International Association of Oil & Gas Producers

SPECIFICATION
S-719

May
2020

# Supplementary Specification to NFPA 750 Water Mist Fire Protection Systems

JIP33
JOINT INDUSTRY PROGRAMME

**Revision history**

| VERSION | DATE | PURPOSE |
|---|---|---|
| 1.0 | May 2020 | Issued for Use |


## Acknowledgements

This IOGP Specification was prepared by a Joint Industry Programme 33 Standardization of Equipment Specifications for Procurement organized by IOGP with support by the World Economic Forum (WEF).

# Foreword

This specification was prepared under Joint Industry Programme 33 (JIP33) "Standardization of Equipment Specifications for Procurement" organized by the International Oil & Gas Producers Association (IOGP) with the support from the World Economic Forum (WEF). Companies from the IOGP membership participated in developing this specification to leverage and improve industry level standardization globally in the oil and gas sector. The work has developed a minimized set of supplementary requirements for procurement, with life cycle cost in mind, resulting in a common and jointly agreed specification, building on recognized industry and international standards.

Recent trends in oil and gas projects have demonstrated substantial budget and schedule overruns. The Oil and Gas Community within the World Economic Forum (WEF) has implemented a Capital Project Complexity (CPC) initiative which seeks to drive a structural reduction in upstream project costs with a focus on industry-wide, non-competitive collaboration and standardization. The CPC vision is to standardize specifications for global procurement for equipment and packages. JIP33 provides the oil and gas sector with the opportunity to move from internally to externally focused standardization initiatives and provide step change benefits in the sector's capital projects performance.

This specification has been developed in consultation with a broad user and supplier base to realize benefits from standardization and achieve significant project and schedule cost reductions.

The JIP33 work groups performed their activities in accordance with IOGP's Competition Law Guidelines (November 2014).

# Table of Contents

## List of Tables

# Introduction

The purpose of this specification is to define a minimum common set of requirements for the procurement of water mist fire protection systems in accordance with NFPA 750: 2019 Standard on Water Mist Fire Protection Systems for application in the petroleum and natural gas industries.

This specification follows a common document structure comprising the four documents as shown below, which together with the purchase order define the overall technical specification for procurement.


**JIP33 Specification for Procurement Documents**
**Supplementary Technical Specification**

This specification is to be applied in conjunction with the supporting data sheet, quality requirements specification (QRS) and information requirements specification (IRS) as follows.

**IOGP S-719: Supplementary Specification to Supplementary Specification to NFPA 750 Water Mist Fire Protection Systems**

This specification defines the technical requirements for the supply of the equipment and is written as an overlay to NFPA 750, following the NFPA 750 clause structure. Clauses from NFPA 750 not amended by this specification apply as written to the extent applicable to the scope of supply.

Modifications to NFPA 750 defined in this specification are identified as *Add* (add to clause or add new clause), *Replace* (part of or entire clause) or *Delete*.

**IOGP S-719D: Data Sheet for Water Mist Fire Protection Systems**

The data sheet defines application specific requirements, attributes and options specified by the purchaser for the supply of equipment to the technical specification. The data sheet may also include fields for supplier provided information attributes subject to purchaser's technical evaluation. Additional purchaser supplied documents may also be incorporated or referenced in the data sheet to define scope and technical requirements for enquiry and purchase of the equipment.

**IOGP S-719Q: Quality Requirements for Water Mist Fire Protection Systems**

The QRS defines quality management system requirements and the proposed extent of purchaser conformity assessment activities for the scope of supply. Purchaser conformity assessment activities are defined through the selection of one of four generic conformity assessment system (CAS) levels on the basis of evaluation of the associated service and supply chain risks. The applicable CAS level is specified by the purchaser in the data sheet or in the purchase order.

**IOGP S-719L: Information Requirements for Water Mist Fire Protection Systems**

The IRS defines the information requirements, including contents, format, timing and purpose to be provided by the supplier. It may also define specific conditions which invoke information requirements.

The terminology used within this specification and the supporting data sheet, QRS and IRS follows that of NFPA 750 and is in accordance with ISO/IEC Directives, Part 2 as appropriate.

The data sheet and IRS are published as editable documents for the purchaser to specify application specific requirements. The supplementary specification and QRS are fixed documents.

The order of precedence (highest authority listed first) of the documents shall be:

a) regulatory requirements;

b) contract documentation (e.g. purchase order);

c) purchaser defined requirements (data sheet, QRS, IRS);

d) this specification;

e) NFPA 750.

