



Exploration & Production

GENERAL SPECIFICATION

STRUCTURAL

GS STR 402

Anchorage for support vessel on an offshore site

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00	02/01	First issue
Rev.	Date	Notes



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1. Scope

This specification does not apply to service vessels, unless used for specific operations such as diving, construction work, maintenance, hook-up, transportation of large packages, etc. requiring multiple points anchoring. Nor does it apply to anchorings outside of an area of 500 m around oil structures.

All regulations shall apply in accordance with application orders.

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.

The definitions and particular technical provisions concerning anchoring shall, where necessary, be specified in the construction job specification of the structure requiring the anchoring.

Unless otherwise indicated in specific contractual conditions, for all documents cited for reference and their addenda, the latest issue applies.

Where national regulations exist, their provisions and those of the standards and codes to which they refer shall apply, supplementing or amending the provisions of this document.

If there are no national regulations covering all or part of the subject of this document, the reference documents shall be strictly applied, as supplemented by the provisions of this document.

Only the main reference documents are mentioned; the CONTRACTOR shall be responsible for complying with all secondary reference documents dealing with the subject of this document.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Installations in France: all regulations shall apply in accordance with application orders.

Installations outside France: local regulations shall apply. However, these installations must remain compliant with the minimum requirements defined in this document.

Where there are no local regulations, French regulations and this document shall apply.

Reference	Title
Geneva Convention 1958	International regulations, Act. 5 Paragraphs 2 and 3



Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

The provisions of this document shall be applied in the light of the supplementary documents supplied by COMPANY, including:

- Country specificity appendices
- Particular specification
- Data sheets
- Articles and conditions; list of tasks
- Quality assurance provisions.

Reference	Title
GS STR 403	Acceptable criteria of a support vessel for offshore works

3. Definitions

Anchoring: Any deployment on the sea bottom of a line and anchor serving to immobilize a support vessel.

Structure: An asset belonging to the COMPANY that may be permanent or temporary, surface or submarine, fixed or floating.

Site: Areas encompassing one or more structures, in place or to be located.

Mooring: The act of positioning a support vessel by anchoring.

Safety zone: Area described by a 500 m radius around any structure.

4. Studies and procedures

Any anchorage covered by this specification must be the subject of special studies and procedures.

These studies shall be carried out in accordance with the provisions of the particular specifications, and contained in an anchoring manual or included in the installation procedures.

Non-exhaustive list of parameters to be studied:

- Calculation of anchor strength according to soil characteristics and safety factors derived from the various verification cases.

These calculations shall be carried out for the following cases:

- Average loads
- Extreme loads
- Loads during support vessel approach (ship on one or a limited number of anchors).

In addition to these calculations, anchoring drawings shall be submitted. These shall include.

- The approach procedure (direction, type and means of towing tug, mooring sequence, etc.)
- Anchor deployment sequences with repositioning of anchors to obtain the "final" working anchorage
- Anchor line touch down points according to normal and maximum tensions, when moving anchors, as when moving the support vessel
- Positions of anchor lines relative to the structures, in order to achieve a permanent guaranteed separation between line and structure whatever the horizontal or vertical movements of the support vessels, liable to create risks for the structures.

The drawings shall be executed to a scale allowing all of the anchoring to be shown.

Areas in which anchoring is not allowed must be marked on the drawings, as indicated in the job specifications. All structures of the area concerned shall be shown in the drawings.

The anchoring procedure shall define:

- The maximum oceanographic and meteorological conditions allowed on anchoring, depending on location, type of work to be carried out and support vessel employed
- An exact description of the anchoring means and the composition of the anchorages (type and weight of anchors, type and characteristics of anchor lines)
- Description of support vessels (tugs, etc.) and anchoring monitoring resources.

Subject to any specific amendments set out in the job specification, the "step by step" procedure, like the drawings, must take into account the following imperatives:

- No anchor may be placed within 200 m of a pipeline or subsea part of a structure
- When an anchor line crosses the route of a pipeline, whether or not the pipeline is buried the anchor of the line must be positioned in such a way that the distance between the anchor and the pipeline crossing point cannot be less than 400 m (see drawing appended).

The above two paragraphs define the "anchoring interdiction area":

- When an anchor line crosses the route of a pipeline, whether or not the pipeline is buried the anchor line must be at a height of at least 10 m above the pipeline perpendicular to the point of crossing. This may lead the CONTRACTOR to adjust and maintain the correct tensions and even to use mid-line buoys, a description of which shall be included in the procedure.
- An anchor line must never be within 10 m of a fixed structure.



The studies and procedures documented by the design notes and drawings shall be submitted for approval prior to the start of operations, on a date defined in the job specification.

5. Anchoring operation

5.1 General

Anchoring operations must not begin until the procedures and drawings have been approved by the COMPANY, and:

- Agreement to proceed to enter the site and anchor has been obtained
- The equipment has been declared compliant with the description of the procedure and suited to the work in hand
- The weather conditions are within the limits defined by the procedure.

