



Exploration & Production

GENERAL SPECIFICATION

PROJECTS - CONSTRUCTION

GS EP PJC 301

Hook-up organization and preparation

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Contents

1. Scope	3
2. Reference documents.....	3
3. Definitions.....	4
3.1 Hook-up	4
3.2 Integration work	4
3.3 Simultaneous installation and production (TIPS) work	4
3.4 Hook-up task.....	4
3.5 Task sheet	5
4. Quality control procedure	5
5. Technical preparation/organization.....	5
5.1 Technical documentation.....	5
5.2 Operating manual	7
5.3 Accommodation unit description.....	8
5.4 Safety manual	8
6. Implementation.....	11
6.1 Meetings	11
6.2 Preparation of working areas.....	12
6.3 Handling.....	12
6.4 Ladders and scaffolding.....	13
6.5 Works management.....	13
6.6 Onshore support	14
6.7 Special case of integration work	15
Appendix 1 Hook-up task sheet	17

1. Scope

This document defines the minimum requirements for preparing, organizing and carrying out hook-up work between constituent parts (jacket, deck, module, etc.) of a new installation, and all connections with the existing installations.

This work must be prepared for and carried out in such a way as to minimize the time necessary and the risks associated with working at sea. The organization to be set up, the measures taken and resources used must be in keeping with the scale of the work which may or may not be associated with hydrocarbon production.

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
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP EXP 101	Precommissioning and commissioning guidelines
GS EP EXP 103	Precommissioning and commissioning technical preparation
GS EP EXP 105	Precommissioning execution
GS EP EXP 107	Commissioning execution

3. Definitions

3.1 Hook-up

Hook-up work between constituent parts (jacket, deck, module, etc.) **of a new installation** and all connections with the existing installations.

By extension, hook-up also includes all work on the platform that is required by the contract (work not completed onshore, modifications to existing installations, etc.).

3.2 Integration work

The term "integration work" is used to mean any major work carried out on a petroleum installation that is **in service** and, more specifically:

- Setting up new installations
- Removing existing installations
- Major alterations to existing installations
- Handling heavy equipment above the installation
- Major maintenance projects as required.

3.3 Simultaneous installation and production (TIPS) work

Work done on a petroleum installation or in the immediate vicinity while hydrocarbon production (or injection) continues.

All activity with drilling or workover equipment relating to the work activity must comply with the same requirements as applied to TIPS or OPPS works (Operation on wells and simultaneous production).

3.4 Hook-up task

This is a specific construction activity by discipline on a single system which must be divided up according to the:

- Organization of the CONTRACTOR
- Imperatives of conducting the work
- Scheduling imperatives

- Management imperatives
- Safety imperatives.

3.5 Task sheet

This document shall identify a task and specify:

- The task description
- The duration
- The schedule
- The resources applied (personnel and material).

4. Quality control procedure

During this phase, the compliance checks will be in line with the technical acceptance methodology developed in precommissioning and commissioning guidelines (GS EP EXP 101), precommissioning and commissioning technical preparation (GS EP EXP 103) and precommissioning execution (GS EP EXP 105).

5. Technical preparation/organization

Preparation for the hook-up or integration work shall begin early enough for the cost and lead time requirements to be optimized during the engineering phase. It shall be completed during the construction phase with the reservations and the work not completed onshore.

The CONTRACTOR in charge of hook-up or integration shall also be responsible for preparing for the work.

Preparing for these activities involves producing:

- The technical documentation
- The operating manual
- The accommodation documentation
- The safety manual.

5.1 Technical documentation

This must be completed before the end of assembly on the construction site.

It shall comprise:

5.1.1 General documents

These are the documents needed to prepare the technical manual:

- PID
- Schematic, electrical diagrams
- Safety flow diagram

- Plans of classified areas
- All other drawings, documents or diagrams that may help to describe the task.

5.1.2 Listing the tasks

An exhaustive list of the tasks shall be produced by system and by discipline.

5.1.3 Task sheets

Task sheets shall be used for:

- Preparing schedules (estimating individual job times and monitoring progress)
- Defining, preparing and procuring the materials needed for the work
- Carrying out the work
- Allocating and monitoring expenditure
- Construction checks
- "As built" documentation.

They shall include the following information:

- Working area
- Reference documents
- Work description by individual operation
- List of special tools required
- List of equipment and materials required
- Scheduling data (start-finish)
- Planned quality inspections.

5.1.4 Packing list

This covers:

- Equipment for executing the tasks
- Installation accessories in sufficient numbers to meet requirements on site (gaskets, bolts, couplings, etc.)
 - Information required
 - . Destination
 - . Task numbers and system for hook-up
 - . Order numbers for the equipment
 - . Exact descriptions
 - . Quantities
 - . Package weight
 - . Package identification.

