documents

The document types in Table 2 are maintained in the DEP system as supporting documents.

In addition to the DEP system, the CMT system includes technical specifications and MESD details relating to catalogue components.

Table 2 Supporting Documents

Requisition/Datasheet	Provides the engineering information required for the procurement of equipment and materials. Requisitions are indexed in DEP 30.10.01.10-Gen.
Standard Form	These are used to present information in a consistent manner. Standard Forms are indexed in DEP 00.00.10.05-Gen.
Standard Drawing	Drawings of equipment or configurations that are considered to have wide applicability within Shell. Standard Drawings are indexed in DEP 00.00.06.06-Gen.
Piping Classes	An assembly of piping components in a piping system, suitable for a defined service within design limits.

2.6.3 DEM1 status

Selected DEP Specifications are listed in the HSSE & SP Control Framework under DEM1 as containing at least one mandatory process safety related requirement.

The term "SHALL [PS]" is used within these DEPs to indicate DEM1 requirements.

DEM1 requirements are mandatory technical requirements intended to prevent or mitigate a process safety incident with RAM Red or Yellow 5A or 5B rating on the Group RAM.

- For each DEM1 DEP, the DEP Informative shall include a Process Safety (PS) Table providing the justification for mandatory SHALL [PS] statements that are deemed necessary to potentially mitigate process safety related incidents.

2.7 OTHER GLOBAL TECHNICAL STANDARDS

The technical standards listed in Table 3 are administered by the Technical Standards Team and are included in the same management system as the DEPs (as described in this DEP).

Table 3 Other Technical Documents

DW Standard	Restricted standards specifying requirements for a product, material or process for deepwater installations. By their nature, DW Standards contain information that is not routinely distributed outside of Shell.
PRS	Portfolio Requirements Specifications (PRS) are technical specifications developed for application within a specific business portfolio. They are based on a selection of DEPs applicable to the portfolio, maintained to an identified DEP version and are assured to be DEM1 compliant. The DEM1 assurance process includes an annual review to incorporate new learnings from the DEPs. The management system for PRS is defined in (Appendix E).
RM Practice	Archive documents that specified requirements or provided guidance for activities being performed during the operating phase of a facility (as distinct from design, engineering, procurement and construction). Now superseded by documents maintained by the Technical Safety Discipline.

The technical standards listed in Table 4 are administered by the Technical Standards Team but are covered by a different management system (refer to PES 00.00.00.31-Gen.).

Table 4 Packaged Equipment Solutions

PES	Packaged Equipment Solutions administrative documents.
SPEP	Shell Pre-Engineered Package. Refer to PES 00.00.00.31-Gen.
GFS	General Functional Specification. Refer to PES 00.00.00.31-Gen.

The Wells Manuals are not administered by the Technical Standards Team and are administered by the Wells organization.

2.8 PHASES IN DEP PROCESSING

The three phases in processing a DEP are:

- *initiating a DEP and DEP planning;*
- *writing a new DEP;*
- *maintenance of existing DEPs (revision, reaffirmation or withdrawal).*

This sequence of events is shown in Figure 2. There is a feedback loop from maintenance to initiation.

2.9 CONTENT OF DEPS AND OTHER TECHNICAL STANDARDS

1. The internal structure and basic content of DEP Specifications shall be as shown in (Appendix A).
2. The structure of DEP Informatives shall be as shown in (Appendix B).

The basic requirements for the editorial and typographical requirements are given in (Appendix C).

3. PLANNING CYCLE

3.1 GENERAL

The flowchart describing the standards planning cycle is shown in Figure 3.

Factors leading to the need to revise an existing standard are described in (5).

The identification of the requirement for a new standard is facilitated through inclusion in the annual operating plan.

1. Standards work may be initiated when any of the following apply:
 - a. an existing standard needs revision;
 - b. a new standard is required.

3.2 OPERATING PLANS

1. By the end of each year, the Administrator shall develop the annual DEP standards plan detailing the following:
 - a. the agreed plan for DEPs and other technical standards to be revised, issued new or withdrawn in the following year (the first year of the plan) along with the budget provision;
 - b. a preliminary plan for standards work in subsequent years.

2. The standards plan shall be maintained throughout the year in the DEP IM Tool, accessible from the Technical Standards web portal <http://www.shell.com/standards>.
3. External and internal standards work plans shall be aligned.

3.3 PROPOSAL FOR TECHNICAL STANDARDS WORK

1. The Custodian shall be responsible for proposing a new standard and for proposing a revision to an existing standard.
2. For a new standard, the Administrator shall assign a provisional standard number.
This number will become final upon issue of the standard.
3. For revision of existing standards, the original standard number shall be used unless a change in scope warrants the allocation of a different number.

4. WRITING NEW AND UPDATING STANDARDS

4.1 GENERAL

The flowchart describing the generation of a new or revised DEP is shown in Figure 4a and Figure 4b.

DEP indices, requisition/data sheets, standard drawings and standard forms need not follow the requirements of (4). However, the processes described in (4) are generally applicable to other types of standards.

1. Where the DEP is an endorsement of an external standard without further modification, the DEP should be a brief statement of endorsement.
This will depend on whether or not a suitable external standard(s) exists covering the subject matter.
2. If an external standard is available, but does not fully cover Shell Group requirements, then the DEP should amend/supplement the external standard.
 - a. The DEP may be used to confirm requirements left optional in the external standard and so reduce engineering effort in the projects.
3. If an external standard is not available or is considered impractical as a base standard, the DEP shall contain the compilation of the minimum common Shell Group requirements.

