

GENERAL SPECIFICATION

Field Operations

GS EP EXP 207

Installation description structure

09	01/2017	Addition of Subsea facilities breakdown information, management of SECE and CLASS_SURVEY classes, update Appendices and Attachments
08	01/2015	Organization change – January 2015
07	10/2012	Update following the EP reorganization
06	01/2012	Update system/units for Subsea facilities & turbine driven rotating equipment functional breakdown
05	10/2008	Update System/Unit and where to find Class/Characteristics
04	01/2006	Update Classes and Characteristics. Subsea added
03	10/2005	Addition of EP roots to GS identification
02	10/2003	Change Systems and Units code
01	06/2003	Review of Systems/Units/Classes and Characteristics
00	12/2000	Initial version
Rev.	Date	Purpose of the revision

Owning entity: DSO/IP/EXP	Managing entity: DSO/IP/EXP
Other Approving entity(ies):	

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1. Scope

1.1 Foreword

As the client affiliate needs to manage its maintenance activities, one of the main Maintenance & Inspection Engineering (MIE) tasks during a project phase is to issue an exhaustive equipment list and organise them in an equipment database.

As the Company operates a Computerised Maintenance & Inspection Management System (CMIMS), it is essential that all maintained items of the future facilities are accurately identified and properly structured. Therefore, a breakdown of the facilities is done according to a hierarchical model from the affiliate down to the individual objects.

This breakdown is compulsory in order to plan, organise and analyse the maintenance & inspection works in the CMIMS. It also allows the users to get information at any level such as:

- Equipment list and description
- Planned maintenance and inspection activities
- Equipment maintenance and inspection history
- Maintenance & Inspection cost
- Spare part consumption, etc.

The breakdown described herein has been designed to suit a classical technical object pyramid.

It distinguishes between objects as Functional Locations (FL) (identified by a tag) and the installed items of equipment (identified by a specific number given by the CMIMS).

Functional Location and Equipment are specific terms of the CMIMS both used to describe an Asset Register as detailed thereafter:

- Functional Locations are hierarchically ordered structures that represent a technical system that are relevant for Maintenance & Inspection
- Equipment is an individual physical object maintained as an autonomous unit. They usually represent single objects such as pumps, motors and pressure safety valves for which maintenance tasks should be performed and recorded.

The breakdown of the installations may be loaded in the Maintenance Module of a CMIMS tool with the help of standard data loading templates. The main CMIMS tools used by the Company are UNISUP, SALSA or UNISOL based on SAP R/3 tool, PM module. All examples below come from these tools.

1.2 Objectives

The objectives of this General Specifications are:

- To provide the requirements for building the pyramid (installations description) to be loaded in the CMIMS by Maintenance & Inspection Engineering.
- To standardise the database structure, classes and characteristics of equipment at a Corporate level in order to have standard Maintenance & Inspection reports allowing cost comparison whenever possible.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
FAME+	FAME+ Methodological Guidelines, Rev 06, Bureau Veritas

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP EXP 217	Spare Parts requirements for EPCs, Supplier, Manufacturer and MIE Team
GS EP EXP 221	Data formats for CMIMS loading
GS EP EXP 407	Implementation scheme for Identification and Management of Safety and Environment Critical Elements
GS EP EXP 501	Equipment and piping numbering
GS EP INS 102	Instrumentation identification

3. Pyramid concept

{Rule 1:

Production installations shall be broken down in the CMIMS according to a six level tree view classification of Functional Locations (Pyramid concept).}

The pyramid structure is developed according to the following six types of levels, described in Figure 1:

- Level 0: Company (affiliate). Not in FL code.
- Level 1: Site.
- Level 2: Sector.
- Level 3: System.
- Level 4: Unit.
- Level 5: Tag.

The relationships between each level are “parent-child” type. The break down is used for several aspects:

- Operation (tagging) if **GS EP EXP 501** is applied.
- Maintenance & Inspection (Work Order, reporting, spare allocation, etc.).
- Commissioning (partially when applicable).