5.1.5 Checking the hook-up equipment

Resources must be made available for routine inspection of the equipment in the preparation phase, in other words:

- Identification of the equipment needed
- Physical inspection of condition, quantity, identification and packaging conditions when packing
- Verification of packing lists, one copy of which shall be placed in the package
- Precise and very conspicuous destination markings.

5.2 Operating manual

The operating manual shall have the following structure:

5.2.1 General

- Introduction
- Objectives (of the project/manual)
- Description of the works
- Limits of the CONTRACTOR's responsibilities
- References to other key documents.

5.2.2 Personnel organization

- Organization
 - The role of each team
 - Job tickets of management team
- General organization, all units
 - Functional relationships
 - Operational relationships
- Flowcharts/bar charts
- Duty rosters
- Communications and reporting
- Site accommodation (flotel, living quarters, etc.)
- Specific personnel training.

5.2.3 Work monitoring documents

- Works schedule
- Progress reports

- Procedures for circulating technical documents
 - Dispatch note
 - Distribution list for drawings/technical documents
 - Requests for information on site
 - Non conformities
 - Document codes
 - Feedback.

5.2.4 Procedures

- Cost control procedures
 - Billing-related progress monitoring
 - On-site commitment authority
 - Procedure for additional works
 - Document codes
 - Cost monitoring
- Operating procedures
 - Acceptance process
 - Works completion report
 - Handover of the installation to the operator
 - Procedure for "punch-lists" (reservations).

5.3 Accommodation unit description

- Description of the shipping support facility
- Certifications
- Rules of organization on board
- Rules of safety on board
- Positioning relative to fixed structures. Anchorage plan.

5.4 Safety manual

The following responsibility principles shall apply to all work on subsidiary installations during development, drilling and operations.

- The COMPANY's safety rules shall be observed by all CONTRACTORS or SUBCONTRACTORS working on the COMPANY's installations. The CONTRACTOR or SUBCONTRACTOR shall ensure that his own safety rules are consistent with current regulations and those of the subsidiary. If there are any differences, the CONTRACTOR shall ask the subsidiary to specify the requirements to be applied.

- The CONTRACTOR shall ensure that his personnel are familiar with and, if necessary, shall annotate the rules communicated to him and which may be obtained from the subsidiary's representatives.
- The CONTRACTOR shall be responsible for applying the safety rules, whether deploying personnel or equipment.

5.4.1 General safety manual for hook-up operations on new installations (before startup)

This document, prepared in the construction phase, is drawn up and validated before any operations on site.

This mainly includes:

- Specific regulations (if they exist) covering the design and operation of the installation in question
- The general Safety – Environmental COMPANY's instructions
- Emergency plan, consisting of:
 - The COMPANY's "safety" plan
 - Alarm systems:
 - . Fire, gas, etc.
 - . Platform evacuation
 - . Man overboard
 - Fire instructions
 - Platform/flotel evacuation instructions
 - Man overboard instructions
 - Procedure for evacuating people on health grounds
 - Maintenance of the sick bay register
- "Work permit" procedure
- The installation's safety flow diagram
- The diagram giving locations of manual Emergency Shutdown and General Production Shutdown controls, fire-fighting, life saving and rig evacuation equipment
- Procedures covering:
 - The use of helicopters
 - Lifting operations
 - Driving of vehicles
 - What to do in the event of accidents - incidents
 - Reporting of accidents
 - What to do in the event of pollution
 - What to do in the event of subsea work
 - Entering pressure vessels, tanks, etc.

- Use of scaffolding
- Etc.

5.4.2 TIPS safety documentation

5.4.2.1 General documentation

This documentation replaces the installation's general safety documentation during the TIPS phase and must be prepared before the works begin.

In addition to the documents listed above, it shall mainly comprise:

- General TIPS instructions (or OPPS) drawn up by the COMPANY
- Specific TIPS instructions (including the work site installation plan) drawn up by the COMPANY
- Pre-TIPS installation inspection report drawn up by the COMPANY
- Task execution schedule which must be accompanied by the work procedures and special safety measures, drawn up by the CONTRACTOR and validated by the COMPANY
- Lifting manual for major handling jobs drawn up by the CONTRACTOR and validated by the COMPANY
- The installation's detailed technical documents updated for the TIPS (or OPPS) phase, mainly concerning the location of the manual emergency shutdown controls, the fire-fighting equipment, life saving equipment and installation evacuation equipment
- Any special memoranda or documents concerning safety and environmental requirements during the TIPS (or OPPS) phase
- Minutes of the pre-start-up meeting.