4.2 INITIAL DRAFT

1. If a DEP is being proposed for inclusion in the DEM1 Manual, the Author and Custodian should first consult with the DEM1 Team as described in the DEM1 User's Guide.
2. When drafting a DEM1 DEP, every SHALL [PS] clause shall have a supporting entry in the DEP Informative with the supporting risk rating and supporting incident or credible scenario.
3. The Administrator shall be consulted when drafting a DEP to provide support and access to the requirements database, and to advise on the structure of the standard and relationship to external standards.
 - a. Initial drafts may be prepared directly in the requirements database or by amending Word or Excel versions of the content.
4. The Author shall convert any drawings for the DEP into their final form.
5. For drawings produced electronically, the file format should be as specified by the Administrator.
6. The completed draft should be reviewed by the Custodian prior to submission to the Administrator.

7. Upon receipt by the Administrator, the draft DEP shall be edited and audited to ensure it complies with this DEP and loaded into the requirements database.

4.3 COMMENT ROUND

1. The Author/Custodian shall provide to the Administrator a suggested list of SMEs with a major technical interest in the subject concerned, including the following as applicable:
 - a. Representatives from each region for all relevant disciplines;
 - b. Representatives with recent experience of implementing projects involving the subject;
 - c. non-Shell parties such as Contractors and Manufacturers/Suppliers;
 - d. for DEM1 DEPs, representatives at TA-1 level.
2. The Administrator may add extra names to the list to ensure appropriate coverage.
3. If the DEP is an existing or proposed DEM1 listed DEP, the DEM1 Standards Engineer shall be included in the list.
4. At the discretion of the Administrator, the DEP may be excluded from a formal comment round.

An example of this could be a non-technical revision or correction of a DEP.

- a. A workshop forum may be used instead of document-based comment round to engage a range of reviewers and deliver a technical review.
5. All comments shall be submitted to the Administrator using the DEP Comment Round Form.
6. Comments of substance should be accompanied by clear reasoning and explanation so that the Author can respond effectively.
7. The comment round is not intended to lead to a period of extensive consensus building throughout the user community. The Custodian is ultimately responsible for the technical content of the DEP and shall make decisions with respect to incorporating comments received.
8. The Administrator shall compile all comments into the requirements database and pass them on to the Author/Custodian for consideration.
9. The Custodian (or the delegated Author) shall respond to all comments of substance with a decision to accept or reject.

It is good practice to provide a brief explanation of the decision.

10. Should there be any reason for disregarding a substantial comment, this should be discussed and resolved between the Author or Custodian and the commentator, and recorded in the requirements database.
11. The Administrator shall circulate the compiled comments register, showing the resolution of all comments received, by email to the individuals that provided comments.

4.4 SECOND DRAFT

1. The Author shall update the draft DEP to reflect changes agreed following the comment round and submit to the Administrator.
2. A second edit and audit shall be performed by the Administrator to assess compliance with this DEP.

Gaps identified during edit/audit could require re-drafting and further update by the Author.

3. The classification of the DEP for Export controls shall be defined on completion of the second audit and included in the DEP Specification, DEP Informative and DEP Excel.

4.5 APPROVAL

1. Following the resolution of second audit results, the Administrator shall obtain approval of the Custodian to publish.

The Custodian's approval confirms that the requirements contained in the DEP have been justified both technically and commercially, and that the DEP is written in accordance with the requirements of this DEP.

- a. At the discretion of the Administrator, the formal approval of the Custodian may be waived.

For example, if the changes are purely editorial.

2. Final approval for publication of each DEP shall be at the discretion of the Executive Vice President PTE.

4.6 DISTRIBUTION

1. After the DEP has been final approved, the Administrator shall arrange for distribution.
2. If the DEP refers to other DEPs or external standards, the DEP should only be issued if they either already exist or have been approved for issue (4.4).
3. The release of new DEPs, revised DEPs and the withdrawal of DEP documents shall be controlled in Shell DEPs Online by the Administrator.
4. The Shell DEPs Online system shall maintain discrete collections of DEP documents that can be selected for use on a specific project.

These collections are referred to as DEP versions (e.g., DEPs v39 was released in February 2015).

5. Each DEP (individual document) revision shall be associated with one or more DEP versions that are maintained in Shell DEPs Online for use on projects.
6. All active DEPs (including new DEPs, revised DEPs and all other DEPs that are currently active but have not been revised) shall be made available under the latest DEP version.
7. The Administrator shall maintain a record of which DEPs are classified as EAR99 in the DEP IM Tool.
8. DEPs that are classified as EAR99 shall not be distributed to Generally Embargoed Countries unless approved by an Export Controls officer.

4.7 DEP FEEDBACK

Comments on DEPs and other standards are welcomed and encouraged. Comments can be offered at any time, not just during a formal update/review cycle.

Drafts of both new standards and revised standards are widely distributed for comment.

1. A system for collecting and tracking unsolicited feedback on DEPs for the purpose of continuous improvement shall be maintained by the Administrator.

Feedback obtained during comment rounds administered as part of the DEP revision process (4.3) need not be entered in the DEP Feedback system.

Recommended changes arising from feedback will be used when determining the timing of DEP revision.