# 2 Referenced Publications

CEN prEN 14972, *Fixed firefighting systems - Watermist systems - Design and installation*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

IOGP S-718, *Supplementary Specification for Field Instruments - Electronic Transmitters (Pressure, Differential Pressure and Temperature)*

*Add to E.1.2.7*

FM Global Property Loss Prevention Data Sheets 2-81, *Loss Prevention Data Sheet Number 2-81, Fire Protection System Inspection, Testing and Maintenance, April 2019*

*Add to E.1.2.9*

IMO MSC.1/Circ.1237, *Amendments to the revised guidelines for the approval of equivalent water-based fire extinguishing systems for machinery spaces and cargo pump-rooms (MSC/Circ.1165)*

*Add to E.1.2.9*

IMO MSC.1/Circ.1269, *Amendments to the revised guidelines for the approval of equivalent water-based fire extinguishing systems for machinery spaces and cargo pump rooms (MSC/Circ. 1165)*

*Add to E.1.2.9*

IMO MSC.1/Circ.1386, *Amendments to the revised guidelines for the approval of equivalent water-based fire extinguishing systems for machinery spaces and cargo pump-rooms (MSC/Circ.1165)*

*Add to section*

BS 8489, *Fixed Fire Protection systems – Industrial and commercial water mist systems Part 1: Code of practice for design and installation*

# 3 Definitions

## 3.3 General Definitions

### 3.3.26.4 Local-Application Water Mist System

*Add note*

Note: Local application systems as defined by marine requirements (IMO1387) are first response systems to provide time for the main system (total volume protection) discharge.

# 5 Classification of Occupancies

## 5.2 Classification of Specific Applications for Water Mist Systems

### 5.2.2

*Add new list item (9)*

(9) Oil and gas applications where fire test protocols do not currently exist (see Chapter 17).

# 9 Design Objectives and Fire Test Protocol

## 9.1 General

*Add new section*

### 9.1.5 Fire Scenario Engineered Solutions

For systems that do not comply with 9.1.1 and where a listing does not exist, a fire scenario engineered solution shall be developed in accordance with Chapter 17.

## 9.2 Listing Evaluations

### 9.2.6 Design and Installation Manual

*Add to section*

**9.2.6.3**

For fire scenario engineered water mist systems, the design and installation manual shall identify the working limits and parameters of the system, the fire hazards, and the range of compartment variables.

# 12 Water Supplies and Atomizing Media

## 12.5 Water Supplies

### 12.5.1 Water Quality

**12.5.1.1.1**

*Add to section*

The water mist supplier shall be consulted on the use of natural seawater within the system, with clear instructions provided in the manufacturer's DIOM manual.

Note: The use of natural seawater is for the event of the potable water not being available (e.g. depletion or problem with supply).

**12.5.1.2**

*Add note*

Note: In areas where the U.S. Environmental Protection Agency do not have authority, the local or international requirements, where different from 12.5.1.2, will be permitted subject to acceptance by the authority having jurisdiction.

*Add new section*

## 12.8 Cylinder System Redundancy

Cylinder redundancy requirements shall be at the acceptance of the authority having jurisdiction and/or business/risk analysis.

# 13 Plans and Documentation

## 13.4 Detection, Actuation, and Control Systems Documentation

*Add to section*

### 13.4.7 Technical File / Technical Manual

For fire scenario engineered solutions, the technical file / technical manual shall give evidence that the system has been designed and tested in accordance with internationally recognized standards and protocols pertinent to the risk identified and equipment to be protected by the water mist fire protection system.

Note: The contents of the technical file / technical manual are clarified in IOGP S-719L.

# 16 Marine Systems

## 16.2 Sprinkler Equivalent Systems

**16.2.2**

*Replace "Safety of Life at Sea (SOLAS) Regulation II-2/12.4.1" with*

Safety of Life at Sea (SOLAS) Regulation II-2/10.4.1

*Add new chapter heading*

# 17 Water Mist Systems for the Oil and Gas Sector

*Add new section heading*

## 17.1 General

### 17.1.1 Scope

*Add new section*

**17.1.1.1**

This specification is an overlay that shall be used in conjunction with NFPA 750:2019, the worldwide recognized standard on water mist fire protection systems. Chapter 17 outlines additions to NFPA 750 for water mist fire protection systems for onshore, offshore and marine applications within the oil and gas industry.

*Add new section*

**17.1.1.2**

Water mist systems and their primary components shall be:

(1) listed/approved; or

(2) part of a fire scenario engineered system compliant with 17.2 and accepted by the authority having jurisdiction.