5.4.2.2 Technical documentation

This shall comprise:

- Register of inspections on equipment subject to regulatory checks
- Register of inspections made by the authorities
- Certificates stating that the regulations and instructions have been noted
- Routine test report forms for safety equipment, units and apparatus
- Records of the conclusions of the daily meeting
- Instructions manual
- Signed and sealed work permits and consignment forms.

5.4.2.3 Specific documentation

The specific documentation shall comprise:

- The work site layout plan
- Site equipment certifications (sets, scaffolding, cranes, slings, etc.)

- Procedures for the arrival, positioning and removal of heavy naval equipment needed to validate the works
- Specific risk analyses
- Special work permit procedure (if required)
- Procedure for maintaining the personnel register on site
- Procedure for locating personnel on board
- Procedure for isolating installations in service
- Consignment procedure
- Plans of classified areas
- Markings indicating thoroughfares and evacuation routes
- Signage
- Training and information for personnel on arrival on site
- Exercises, logging of reports and collective actions
- Procedure for regular "safety" meetings
- Special safety equipment:
 - Compliance of the CONTRACTOR's equipment (by area classification)
 - Installation of partitions, trampolines, water curtains for hot work
 - Installation of provisional and/or additional detection systems
 - Additional firefighting equipment
 - Means of communication between the parties involved
 - Etc.

6. Implementation

6.1 Meetings

In addition to meetings organized to monitor the work, the following meetings shall be arranged:

6.1.1 Pre-start-up meeting

A meeting must be held before work begins in the presence of the units concerned. The purpose of this meeting shall be:

- To introduce all the parties involved in the project
- To inform all participants of everyone's role and to introduce all the appointed representatives
- To remind participants of the co-ordination needed for the work to progress smoothly by giving written instructions and the various permits and authorisations
- To discuss the job specifications (procedures and safety arrangements) prepared for the occasion

- To review the main safety and environmental equipment and rules
- To inform the participants of the existence of the particular safety rules concerning emergencies and again demonstrate the main safety equipment.

6.1.2 Daily meeting

A daily meeting chaired by the COMPANY's representative shall be held with the CONTRACTOR's representatives to:

- Examine work progress on the scheduled tasks
- Confirm the task schedule for the next day
- Submit work authorisations to the COMPANY's representative
- Examine the health/environment/safety conditions.

The conclusions of this meeting shall be recorded in writing.

6.2 Preparation of working areas

When the packages leave the construction sites, they shall be arranged in such a way as to make the hook-up work as easy as possible, according to the transfer and lifting conditions (size and weight limits).

Particular attention shall be paid to:

- Access to working levels (decking, scaffolding, stairways, safety rails, etc.)
- Equipment to be assembled, placed as close as possible and ready for transportation
- Installing the tools (crates, guy ropes, block and tackle, welding sets, etc.) close to the work
- "Utility" systems, to ensure that they are operational as soon as possible (lighting, compressed air, water, etc.)
- The availability of the platform's cranes
- Safety and survival equipment.

6.3 Handling

6.3.1 Equipment

All the handling equipment needed must be supplied with the appropriate consumables in sufficient quantities.

An exact description of the number and capacity of the resources mobilized on site must be drafted. The handling equipment used must be in good condition and certified by an approved organization on each new site.

6.3.2 Special handling work

"Special handling work" means any work involving the handling of loads or packages, which, should they fall or collide with anything may damage the installations in service. These shall be subject to the following rules:

- They shall be covered by procedural instructions and specific drawings, which must be defined before the start of operations and submitted to the COMPANY for approval
- They shall be carried out in the presence of the COMPANY's representative and the CONTRACTOR's manager
- They shall be carried out in favourable weather conditions
- They shall be carried out during the day
- Personnel not involved shall remain outside the work area.

6.4 Ladders and scaffolding

All scaffolding shall be constructed of approved materials and inspected once a week.

Openings shall be kept to a minimum. Outside the periods of use, no openings shall be left unprotected so there is no danger of stumbling or falling.

All openings shall be protected at all times by ropes.

Scaffolding shall not be used to store or support equipment.

Ladders shall be set at the correct angle and secured at the upper part, if possible, so that they cannot slip.

6.5 Works management

6.5.1 Scheduling

6.5.1.1 Level 1 schedule

A level 1 schedule shall be prepared to cover only the major construction operations (20 to 30) and shall show:

- All key dates, taking account of the logical construction sequence and the logical commissioning and start-up sequences
- The estimated time needed to complete each task
- The schedule for handover of the systems for commissioning.

The level 1 schedule shall be updated every week for the weekly report and every month for the monthly report to show what progress has been made.

6.5.1.2 Level 2 schedule

The level 2 schedule shall show the sequence of tasks that comprise each operation in the level 1 schedule.

The level 2 schedule shall be updated in the same way as the level 1 schedule.