The definition of the pyramid levels given hereafter is made to suit the main Maintenance & Inspection accounting systems.

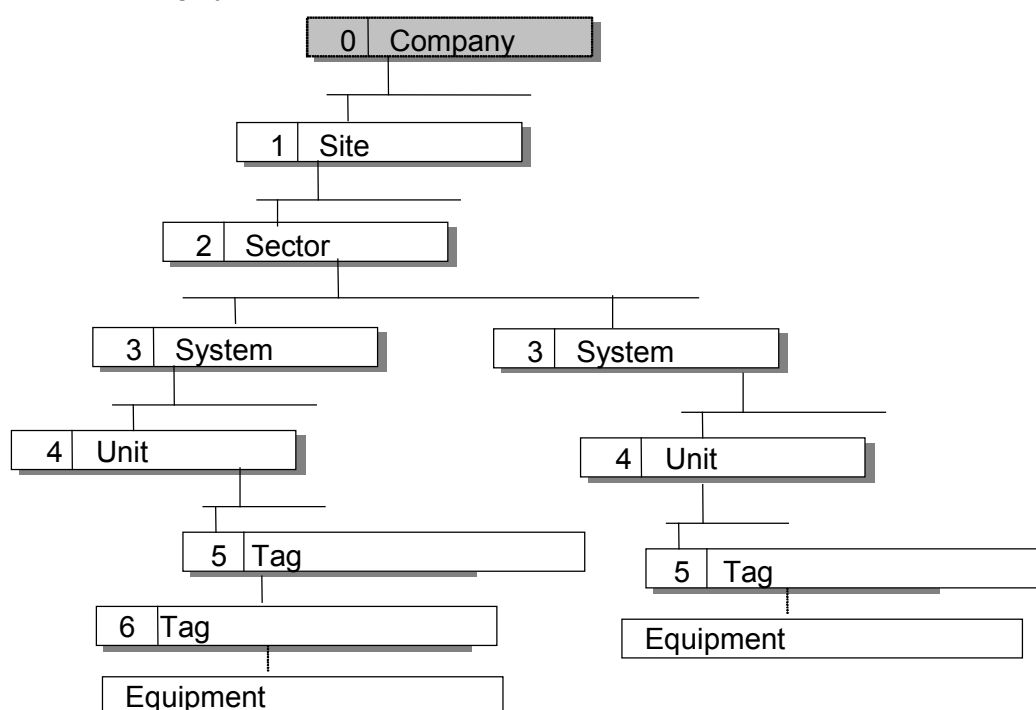
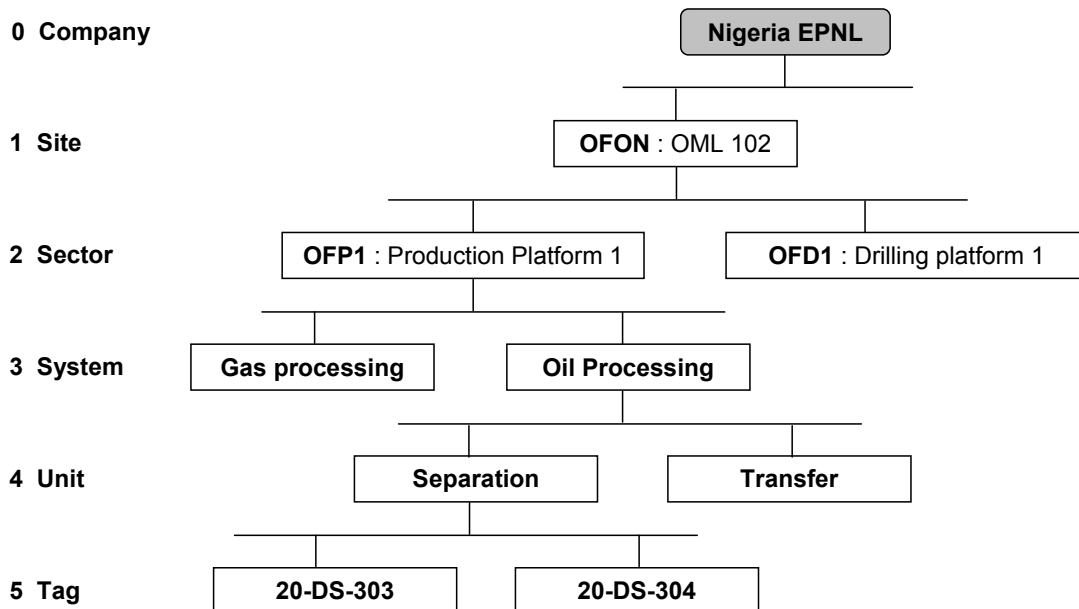


