

DEP SPECIFICATION

HUMAN FACTORS ENGINEERING – DESIGN FOR PROCESS SAFETY CRITICAL TASKS

DEP 30.00.60.19-Gen.

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DESIGN AND ENGINEERING PRACTICE



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1. INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations to ensure that Shell capital projects with significant risk to Asset Integrity and/or Process Safety (AIPS):

- a) Take reasonable steps to identify and assess human tasks that are either relied on to ensure AIPS, or which could represent a significant risk to AIPS. These are referred to as "Process Safety Critical Tasks";
- b) Are able to demonstrate that all reasonably practical engineering and design measures to ensure human reliability in these tasks have been considered and, where practical, applied.

This DEP applies to capital projects within the scope of the Opportunity Realisation Manual (ORM) that have risks in the red region of the Shell Risk Assessment Matrix (RAM).

It also applies on projects of lower capital value with risks in the red region of the RAM.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

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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 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** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

Term	Meaning
DCS	Distributed Control System
SCADA	Supervisory Control and Data Acquisition
CWE	Common Work Environment
ESD	Emergency Shut-Down
AIPS	Asset Integrity/ Process Safety
AIPS Critical Error (ACE)	A human error which could be the initiating event in a hazardous scenario or which could occur in performing a Front Line Operational HSSE Critical Activity. Includes Threats or Escalation Factors arising from inadequate human performance. An ACE is defined at a lower level of task definition than an Initiating event or Front Line Operational HSSE Critical Activity.
AIPS Critical Task (ACT)	Tasks supporting Human Barriers or Front Line Operational HSSE Critical Activities. Includes human performance representing Barriers and Controls against Escalation Factors. ACTs should include a verb-noun pair ("do x to y") and are usually defined at a lower level of task definition than a HSSE Critical Activity.
Critical Task Inventory	A documented inventory of ACEs and ACTs identified by the project as requiring ALARP demonstration. The Inventory will exist in two versions: an initial release usually during DEFINE phase, and a final release during EXECUTE.
ALARP	As Low As Reasonably Practicable. As defined in HSSE CF Glossary - the point at which the cost (in time, money and effort) of further risk reduction is grossly disproportionate to the risk reduction achieved.
Asset Integrity	As defined in HSSE CF Glossary - the ability of an Asset to perform its required function effectively and efficiently whilst safeguarding life and the environment.
CTA	Critical Task Analysis
FEED	Front-End Engineering Design
HEMP	As defined in HSSE CF Glossary - a structured Risk analysis methodology that involves Hazard identification, Risk Assessment, selection of Controls and Recovery Measures, and comparison with tolerability and ALARP criteria.
HFE	Human Factors Engineering
HFE Co-ordinator	As defined in DEP 30.00.60.10-GEN. The project HFE Co-ordinator is an individual assigned responsibility within a project for management and organization of the project HFE activities, including coordination with the HFE Technical Authority, HFE Authorised Person and HFE Authorised SME, as appropriate. An HFE Co-ordinator shall have competence at least at HFE Knowledge level.
HFE Technical Authority	The individual assigned as Technical Authority for HFE on the project under the Shell Manual of Authorities or Discipline Control and Assurance Framework (DCAF).
Process Safety	As defined in HSSE CF Glossary - is the management of Hazards that can give rise to major accidents involving release of potentially dangerous materials, release of energy (such as fire or explosion) or both.