DEP SPECIFICATION

SMARTPLANT INSTRUMENTATION (SPI) – PROJECT EXECUTION

DEP 32.31.00.35-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 for the execution plan, implementation, and configuration of a SmartPlant Instrumentation (SPI) project. It is applicable for new projects of all sizes, as SPI assists in production of the majority of instrumentation deliverables.

Quality SPI project execution is especially significant, given that the resulting database is highly valuable for the maintenance of a facility for its entire operational lifespan.

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, and gasification. 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 word **should** indicates a recommendation.

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1.3.2 Specific definitions

Term	Definition
Shell SPI Global Template	Template that consists of two core databases (based on ISA and ISO standards), essential in the development of regional SPI projects databases. These contain standardized Shell elements such as instrument types, specification sheets, I/O card libraries, etc.
seed database	SPI database ready for implementation and approved by the Principal for regional requirements.
instrument type	Letter code established to describe an instrument's function.

1.3.3 Abbreviations

Term	Definition
CMMS	computerized maintenance management system
EIS	engineering information specification
EPC	engineering, procurement and construction (contractor)
ERU	Enhanced Report Utility (interchangeable with ESI)
ESL	Enhanced Smart Loop (interchangeable with ERU)
G-SIST	Global SPI Implementation & Support Team
ISA	Instrument Society of America
ISO	International Organization for Standardization
MAC	main automation contractor
OU	operating unit
PAU	plant – area – unit
PBS	plant breakdown structure
PSR	powersoft report file extension
PAS	process automation system (consisting of BPCS, SIS, FGS etc)
PEFS	process engineering flow scheme
RTA	Regional Technical Authority
SoW	scope of work
SPEL	SmartPlant Electrical
SPF	SmartPlant Foundation
SPI	SmartPlant Instrumentation
SPPID	SmartPlant P&ID
TBD	to be determined
UOM	units of measure
UDF	user defined field(s)
UDT	user defined table(s)

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 (9).

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1.5 SUMMARY OF MAIN CHANGES

This is a new DEP.

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://sww.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.

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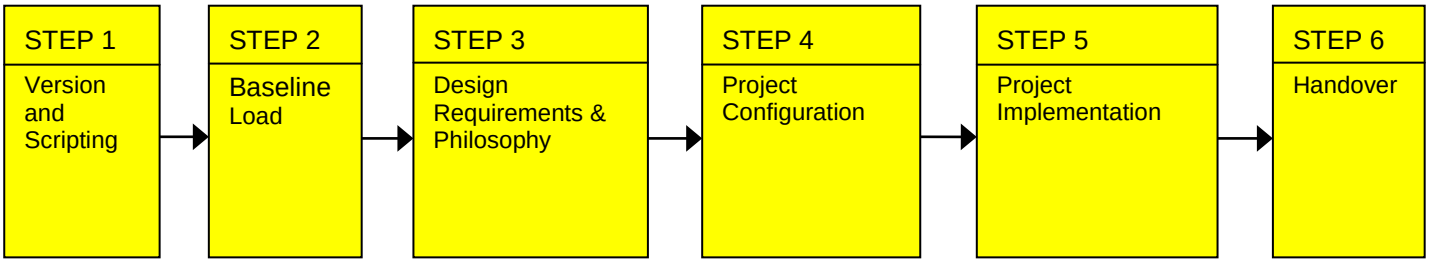
2. SPI PROJECT EXECUTION OVERVIEW

2.1 EXECUTION PATH

The following diagram illustrates the recommended SPI project execution path, organized into six execution steps:



Sections (3) through (8) provide requirements and guidelines for each execution step. The requirements/guidelines are general in nature and are therefore applicable for many situations across the Principal's regions.

The Principal's regions are expected to take this execution path and mature it per local project learnings.

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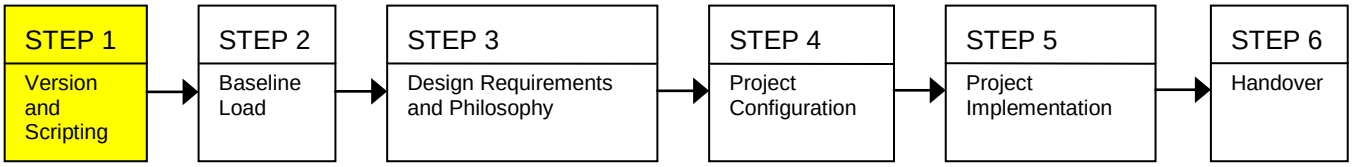
3. EXECUTION STEP 1 – VERSION AND SCRIPTING



Step 1 – Version and Scripting defines application and database requirements for SPI. This can be done at the Principal or Contractor locations.