If the weather conditions are not as stated in the procedures (wind or current directions), but within the maximum limits defined, it is entirely feasible that a new procedure (with new drawings) could be redefined on site, but subject to prior COMPANY approval. This new procedure must, in any case, satisfy the requirements of this specification and the job specifications.

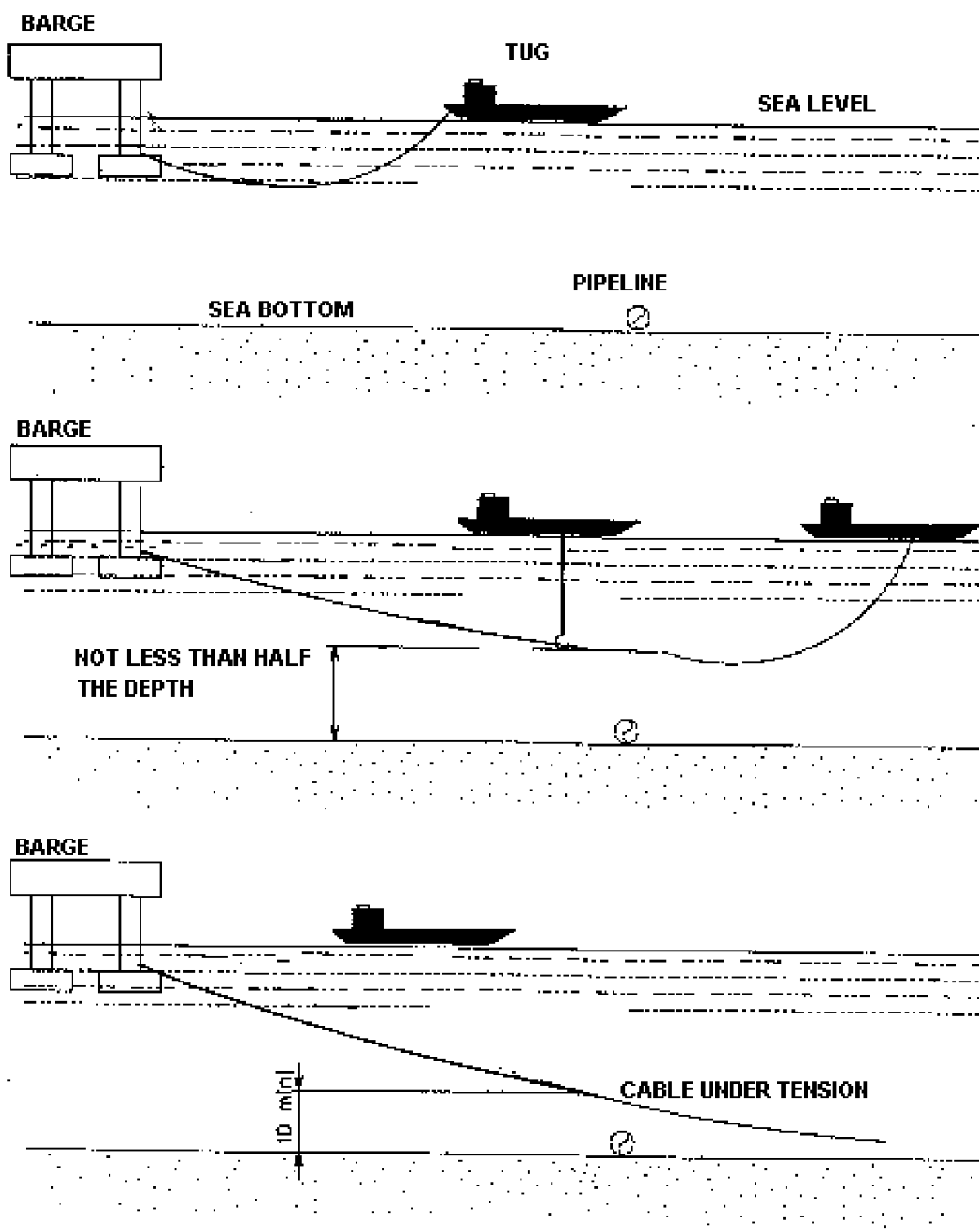
5.2 Operations

The anchoring operations shall be subject to the following requirements:

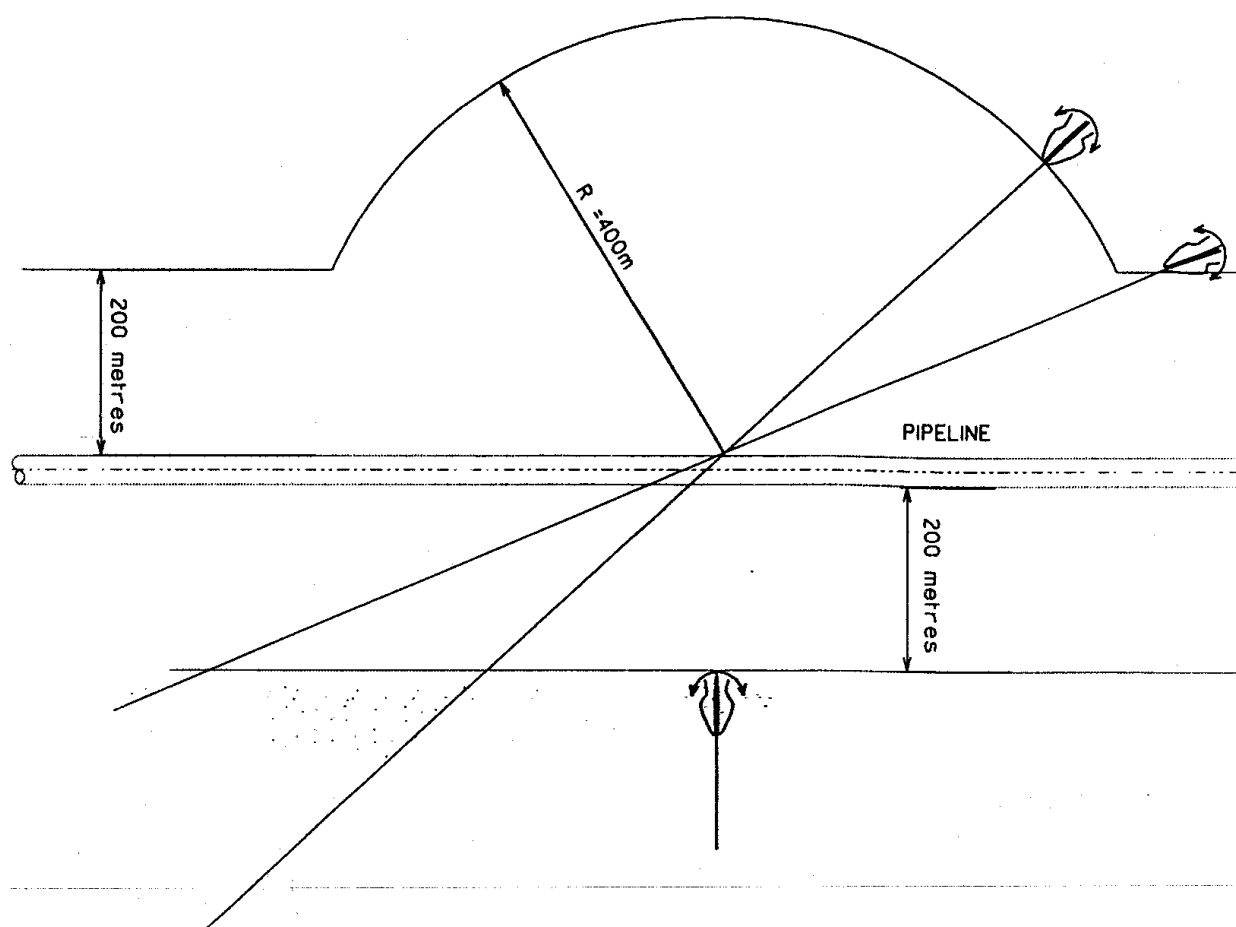
- All ships involved in an anchoring must have on board the approved procedures, drawings and job specifications before anchoring commences.
- The CONTRACTOR shall be responsible for checking and distributing these documents to all units.
- No anchor shall be deployed without the permission of the master of the vessel being anchored.
- Launching or transferring an anchorage, mooring buoy or line, must not be performed above a subsea structure.
- The length of the pennant lines shall be as near as possible the same as the depth of water, so as to provide a visual indication of the position of the anchors.
- Movement of a naval vessel with one or more anchors suspended but not deployed, and the dragging of anchor lines or anchors on the sea bottom are strictly prohibited within the safety zones. Anchors shall be kept on the deck of the ship responsible for moving or dropping the anchor, before any movement of the anchor when the mooring procedure entails navigating the ship over subsea pipelines or structures. This procedure shall be observed when dropping and recovering an anchor.
- The deployment and recovery of anchor lines shall be performed under tension that is continuously measured and monitored.
- The tension and lengths of cable paid out from the ship to the anchorage shall be accurately measured and known at all times. The same shall apply with respect to the length of line available on board the ship.



- For any anchor line that crosses a subsea structure, the tension in the line shall be recorded continuously throughout the crossing period.
- The position of the ship responsible for moving or dropping the anchor relative to the structures must be known accurately at all times. The same information must be available in real time on the support vessel to be anchored.
- After anchoring, an anchor line tension and holding strength test may be required. The scale and duration of such tests shall be specified in the job specification.
- Any anchoring equipment that is lost (anchor, chain, cable, buoy, etc.) must be recovered as quickly as possible, before the departure of the support vessel.
- Night moorings will be allowed only if the CONTRACTOR justifies the appropriate positioning means. If there are specific prohibitions against night moorings, these shall be indicated in the job specification.



Procedure for deploying an anchor line above a subsea pipeline or structure



Safe anchoring distance from a subsea pipeline or structure