



Exploration & Production

## GENERAL SPECIFICATION

### TECHNOLOGY

GS EP TEC 007

#### Obsolescence and Lifetime Cycle Management

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## 1. Scope

This specification defines the minimum requirements for the Obsolescence and Life Cycle Management process related to Electrical and Electronic Programmable or Non Programmable Systems. Such systems generally include Control and Safety Systems, Sub-Sea Control Systems, the Packaged Units provided with Programmable Logic Controllers, all Computer Based Equipment (Servers, Clients, Routers, Gateway, Firewall...), Communication Network Components, Switchboards, Protection Relays as well as other Data Acquisition and Monitoring Systems.

The Obsolescence and Life Cycle Management shall help to ensure the safe operations of the facilities for its full lifecycle from design to operation and maintenance activities.

The Obsolescence and Life Cycle Management requirements shall apply to the following phases:

- Pre-project
- Basic Engineering or FEED
- Detail Engineering, Installation, Construction and Commissioning
- Operation and Maintenance.

The Obsolescence and Life Cycle Management shall help to select equipment by taking into account the overall costs lifecycle and not just the initial purchase costs.

This specification is based on the [IEC 62402](#) and [GS EP SPS 028](#).

## 2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

### Standards

| Reference                 | Title                                       |
|---------------------------|---------------------------------------------|
| <a href="#">IEC 62402</a> | Obsolescence Management - Application guide |

### Professional Documents

| Reference                      | Title |
|--------------------------------|-------|
| <a href="#">Not applicable</a> |       |

### Regulations

| Reference                      | Title |
|--------------------------------|-------|
| <a href="#">Not applicable</a> |       |

**Codes**

| Reference      | Title |
|----------------|-------|
| Not applicable |       |

**Other documents**

| Reference      | Title |
|----------------|-------|
| Not applicable |       |

**Total General Specifications**

| Reference     | Title                                                             |
|---------------|-------------------------------------------------------------------|
| GS EP SPS 028 | Obsolescence Management Plan for Subsea Production Control System |

**3. Definitions and abbreviations**

**Company** TOTAL E&P or any TOTAL E&P subsidiary or affiliate.

**Contractor** Any corporation how has signed a contract with TOTAL E&P.

**Note:** The term Contractor can be used for Contractor during the Project Phases or SMC Contractor during the Operation and maintenance phases.

**MIE Contractor** Maintenance & Inspection Engineering Contractor.

**SMC Contractor** Specific Maintenance Contract Contractor.

**Supplier** Means supplier(s) of any Company items(s).

**Company item(s)** Means any itemized and non itemized equipment and materials to be incorporated into the Plant by Contractor and expressly specified as being supplied to Contractor by Company.

**BOM** Bill Of Material

**CAPEX** CApital Expenditure

**CMMS** Computerize Maintenance Management System

**COTS** Commercial-off-the-shelf

**EOL** End of life

**ESPA** End of Spare Parts Availability

**EOS** End Of Support

**EPCC** Engineering, Procurement, Construction and Commissioning

**FEED** Front-End Engineering



|             |                                               |
|-------------|-----------------------------------------------|
| <b>FAT</b>  | Factory Acceptance Test                       |
| <b>LCC</b>  | life cycle costs                              |
| <b>LTB</b>  | Lifetime Buy                                  |
| <b>MIEC</b> | Maintenance & Inspection Engineering Contract |
| <b>OCM</b>  | Original component manufacturer               |
| <b>OEM</b>  | Original equipment manufacturer               |
| <b>OM</b>   | Obsolescence Management                       |
| <b>OPEX</b> | Operational EXpenditure                       |
| <b>PCN</b>  | Product change note/notice/notification       |
| <b>PDN</b>  | Product discontinuance notice                 |
| <b>PO</b>   | Purchase Order                                |
| <b>SAT</b>  | Site Acceptance Test                          |

## 4. General

### 4.1 Introduction

Obsolescence affects and impacts all electrical and electronic programmable or non programmable systems during all stages of their life. Obsolescence is inevitable and it cannot be avoided. However proactive management, forethought and careful planning can minimize its impact.

Commercial-off-the-shelf products tend to have a much shorter life in terms of availability and supportability than in the past.

The increased needs of monitoring parameters from the sea bed, offshore and onshore facilities locally or remotely leads to implement computer based equipment with operating and application software. The life cycle duration of such equipment is shorter than the production facilities.

Consequently, it has become essential to include Obsolescence Management from the earliest project up to the operation and maintenance phases.

Obsolescence Management is essential to achieve optimum availability throughout the life cycle of a production facility.