3.1 DATABASE PLATFORM

All handover databases shall be formatted for, and compliant with, the Principal's particular Oracle infrastructure requirements. Any transformation requirements at handover based on platform changes are the responsibility of the Contractor.

In situations where an SPI database is hosted outside of Shell infrastructure (e.g., a contractor office), the host shall house the project database on a dedicated SPI server/instance containing only the Principal's projects and/or the Principal's data.

3.2 SPI VERSIONS/SERVICE PACKS/HOTFIXES

Whether housed at the Principal location or the Contractor office, all new project databases shall be created in the latest version standardized by the Principal.

The current version, service pack, hotfix number and scripting guidelines are available via the Shell SPI Wiki Site. See section "GID Scripts and Request Site". Selected version, service pack and hotfix shall be listed in the specific project's SPI project specification; see (5).

Contractors shall coordinate with the Principal's Regional SPI Administrators to ensure their versioning is set correctly per the Principal's standards.

Contractors shall not upgrade or hotfix their systems without approval of the Principal's Regional SPI Administrators. Contractors may assume the database will remain on a singular version for a significant amount of time, if not the entire life span of the project.

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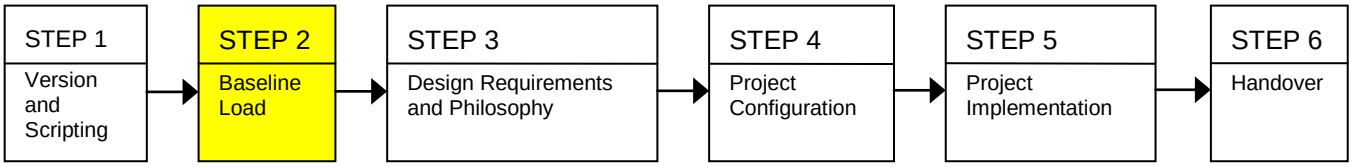
4. EXECUTION STEP 2 – BASELINE LOAD

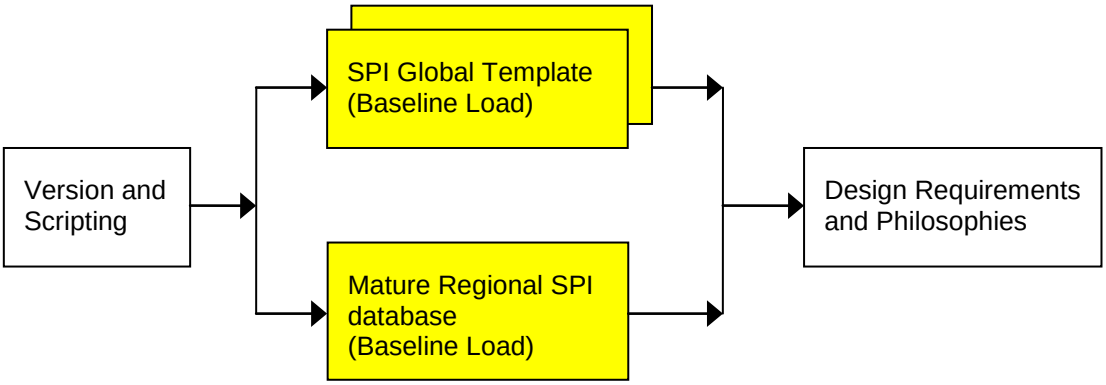


Once the SPI database platform and application are in place, the project moves to *Step 2 – Baseline Load*. In this step, a template database is selected and loaded into the server/instance for the purpose of project implementation.

4.1 DATABASE SELECTION

A template database is required in the creation of new SPI projects. The expectation is that greenfield projects will use the SPI Global Template database.

Where a mature, regionally modified SPI database exists (sourced from the global template), it may be used to facilitate the baseline load. But in all cases, the Principal shall confirm which source database will be used for the project baseline load. The following figure visually defines the process:



4.2 SPI GLOBAL TEMPLATE – ISA AND ISO VERSIONS

The SPI Global Template is comprised of two core SPI databases provided by the Principal, in ISA and ISO configurations.

Each SPI template database contains four key categories of standardized information. These are:

a. Instrument types and profiles

b. Specifications forms

c. Control system I/O card libraries

d. User defined fields and tables (UDFs and UDTs)

Sections (4.3.1 – 4.4.4) provide specific information concerning the global template contents:

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