*Add new section*

### 17.1.2 Purpose

This specification shall assist the purchaser to make informed decisions on the procurement of a proven and robust water mist fire protection system.

*Add new section*

**17.1.2.1**

The water mist fire protection system shall meet the design intent to mitigate the fire risk and specify the minimum requirements set by:

(1) recognized third-party approval bodies (FM5560, Classification Society recognized type approvals or equivalent listing); or

(2) defined processes for the fire scenario engineered solution.

*Add new section*

**17.1.2.2**

The data sheet (IOGP S-719D) shall be used for clarification and project specific requirements above the minimum.

Note: Deviation from this specification could result in additional cost to the product.

*Add new section*

**17.1.2.3**

The system and its components shall be proven and qualified so that there is no need for any further or special intervention from the oil and gas sector.

*Add new section*

### 17.1.3 Water Mist for the Oil and Gas Industry Definitions

The following definitions shall be applicable to the oil and gas sector.

*Add new section*

#### 17.1.3.1 Fire Scenario Engineered Systems

Fire scenario engineered water mist systems are innovative, and shall be used where international fire test protocols and listings do not exist.

**17.1.3.1.1**

Fire scenario engineered systems shall have evidence of:

(1) a fire engineered solution for the application;

(2) component evaluations in accordance with 17.2.3;

(3) an accompanying report describing pre-defined pass/fail criteria and the results of the performance-based fire testing;

(4) the manufacturer's DIOM manual.

**17.1.3.1.2**

A fire engineered solution for the application shall:

(1) use existing results and knowledge to develop an acceptable solution that provides fire protection pertinent to the risk; or

(2) prove by fire testing that the solution is pertinent to the risk and carried out by an internationally recognized and accredited fire testing laboratory.

*Add new section*

### 17.1.3.2 Fire Scenario Engineered Test Protocols

Fire testing shall be pertinent to the risk and based on the pre-defined pass/fail criteria of the test protocol. The fire testing shall be conducted by an ISO/IEC 17025 accredited laboratory in the presence of third-party authorities. The fire testing shall also be developed in accordance with prEN 14972-1:2019 (E) Annex A.

*Add new section*

### 17.1.3.3 Primary Components

The following primary components shall be tested during the manufacturing process of the water mist fire protection system prior to factory acceptance testing (FAT):

(1) nozzles;

(2) flexible hoses;

(3) pressurized storage containers;

(4) manifolds;

(5) pumps;

(6) section control valves.

*Add new section*

**17.1.3.3.1**

Components subject to pressure, for example tube, fittings, valves and pressure relief valves (PRV), shall be tested during system commissioning.

*Add new section heading*

### 17.1.4 Efficacy and Reliability

*Add new section*

#### 17.1.4.1 Component Manufacturing

Efficacy and reliability shall be in accordance with Table 17.1.4.1.

**Table 17.1.4.1 - Efficacy and Reliability**

| System type | Compliant with |
|---|---|
| Marine/offshore systems utilizing listed systems | 16.1.2.1, 16.1.2.2 |
| Onshore systems utilizing listed systems | component testing requirement of the internationally recognized listing organization |
| Fire scenario engineered solutions for marine/offshore and onshore applications | 17.2 |

*Add new section*

#### 17.1.4.2 Primary System Components

For fire scenario engineered solutions, the primary water mist system components shall be:

(1) listed/approved; or

(2) traceable to listed components; or

(3) at the acceptance of the authority having jurisdiction.

*Add new section*

#### 17.1.4.3 Technical File

The manufacturer shall compile the following in a technical file:

(1) engineered components that are not listed, such as nozzles; and

(2) engineered components that are derived from a family or a series of components, and that are listed.

Note: This will provide evidence of traceability back to the identified components.

*Add new section*

#### 17.1.4.4 Quality Management

Quality management arrangements shall be established for the supply of the water mist system to this specification, conforming to the listing requirements, for the production of the following items:

(1) nozzles;

(2) flexible hoses;

(3) cylinders;

(4) fire fighting skid/enclosure;

(5) section control valves;

(6) manifolds;

(7) pump systems;

(8) cylinder systems.

Note: FAT is agreed between supplier and purchaser, considering any listed requirements.

*Add new section heading*

### 17.1.5 Water Mist Systems

*Add new section*

#### 17.1.5.1 Multiple Protected Spaces/Objects

A single water mist system covering multiple protected spaces or objects shall be permitted.