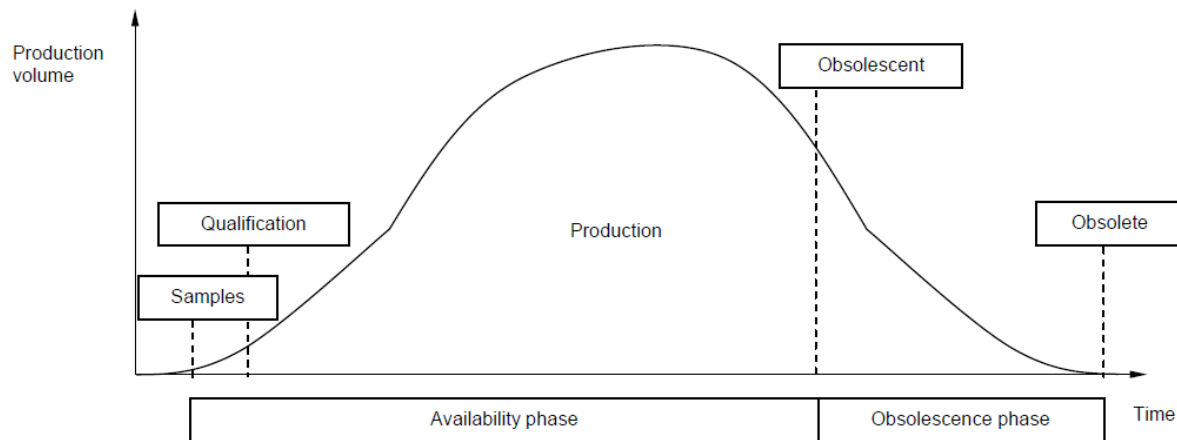


**Figure 1 - Product phases**

The obsolescence phase of a product begins immediately after the information about discontinuance is issued and the product is considered as obsolescent, as shown in Figure 1.

The information of the obsolescent phase change is often in the form of a Product Discontinuance Notice (PDN), End-Of-Life (EOL) notification or LifeTime Buy (LTB) notification. A Product Change Notice (PCN) may also cause a product to enter the obsolescence phase for certain Supplier.

## 4.2 Categories

Obsolescence Management shall take into account the following categories:

- Services (for example, maintenance contract, technical assistance)
- Software (for example, operating system program, application program)
- Hardware (for example, control and safety systems, programmable logic controller...).

Obsolescence shall be managed as an integral part of design, Project, Operation and in-service support in order to minimize the costs and detrimental potential impacts throughout the production facilities life cycle.

## 4.3 Strategy

Obsolescence Management shall ensure that strategies are developed to address the follows issues in order to minimize the risk at production loss due to obsolescence:

- Proactive Obsolescence Management:
  - Planned system updates and upgrades
  - Planned replacement
  - Procurement of spare parts
  - Sustainable Human Skill.
- Reactive Obsolescence Management:
  - Recovery from Obsolescence.



## 5. Obsolescence Management

Obsolescence Management shall address the complete Lifetime Cycle covering the Project and Operation phases at production facilities.

Contractor shall carry out Obsolescence Management Reviews at the beginning and at the end of each Project phases, every six months during the Project phases and minimum every two years or on Company request during the Operation phase.

During the Obsolescence Management Review, all requirements of this General Specification shall be reviewed and their advancement shall be reported to Company or Company representative.

The Obsolescence Management shall cover the followings:

- **Obsolescence Management Plan Philosophy**
- **Brown Field Obsolescence Management Study**
- **Obsolescence Dossier**
  - Inventory List and Lifetime Status Matrix
  - Design Requirement Study.
- **Obsolescence Strategy Development**
  - Lifetime Buy
  - Human Skill
  - Recovery from Obsolescence.
- **Equipment Selection Criteria Related to Obsolescence Requirement**
  - Cost Criteria Study.

### 5.1 Obsolescence Management Plan Philosophy

Contractor shall issue an Obsolescence Management Plan Philosophy which describes the organization to manage the obsolescence, to issue, review, develop and update the following topics:

- Brown Field Obsolescence Management Study
- Obsolescence Dossier
- Obsolescence Strategy Development
- Equipment Selection Criteria Related to Obsolescence Requirement.

Contractor shall submit the Obsolescence Management Plan Philosophy to Company during the Obsolescence Management Review.

### 5.2 Brown Field Obsolescence Management Study

Contractor shall submit the Brown Field Obsolescence Management Study to Company during the Obsolescence Management review.

A Brown Field Development shall be subjected to a dedicated Brown Field Obsolescence Management Study.