Figure 1: Structure of the Pyramid

An example of a site breakdown from Nigeria (UNISUP i.e.; PM module) is described in the Figure 2.


Figure 2: Example from Nigeria

4. CMIMS entity break down definition

4.1 Level 0: Company

This is the name of the operating Company e.g. TOTAL E&P INDONESIA, TOTAL E&P NEDERLAND B.V, TOTAL AUSTRAL, etc.

4.2 Level 1: Site

The Site is a set of installations included in the same operations entity. This is a geographical area where existing facilities are maintained. A site may be delimited by the facilities maintained by a Maintenance & Inspection team.

There is the possibility of having several sites for which production and process facilities are maintained by the same team based in a central area. This is the case for an onshore terminal with a Maintenance & Inspection service doing interventions on several offshore sites.

The Site code is given by the Company: see Table 1.

Table 1: Examples of Site code

Affiliate	Site code	Description
Abu Dhabi	KHF	ADNOC KHUFF FACILITIES
Angola	DAL	DALIA
Argentina	ASR	AGUADA SAN ROQUE
Congo	NKO	TCHIBELI-NKOSSA
Indonesia	PCK	PECIKO SITE
Netherland	K5	NETHERLAND K5 SITE
Nigeria	ODU	OML100 - ODUDU SITE / UNITY FSO
UK	DUN	DUNBAR

4.3 Level 2: Sector

The Sector is a set of systems situated in a single geographical location. It consists of multiple process or utility systems:

- In offshore situation: it corresponds to installation (Processing centre platform, production satellite, Living quarter platform, FPSO, Subsea facilities, etc.).
- In onshore situation: it corresponds to area such as cluster, small plant like a production centre.

In case of large plant like LNG gas plant a sector can cover number of systems having enough operational autonomy like train of gas treatment, common utilities, etc.

The Sector code is given by the Company.

- **Production** concerns the surface and subsurface production facilities. The wells and all enhanced recovery systems (gas lift, water injection, tertiary recovery) in a satellite: see Table 2.

Table 2: Examples of Sector codes for Production

Affiliate	Site code	Sector code	Description
Abu Dhabi	KHF	NKPP	NKPP-NEW KHUFF PRODUCTION PLATFORM
Argentina	ASR	CL-5	CLUSTER - 5
Congo	NKO	PLEM	TCHIBELI-NKOSSA
Indonesia	PCK	MWP-A	PECIKO MULTI WELL PLATFORM A
Nigeria	ODU	AFD1	AFIA DRILLING PLATFORM 1
UK	DUN	PD	Production

- **Process** concerns the facilities downstream of the well heads i.e. piping, separators, treatment, transfer, utilities, safety, etc.: see Table 3.

All associated facilities, such as power generation only used for water injection, can be included in this Sector. A "General Production shut down" often corresponds to a sector.

Table 3: Examples of Sector code for Process

Affiliate	Site code	Sector code	Description
Abu Dhabi	KHF	KPP	KPP- PROCESS PLATFORM
Congo	NKO	NKP	BARGE DE PRODUCTION NKP
Indonesia	PCK	PPA	PECIKO PROCESSING AREA
Nigeria	ODU	ODP1	ODUDU PRODUCTION PLATFORM 1

- **Living Quarters** concerns all “domestic” facilities such as living quarters, offices, workshops, warehouse, laboratory, mess, etc.: see Table 4.

Table 4: Examples of Sector code for Living Quarters

Affiliate	Site code	Sector code	Description
Abu Dhabi	ABK	LQ1	LQ1- LIVING QUARTER 1
Argentina	ASR	QR	LIVING QUARTERS
Indonesia	BKP	LQP	BEKAPAI LIVING QUARTER PLATFORM
Nigeria	AMK	AMQ	AMENAM LIVING QUARTER PLATFORM

- **Drilling** concerns equipment located on a rig or drilling platform which Maintenance & Inspection is performed by the Maintenance & Inspection team.
- **Subsea:** Subsea equipment asset register contains equipments that are physically located under the sea level and equipments that belong to subsea facilities but located above the sea level.

For the first part (physically located subsea), their break down structure is described into the SUB sector (Production manifold, extraction wells, water injection wells, umbilicals, Flow lines, risers, etc.).

The Table 5 represents a part of CLOV Subsea Asset Register break down.

Table 5: CLOV Subsea Asset Register Break down

Subsidiary	Sector code	Description	Site code
Angola	BUOY	CLOV - BUOY	CLV
Angola	FPSOA	CLOV - ACCOMODATIONS	CLV
Angola	FPSOH	CLOV - HULL	CLV
Angola	FPSOT	CLOV - TOPSIDES	CLV
Angola	SUB	CLOV - SUBSEA	CLV

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CLV	CLOV
CLV/BUOY	CLOV - BUOY
CLV/FPSOA	CLOV - ACCOMODATIONS
CLV/FPSOH	CLOV - HULL
CLV/FPSOT	CLOV - TOPSIDES
CLV/SUB	CLOV - SUBSEA
CLV/SUB /COF	Other utilities
CLV/SUB /COF/SDS	Subsea Distribution System
CLV/SUB /COF/SDS /PROD-UMBILICAL-MP100	Production Umbilical
CLV/SUB /COF/SDS /PROD-UMBILICAL-P10	Production Umbilical
CLV/SUB /COF/SDS /PROD-UMBILICAL-P20	Production Umbilical
CLV/SUB /COF/SDS /SIV-UMBILICAL	SIV Umbilical
CLV/SUB /COF/SDS /UMBILICAL-ARCHES	Umbilical Arches
CLV/SUB /COF/SDS /WI-UMBILICAL-I05	Water Injection Umbilical
CLV/SUB /COF/SDS /WI-UMBILICAL-I15	Water Injection Umbilical
CLV/SUB /COF/SDS /WI-UMBILICAL-I25	Water Injection Umbilical
CLV/SUB /COF/SDS /WI-UMBILICAL-I35	Water Injection Umbilical
CLV/SUB /EXT	Hydrocarbon extraction
CLV/SUB /EXT/EWELL	Extraction Wells
CLV/SUB /EXT/EWELL/HRT-CL	Hybrid Riser Tower - Cravo Lirio
CLV/SUB /EXT/EWELL/HRT-OV	Hybrid Riser Tower - Orquidea Violeta
CLV/SUB /EXT/EWELL/PROD-RING-P10	Production Ring
CLV/SUB /EXT/EWELL/PROD-RING-P20	Production Ring
CLV/SUB /EXT/TRANS	Transfer
CLV/SUB /GAS	Produced Gas processing
CLV/SUB /HSG	Housing & others
CLV/SUB /OIL	Produced liquid processing
CLV/SUB /WAT	Water processing
CLV/SUB /WAT/IWELL	Water Injection
CLV/SUB /WAT/IWELL/WI-FLOWLINE-I05	Water Injection Line
CLV/SUB /WAT/IWELL/WI-FLOWLINE-I15	Water Injection Line
CLV/SUB /WAT/IWELL/WI-FLOWLINE-I25	Water Injection Line
CLV/SUB /WAT/IWELL/WI-FLOWLINE-I35	Water Injection Line

For the second part (physically located above the sea level), their break down structure is described into a sector representing Topsides facilities and often named FPSOT – Topsides (subsea hydraulic power unit, subsea electrical power unit, subsea riser monitoring system cabinet, subsea master control station, etc.).