*Add new section*

#### 17.1.5.2 Protected Spaces/Objects

The protected spaces or objects shall be supplied via sectional control valves.

*Add new section heading*

#### 17.1.5.3 Protected Compartments Integrity

*Add new section*

**17.1.5.3.1**

For protected compartments or rooms, the opening integrity shall be defined in the manufacturer's DIOM and water mist system approval report.

*Add new section*

**17.1.5.3.2**

For protected compartments or rooms, the ventilation requirements shall be defined in the manufacturer's DIOM and water mist system approval report.

### 17.1.6 Pump Redundancy

*Add new section*

**17.1.6.1**

Pump redundancy shall be in accordance with 16.1.6 for offshore/marine applications.

Note: For the system's redundant means of pumping, the capacity is to be sufficient to compensate for the loss of any single supply pump.

*Add new section*

**17.1.6.2**

The pump redundancy shall be at the acceptance of the owner, the water mist manufacturer and the authority having jurisdiction for onshore applications.

*Add new section*

**17.1.6.3**

The pump redundancy requirements shall not apply to a water mist system providing only local application protection where the system is not the primary means of fire protection.

### 17.1.7 Controls and Alarms

*Add new section*

#### 17.1.7.1 Pump Systems

The pumped water mist system controls shall be at the acceptance of the AHJ, and one of the following:

(1) for listed offshore/marine applications, in accordance with 16.1.7.1;

(2) for fire scenario engineered solutions for offshore/marine applications, in accordance with the manufacturer's DIOM manual or fire scenario engineered test report;

(3) for listed onshore applications, in accordance with the manufacture's listing;

(4) for fire scenario engineered solutions for onshore applications, in accordance with the manufacturer's DIOM manual or fire scenario engineered test report.

*Add new section*

#### 17.1.7.2 Annunciation

The annunciation shall be at the acceptance of the AHJ, and one of the following:

(1) for listed offshore/marine applications, in accordance with 16.1.7.2;

(2) for fire scenario engineered solutions for offshore/marine applications, in accordance with the manufacturer's DIOM manual or fire scenario engineered test report;

(3) for listed onshore applications, in accordance with the manufacture's listing;

(4) for fire scenario engineered solutions for onshore applications, in accordance with the manufacturer's DIOM manual or fire scenario engineered test report.

*Add new section*

#### 17.1.7.3 Flow Condition Alarm

The flow condition alarm shall be:

(1) for offshore/marine applications, in accordance with 16.1.7.3; or

(2) for onshore applications, in accordance with the manufacturers listing or manufacturer's DIOM manual.

*Add new section*

#### 17.1.7.4 Pressure Monitoring

Pressure monitoring shall be:

(1) for offshore/marine applications in accordance with 16.1.7.4; or

(2) for onshore applications, in accordance with the manufacturer's listing and at the acceptance of the authority having jurisdiction.

*Add new section*

### 17.1.8 Pipe Penetrations

Pipe penetrations shall be:

(1) for offshore/marine applications, in accordance with 16.1.8;

(2) for onshore applications, at the acceptance of the authority having jurisdiction.

Note: Penetrations through fire rated or blast rated walls should be avoided. If they cannot be avoided, it should be ensured that the design of the penetration does not compromise the original fire and blast rating of the wall.

*Add new section*

## 17.2 Fire Scenario

*Add new section*

### 17.2.1 Fire Scenario Engineered Systems

For fire scenario engineered systems that are innovative and have not yet been addressed by water mist international standards, the water mist system manufacturer shall provide evidence of the following:

(1) fire scenario engineered solution (17.2.2);

(2) fire test protocols (17.2.3);

(3) component evaluation (17.2.4);

(4) fire scenario engineered test report (17.2.5);

(5) fire scenario engineered test documentation (17.2.6).

*Add new section*

### 17.2.2 Fire Scenario Engineered Solution

The fire scenario engineered solution shall be a collaborative fire engineered solution, developed and agreed between the third parties, on a case by case basis, based on:

(1) the use of existing test results and knowledge to develop an acceptable solution providing fire protection pertinent to the risk; or

(2) fire testing pertinent to the risk and carried out by internationally recognized accredited fire testing laboratory.

*Add new section*

### 17.2.3 Fire Test Protocols

Fire test protocols shall be developed in accordance with prEN 14972-1:2018 (E) Annex A.

*Add new section*

### 17.2.4 Component Evaluation

Listed primary or engineered system components verified with the technical report shall be used.

*Add new section*

**17.2.4.1**

The water mist manufacturer shall evaluate the non-listed primary mist system components where performance objectives have been met.

Note: Non-listed primary water mist system components fall into two categories:

(1) brand new components (see 17.2.4.2);

(2) components that have been modified or engineered from listed components to perform and achieve the required results (see 17.2.4.3).

*Add new section*

**17.2.4.2**

For new components (defined in 17.2.4.1), component testing shall be in accordance with the pass/fail criteria of a recognized international procedure, for example:

(1) FM Approvals Approval Standard for Water Mist Systems Class Number 5560;

(2) IMO MSC/Circ. 1165.

Note: IMO MSC/Circ. 1165 is for nozzles only.

*Add new section*

**17.2.4.3**

Components that have been modified or engineered from listed components shall be reviewed between involved parties to establish if further component testing required.

*Add new section*

### 17.2.5 Fire Scenario Engineered Test Report

For fire scenario engineered solutions, the third-party fire test report shall provide:

(1) the outcome of the performance-based fire testing certifying that the system performance met the performance limits of the test protocol;

(2) evaluation of components and system hardware;

(3) applications and limitations;

(4) details of drawings, documents for the primary components;

(5) fire test protocols.

Note: The water mist system manufacturer shall document this within a technical file to be provided within or alongside the DIOM manual.

*Add new section*

### 17.2.6 Fire Scenario Engineered Test Documentation

For fire scenario engineered solutions, the documentation required to accompany the water mist system shall be in accordance with 17.18.

*Add new section heading*

## 17.3 Sprinkler Equivalent Systems / Occupancy Protection Systems

*Add new section*

### 17.3.1 Sprinkler Equivalent Systems

For marine/offshore applications, sprinkler equivalent systems in accordance with 16.2 shall be installed where automatic water mist nozzles are provided, with class A combustibles being the predominant hazard, for example in accommodation spaces, public spaces, galleys and storerooms.

*Add new section*

### 17.3.2 Occupancy Protection Systems

For onshore applications, occupancy protection water mist systems shall use automatic water mist nozzles installed throughout a building or a portion of a building that are intended to control, suppress or extinguish fire (see A.5.1 for examples).

*Add new section heading*

## 17.4 Flammable Liquids and Gases

*Add new section heading*

### 17.4.1 Flammable Liquids and gases - Total Volume Protection

*Add new section*

**17.4.1.1**

For total volume protection, the maximum coverage volume shall be determined from fire testing results conducted by the water mist supplier in accordance with the listing or fire scenario engineered solutions in accordance with 17.2

*Add new section*

**17.4.1.2**

For marine/offshore application, flammable liquids and gases, total volume protection systems are for where flammable liquids and gases are the predominant hazard. The requirements of 16.3 shall apply.

*Add new section*

**17.4.1.3**

Onshore applications shall be designed and installed in accordance with the listing.

*Add new section*

### 17.4.2 Flammable Liquids - Local Application Protection

For local application protection, the maximum coverage area shall be determined from fire testing results conducted by the water mist supplier in accordance with the listing or fire scenario engineered solutions in accordance with 17.2.

*Add new section*

## 17.5 Water Supply

The water supply for a water mist system shall be in accordance with the manufacturer's listing for one or more of the following:

(1) potable;

(2) seawater;

(3) demineralized;

(4) filtered.

*Add new section*

**17.5.1**

For offshore, marine and onshore applications, the potable water supply shall be permitted to satisfy the demand period.

*Add new section*

**17.5.2**

The demand period shall be in accordance with the manufacturer's listing or the requirements of the authority having jurisdiction.

*Add new section*

## 17.6 Power Supplies

For onshore applications, main and emergency sources of power shall be at the acceptance of the authority having jurisdiction.

*Add new section*

## 17.7 Location of Pressure Source Components

*Add new section*

**17.7.1**

The general requirements shall be in accordance with NFPA 20 4.14.

*Add new section*

**17.7.2**

Pressure source components of the system shall be located outside the protected space, with the exception of pump/cylinder units supplying local application fire protection systems.

*Add new section*

**17.7.3**

Pressure source components shall be physically separated from the hazard being protected in order to prevent a fire associated with the hazard from directly exposing the pumping unit (in accordance with NFPA 20 4.14.1.1.3).

Note: This location may be known as the water mist pump room or water mist fire fighting skid enclosure.

*Add new section*

**17.7.4**

This location shall apply to pumps, pressure tanks, cylinder tanks, emergency power cables and controllers.

*Add new section*

**17.7.5**

This location shall be dry and free of condensate.

Note: To achieve this environment, heating or cooling may be required.

*Add new section*

**17.7.6**

This location shall be provided with a floor drain that discharges to a frost-free location.

*Add new section*

**17.7.7**

This location shall have provision for ventilation.

*Add new section*

**17.7.8**

This location shall have provision for artificial and emergency lighting.

*Add new section*

**17.7.9**

The water delivery unit (pump or cylinder type) shall be installed and secured in accordance with the manufacturer's DIOM.

*Add new section heading*

## 17.8 Location and Environment

*Add new section*

### 17.8.1 Standard Design and Construction

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

*Add new section*

### 17.8.2 Material and Coatings

The changing of materials or coatings can result in components no longer being listed. Clear guidance shall be found in the manufacturer's DIOM manual.

*Add new section*

### 17.8.3 Corrosive Environments

For systems within corrosive environments, 6.1.3 shall apply.

*Add new section*

**17.8.3.1**

Alternative materials to a listed solution shall be approved at the acceptance of the water mist manufacturer, the owner and the authority having jurisdiction.

*Add new section*

## 17.9 Hazardous Area

Systems situated within a hazardous area shall use:

(1) listed components that are also approved for use in these areas; or

(2) components that are not part of the water mist system manufacturer's standard design and construction, and that are approved for use in these areas.

*Add new section*

## 17.10 Materials

Water mist fire protection system components shall be the water mist system manufacturer's standard material for the listed or fire scenario engineered application.

*Add new section*

## 17.11 Painting and Coating

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

*Add new section*

## 17.12 Low Voltage Motors

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

*Add new section*

## 17.13 Tubing and Fittings

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

*Add new section*

## 17.14 Instrumentation

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

Note: IOGP S-718 applies only for applications located within hazardous areas.

*Add new section*

## 17.15 Impact of Frame Agreement

Water mist fire protection systems shall be the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application.

Note: This specification overrides any frame agreement for the replacement of non-listed components.

*Add new section*

## 17.16 Human Factors

Human factors shall be considered to the extent practicable in the design of water mist systems for offshore/marine and onshore applications.

*Add new section*

## 17.17 Nameplate, Tagging and Identification

The following items within the water mist fire protection systems shall be tagged, color coded or provided with nameplate:

(1) water container nameplate in accordance with 6.2.2.6;

(2) gas container nameplate in accordance with 6.2.2.8;

(3) pump information plate in accordance with 6.9.1.6;

(4) manual pull stations in accordance with 14.2.4.2.7;

(5) conversion fittings from metric to fractional units in accordance with 6.4.1.2.1;

(6) abort switches in accordance with 14.2.4.2.8.1;

(7) shore connection in accordance with 16.1.9.4.1 and 16.1.9.4.2.

*Add new section*

## 17.18 Documentation

The documentation specified in IOGP S-719L shall be provided to the purchaser in accordance with the chosen CAS level.

*Add new section heading*

## 17.19 Inspection, Testing and Certification

*Add new section*

### 17.19.1

Inspection, testing and certification shall be carried out in accordance with Chapter 14 and Chapter 15, and IOGP S-719Q.

*Add new section*

### 17.19.2

Inspection and testing requirements with regard to the extent of purchaser surveillance shall be in accordance with Annex A of IOGP S-719Q.

*Add new section*

### 17.19.3

Material traceability and certification shall be in accordance with Annex B of IOGP S-719Q.

# Annex A Explanatory Material

## A.4.1

*Add new list item 11*

(11) Oil and gas applications, for example: turbine enclosures, reciprocating internal combustion engines, compressors, generators, pumps, transformers, machinery spaces, accommodation spaces, stores, galley ducts, deep fat fryers, cable rooms, switch gear rooms, control and server rooms, UPS/battery rooms, hydraulic power packs and process areas.

**Registered Office**
City Tower
40 Basinghall Street
14th Floor
London EC2V 5DE
United Kingdom

T +44 (0)20 3763 9700
F +44 (0)20 3763 9701
reception@iogp.org

**Brussels Office**
Bd du Souverain,165
4th Floor
B-1160 Brussels
Belgium

T +32 (0)2 566 9150
F +32 (0)2 566 9159
reception@iogp.org

**Houston Office**
10777 Westheimer Road
Suite 1100
Houston, Texas 77042
United States

T +1 (713) 470 0315
reception@iogp.org

www.iogp.org