6.5.1.3 "S" curve/progress

An "S" curve for the hook-up shall be prepared.

Progress shall be measured against the base dates in the level 2 schedule.

Overall progress and the progress of each group of operations shall be calculated using appropriate weighting factors or the number of points on each task sheet.

Progress on additional works shall be calculated in the same way.

Actual progress shall be quantified each week.

6.5.1.4 Task schedule review

Actual progress shall be quantified each week and compared with progress forecasts. The productivity coefficient shall be calculated from these two criteria.

Any drift shall be monitored continually and appropriate corrective action shall be taken.

Each modification and corrective measure decided on shall be incorporated in the task schedule no later than three days after the decision date.

6.5.2 Personnel bar chart

The bar chart shall show that the accommodation requirements are covered by the existing or planned accommodation.

During this exercise, the following must be taken into account:

- CONTRACTOR personnel
- COMPANY supervision personnel
- Personnel supporting commissioning and start-up
- SUPPLIERS and visitors.

6.5.3 Procurement monitoring register

A register shall be maintained to monitor the offshore availability dates of supplies and equipment.

6.6 Onshore support

The overall project manager shall be supported by personnel to meet urgent offshore requirements in the following functions:

- Technical secretarial services: document management, handling of daily reports, dealing with personnel in transit, etc.
- Design studies/works: initiating minor studies, carrying out prefabrication work
- Materials/logistics: prompt supply of the required materials, liaison with stores and local procurement, production of manifests and supervision of loading (material and personnel)
- Assistance for SUPPLIERS.

6.7 Special case of integration work

6.7.1 Prefabrication

To minimize hot work on site, as much equipment as possible shall be prefabricated onshore.

For work carried out on installations in service:

- Flanged joints shall be preferred to welded joints
- Equipment shall be installed by bolting
- Ladders, gratings and railings shall be screw-fastened.

6.7.2 Special TIPS (or OPPS) arrangements

6.7.2.1 Materials

The positions for storing inflammable and hazardous products and the layout of equipment and its links (for example: generator sets, compressors, welding sets) shall be defined so as not significantly to increase the level of risk to personnel and installations. They shall be marked on the project's installation drawing.

Any equipment that is not essential to the work shall be returned or stowed away to keep the working areas clear.

6.7.2.2 Handling operations

The schedule for heavy handling operations shall mainly define the precautions to be taken during work and in particular shall establish limiting sea and weather conditions.

6.7.2.2.1 Access

Access to the platform shall be restricted and regulated.

The site shall be left tidy during the period of work and shall be cleaned up afterwards.

6.7.2.2.2 Obligations specific to integration works

All necessary studies shall be carried out to avoid shutdowns on systems belonging to other petroleum complexes.

If the connections to existing installations require a partial shutdown, the work should be prepared with the utmost care. The organization and resources shall be devised in such way as to minimize down times. This documentation shall be submitted to the COMPANY for approval no later than one month before the planned shutdown date.

A procedure shall be established for rendering the installation (or the part concerned) safe. The preparatory work for making the installations safe (degassing, cleaning, etc.) shall be completed and specific authorization received.

When the work is to be carried out on installations that are operating, the COMPANY's environmental safety delegate (R.S.E.) shall be the only person authorized to take decisions on matters of safety and the environment. The CONTRACTOR shall be subject to the COMPANY's safety rules.

All work on existing installations, without exception, shall be subject to a work authorization request procedure and, in some cases, fire permits.



Depending on the complexity of the work, the R.S.E. shall have one or more environmental safety assistants appointed.

The assistants shall be particularly responsible for ensuring that everyone is aware of the circuit instructions, that all measures affecting the safety of personnel and equipment and protection of the environment are correctly applied (use of tools, individual protection, special instructions concerning work authorization, etc.).



Appendix 1 Hook-up task sheet

Fiche de Tâche Task sheet						Appendix 1											
						Page : 1 of : 1											
						Plate-forme Platform											
Date						N° tâche Task nb.				Spéc. Spec.			Système System			Zone Area	
Rev.					FDT												
Description de la tâche - Task description																	
Type de contrôles - Type of testing																	
Documents en référence - Reference documents																	
Référence des pièces jointes à cette fiche - Reference of attachments to this sheet																	
Fiche de vérification : Installation check sheet:												Nombre Number:					
Schéma/Sketc.h:																	
Modificatif/Alteration notice:																	
Liste de matériel pour cette tâche - Bill of materials for this task																	
Poste Item (1)	Description du matériel Material description					Qté Qty	Poids unit. Unit weight		Origine Coming from								
Dates		Début Start:				Fin Finish:											

Notes (1) : Quand matériel en vrac, mettre l'indice V - For bulk material, indicate with "V"

RECEPTION DE LA TACHE - Fiche de surveillance N°: