

Supplementary Specification to NFPA 750 Standard on Water Mist Fire Protection Systems

Public Review Draft

Revision history

VERSION	DATE	PURPOSE
0.1	October 2019	Issued for Public Review

Acknowledgements

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

Disclaimer

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, neither IOGP nor any of its Members past present or future warrants its accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at the recipient's own risk on the basis that any use by the recipient constitutes agreement to the terms of this disclaimer. The recipient is obliged to inform any subsequent recipient of such terms. This publication is made available for information purposes and solely for the private use of the user. IOGP will not directly or indirectly endorse, approve or accredit the content of any course, event or otherwise where this publication will be reproduced.

Copyright notice

The contents of these pages are © International Association of Oil & Gas Producers. Permission is given to reproduce this report in whole or in part provided (i) that the copyright of IOGP and (ii) the sources are acknowledged. All other rights are reserved. Any other use requires the prior written permission of IOGP.

These Terms and Conditions shall be governed by and construed in accordance with the laws of England and Wales. Disputes arising here from shall be exclusively subject to the jurisdiction of the courts of England and Wales.

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 for projects 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 approved specification, building on recognized industry and/or 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, facilitating improved standardization of major projects across the globe. 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

	Foreword	1
	Introduction	4
2	Referenced Publications	6
5	Classification of Occupancies	6
	5.2 Classification of Specific Applications for Water Mist Systems	6
6	System Components and Hardware	6
	6.1 General.....	6
	6.5 Hangers/Supports	6
9	Design Objectives and Fire Test Protocol	7
	9.1 General.....	7
	9.2 Listing Evaluations	7
12	Water Supplies and Atomizing Media	7
	12.5 Water Supplies	7
16	Marine.....	8
	16.1 General.....	8
	16.2 Sprinkler Equivalent Systems	8
17	Water Mist Systems for the Oil and Gas Sector.....	8
	17.1 General.....	8
	17.2 Fire Scenario Engineered Systems	13
	17.3 Sprinkler Equivalent Systems/Occupancy Protection	15
	17.4 Flammable Liquids and Gases.....	15
	17.5 Water Supply.....	15
	17.6 Power Supplies	16
	17.7 Location of pressure source components	16
	17.8 Location and environment.....	17
	17.9 Hazardous Area	17
	17.10 Materials.....	17
	17.11 Painting and Coating	17
	17.12 Low Voltage Motors	17
	17.13 Tubing and Fittings.....	18
	17.14 Instrumentation.....	18
	17.15 Impact of Frame Agreement	18
	17.16 Human Factors.....	18
	17.17 Nameplate, Tagging and Identification	18
	17.18 Documentation	18
	Annex A	20

List of Tables

Table 17.1.4.1 — Efficacy and Reliability10

Public Review Draft

Introduction

The purpose of this specification is to define a minimum common set of specification requirements for the procurement of water mist fire protection systems in accordance with NFPA750: 2019 Standard on water mist fire protection systems for application in the petroleum and natural gas industries.

This JIP33 standardized procurement 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**

It is required to use all of these documents in conjunction with each other when applying this specification, as follows.

S-719: Supplementary Specification to NFPA750:2019 Standard on Water Mist Fire Protection Systems

This specification is written as an overlay to NFPA750 to define the minimum requirements for the procurement of water mist fire protection systems. Following the clause structure of the parent standard, to assist in cross-referencing the requirements. Where clauses from the parent standard NFPA750 are not covered in this specification, there are no supplementary requirements or modifications to the respective clause. The terminology used within this specification follows that of the parent standard and otherwise is in accordance with ISO/IEC Directives, Part 2.

Modifications to the parent standard defined in this specification are identified as Add (add to clause or add new clause), Replace (part of or entire clause) or Delete.

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

This document provides project specific requirements where this specification requires the purchaser to define an application specific requirement. It also includes information required by the purchaser for technical

evaluation. Additional purchaser supplied documents are also listed in the data sheet, to define scope and technical requirements for enquiry and purchase of the equipment.

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

This document defines the information requirements, including format, timing and purpose, for information to be provided by the vendor. It also defines the specific conditions which must be met for conditional information requirements to become mandatory. The information requirements listed in the IRS have references to the source of the requirement.

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

This document includes a conformity assessment system (CAS) which specifies standardized user interventions against quality management activities at four different levels. The applicable CAS level is specified by the purchaser in the data sheet.

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.

Unless defined otherwise in the purchase order, 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, IRS, QRS);
- d) this specification;
- e) this parent standard.

2 Referenced Publications

CEN prEN 14972	Fixed firefighting systems - Watermist systems - Design and installation
VDS 3188	VdS Guidelines for Water Mist Sprinkler Systems and Water Mist Extinguishing Systems (High Pressure Systems), Planning and Installation
BS 8489,	Fixed Fire Protection systems. Industrial and commercial water mist systems. Code of practice for design and installation.
UL2167	Standard for Water Mist Nozzles for Fire Protection Service
FM Global Property Loss	Fire Protection System Inspection, Testing and Maintenance, April 2019

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).

6 System Components and Hardware

6.1 General

6.1.3 Corrosion Resistance

6.1.3.1 Corrosive Atmospheres

Add to section

To avoid the changing of materials resulting in a component being no longer listed, the water mist system manufacturer shall clarify their position on listed and approved components. Clear guidance shall be found in the manufacturer's design, installation, operation and maintenance (DIOM) manual.

6.5 Hangers/Supports

6.5.7 Powder-Driven Fasteners

6.5.7.1

Delete section

9 Design Objectives and Fire Test Protocol

9.1 General

Add new section

9.1.5 Fire Scenario Engineered Solutions

Where current fire test proposals do not exist, fire scenario solutions shall be engineered by developing and performing new fire test protocols, and reporting as part of a collaboration process with qualified third parties.

The performance of the system design shall be consistent with the testing (see Chapter 17).

9.2 Listing Evaluations

9.2.6 Design and Installation Manual

Add to section

9.2.6.1

For water mist systems that are not listed due to lack of existing test protocol but are proven by fire scenario engineered methods, the manufacturer shall use the DIOM manual.

12 Water Supplies and Atomizing Media

12.5 Water Supplies

12.5.1 Water Quality

12.5.1.1

Add to section

Note: The use of natural seawater is for the event of the potable water not being available. (e.g. depletion or problem with supply). The water mist supplier will be consulted on the use of natural seawater within the system, and clear instruction will be found in the water mist manufacturer's DIOM manual.

12.5.1.2

Add to section

Note: In areas where the U.S. Environmental Protection Agency do not have authority, when accepted by the authority having jurisdiction, the local or international requirements where different from the above mentioned are permitted.

16 Marine

16.1 General

16.1.1 Marine Definitions

16.1.11 Piping

Add to section

Piping between a vessel's sea chest and the first shutoff valve shall be installed in accordance with its listing:

- (1) Where the listing criteria or local requirements are different from the instruction mentioned in 16.1.11
- And
- (2) When the listing criteria or local requirements are accepted by the authority having jurisdiction

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

17 Water Mist Systems for the Oil and Gas Sector

17.1 General

17.1.1 Scope

Chapter 17 outlines the deletions, modifications and additions to NFPA 750 that shall be required for water mist fire protection systems for use within the oil and gas industry. All other requirements of this standard should apply to oil and gas industry systems except as modified by this chapter.

All water mist systems and their primary components shall be either:

- (1) Listed/approved
- Or
- (2) Part of a fire scenario engineered system compliant with 17.2 and accepted by the authority having jurisdiction

For offshore/marine applications, see Chapter 16.

For onshore applications, see Section 17 and the remainder of NFPA 750, at the acceptance of the authority having jurisdiction.

17.1.2 Purpose

This specification is an overlay to NFPA 750 2019, which is the worldwide recognized standard on water mist fire protection systems.

The purpose of this specification is to allow the purchaser to make informed decisions on the cost effective procurement of water mist fire protection system.

This specification has been developed to ensure that any water mist fire protection system meets 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)
- (2) Defined process for the fire scenario engineered solution

The data sheet becomes the tool for clarification and project specific requirements above the minimum. Any deviation from this specification can result in additional cost to the product.

NOTE: The system and components will be proven and qualified, such that there will be no need for any further or special intervention from the oil and gas sector.

17.1.3 Water Mist for the Oil and Gas Industry Definitions

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

17.1.3.1 Fire Scenario Engineered Systems

Water mist fire protection systems that are not listed and have evidence of:

- (1) A collaborative fire engineered solution developed and agreed between relevant parties on a case by case basis by either:
 - a) Using existing results and knowledge to develop an acceptable solution that provides suitable fire protection pertinent to the risk
 - Or
 - b) Fire testing that is pertinent to the risk and that is carried out by an internationally recognized accredited fire testing laboratory.
- (2) Component evaluations.
- (3) Accompanying full report describing pre-defined pass/fail criteria and the results of the performance-based fire testing.
- (4) The manufacturer's DIOM manual.

17.1.3.2 Fire Scenario Engineered Test Protocols

Fire testing that is pertinent to the risk based on the pre-defined pass/fail criteria of the test protocol; conducted by an internationally recognized laboratory, in the presence of the relevant third-party authorities; developed as per prEN 14972-1:2018 (E) Annex A.

17.1.3.3 Technical File / Technical Manual

Set of documents that describes the water mist system. It demonstrates that the system has been designed and tested in accordance with internationally recognized standards and protocols pertinent to the risk to be protected by the water mist fire protection system.

Note: The contents of this set of documents is clarified in 17.18.

17.1.3.4 Primary components

Components considered to be those that are 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

Note: Other pressure related components (e.g. tube, fittings, valves and psv's) can be tested by the manufacturer, and will be tested during commissioning.

17.1.4 Efficacy and reliability

17.1.4.1

Efficacy and reliability shall be as per 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
Onshore systems utilizing listed systems	component testing requirement of the internationally recognized listing company
Fire scenario engineered solutions for marine/offshore and onshore applications	17.2

17.1.4.2

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

- a) Listed/approved

Or

- b) Traceable to listed components, except when accepted by the authority having jurisdiction (see note).

Note: For components, (e.g. nozzles) that are not listed. Engineered components that are derived from a family or series of components that are listed; a technical file will be compiled by the manufacturer. To provide evidence of traceability back to the listed components.

17.1.4.3 Water Mist System Manufacturing Quality

The supplier shall demonstrate that the quality management arrangements, established for the supply of the water mist system to this specification, conform to their listing requirements.

Production of the following items shall be demonstrated:

- (1) Nozzles
- (2) Flexible hoses
- (3) Cylinders
- (4) Fire fighting skid/enclosure
- (5) Section control valves
- (6) Manifolds
- (7) Pump systems
- (8) Cylinder systems

Factory acceptance test (FAT) shall be agreed between supplier and purchaser, considering any listing.

17.1.5 Water Mist Systems

17.1.5.1 Applications for the Oil and Gas Sector

Specific applications for the oil and gas industry including hazards and conditions similar to the following:

- (1) Machinery spaces
- (2) Combustion turbines/engines
- (3) Local application
- (4) Light and ordinary hazard occupancies
- (5) Electrical, control, data and safety rooms
- (6) Transformers
- (7) Process areas

17.1.5.2 Multiple Protected Spaces/Objects

One water mist system can cover multiple protected spaces or objects, including differing system types (e.g. machinery spaces and accommodation areas). The protected spaces or objects can be supplied via sectional control valves on a common distribution manifold or part of the distribution piping network. Multiple fire scenarios, in multi spaces are not considered in the design and installation of the water mist system

17.1.5.3 Protected Compartments Integrity

For protected compartments or rooms, the opening integrity is not as critical as required for gaseous fire protection systems. e.g. the room does not need to be air tight sealed. Ventilation conditions and opening integrity shall be addressed in the design and installation of the water mist system.

17.1.6 General Design

The system and equipment shall be suitably designed to withstand all of the following as normally encountered within the oil and gas industry:

- (1) Ambient temperature changes
- (2) Vibrations
- (3) Humidity
- (4) Shock
- (5) Impact
- (6) Clogging
- (7) Corrosion
- (8) Explosion

Note: Items (2), (4) and (5) do not apply to onshore applications.

Deviations from the general design shall only be needed for project specific requirements.

17.1.7 Pump Redundancy

Pump redundancy shall be as:

- (1) As per 16.1.6 for offshore/marine applications
- (2) At the acceptance of the authority having jurisdiction for onshore applications

17.1.8 Cylinder System Redundancy

For all offshore/marine and onshore applications, redundancy shall be at the acceptance of the authority having jurisdiction.

17.1.9 Controls and Alarms

17.1.9.1 Pump Systems

Pump systems controls shall be:

- (1) For listed offshore/marine applications, as per 16.1.7.2
- (2) For offshore/marine fire scenario engineered solutions, as per the manufacturer's DIOM manual or fire scenario engineered test report, if applicable
- (3) For onshore applications, as per the manufacturer's listing
- (4) For onshore fire scenario engineered solutions, as per the manufacturer's DIOM manual or fire scenario engineered test report

17.1.9.2 Annunciation

The annunciation shall be:

- (1) For offshore/marine applications, as per 16.1.7.2
- (2) For offshore/marine fire scenario engineered solutions, as per the manufacturer's DIOM or fire scenario engineered test report, if applicable
- (3) For onshore applications, as per the manufacturer's listing
- (4) For onshore fire scenario engineered solutions, as per the manufacturer's DIOM or fire scenario engineered

17.1.9.3 Flow Condition Alarm

The flow condition alarm shall be:

- (1) For offshore/marine applications, as per 16.1.7.3
- (2) For onshore applications, as per the manufacturers listing or as per the manufacturer's DIOM manual

17.1.9.4 Pressure Monitoring

Pressure monitoring shall be:

- (1) For offshore/marine applications, as per 16.1.7.4
- (2) For onshore applications, as per the manufacturers listing and at the acceptance of the authority having jurisdiction

17.1.10 Pipe Penetrations

Pipe penetrations shall be:

- (1) For offshore/marine applications, as per 16.1.8
- (2) For onshore applications, at the acceptance of the authority having jurisdiction

17.2 Fire Scenario Engineered Systems.

17.2.1 General

Fire scenario engineered systems are innovative and have not yet been addressed by water mist international standards.

The fire scenario engineered solution shall consist of the following:

- (1) A collaborative fire engineered solution, developed and agreed between the relevant parties, on a case by case basis, by:
 - (a) Either using existing results and knowledge to develop an acceptable solution providing fire protection pertinent to the risk
 - (b) Or fire testing pertinent to the risk and carried out by internationally recognized accredited fire testing laboratory
- (2) Component evaluations
- (3) A full report describing the results of the performance based fire testing as per 17.2.4

- (4) The manufacturer's technical documentation as per 17.18

17.2.2 Fire Test Protocols

Fire test protocols shall be developed as per prEN 14972-1:2018 (E) Annex A.

17.2.3 Component Evaluation

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

17.2.3.1

The water mist manufacturer shall:

- (1) Evaluate the non-listed primary mist system component to demonstrate that performance objectives can be met
- (2) Detail the evaluation criteria within a technical report or DIOM manual

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

- (1) Brand new components (see 17.2.3.2)
- (2) Components that have been modified or engineered from listed components to perform and achieve the required results (see 17.2.3.3)

17.2.3.2

For brand new components (as defined in 17.2.3.1), component testing shall be in accordance with the pass/fail criteria of a recognized international procedure such as follows, but not limited to:

- (1) FM Approvals Class Number 5560
- (2) Approval Standard for Water Mist Systems
- (3) IMO MSC/Circ. 1165 and IMO MSC/Circ. 668

17.2.3.3

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

17.2.4 Fire Scenario Engineered Test Report

For fire scenario engineered solutions, a test report shall be required, describing:

- (1) The outcome of the performance-based fire testing and 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 and documents for the primary components and the fire test protocols

Note: It is the responsibility of the water mist system manufacturer to document this within a technical file to be provided within or alongside the DIOM manual.

17.2.5 Fire Scenario Engineered Test Documentation

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

17.3 Sprinkler Equivalent Systems/Occupancy Protection

17.3.1 Sprinkler Equivalent Systems

For marine/offshore application, sprinkler equivalent systems shall be installed where automatic water mist nozzles are located, particularly to prevent class A combustibles, e.g. in accommodation spaces, public spaces, galleys and storerooms.

17.3.2 Occupancy Protection Systems

For onshore application, occupancy protection systems shall be installed where automatic water mist nozzles are located throughout a building or a portion of a building in order to control, suppress and/or extinguish a fire (see A.5.1 for examples).

These occupancy protection systems shall be as per the manufacturer's listing and at the acceptance of the authority having jurisdiction.

17.4 Flammable Liquids and Gases

17.4.1 Flammable Liquids and gases - Total Area Protection

For total area protection (also known as total flooding), the maximum coverage area or volume is determined from fire testing results conducted by the water mist supplier in accordance with the listing or the fire scenario engineered solutions, as defined in 17.2.1.

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

Onshore applications shall be designed and installed as designated by their listing.

17.4.2 Flammable liquids - Local application Protection

For local application protection, the maximum coverage area or volume is determined from fire testing results conducted by the water mist supplier in accordance with the listing or the fire scenario engineered solutions, as defined in 17.2.1

17.5 Water Supply

The water supply for a water mist system shall be as per the manufacturers listing, and shall include one or more of the following:

- (1) Potable

- (2) Seawater
- (3) Demineralized
- (4) Filtered

17.5.1

For offshore/marine applications the water supply shall supply the system with freshwater for a period of at least 30 minutes, or as per the manufacturer's listing, whichever is the greater. The potable water supply shall be permitted to satisfy this demand period.

17.5.2

For onshore applications, the water supply shall be as per the manufacturer's listing and at the acceptance of the authority having jurisdiction.

17.6 Power Supplies

For offshore/marine and onshore applications, power supplies shall be as per 16.3.6.

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

17.7 Location of pressure source components

The general requirement shall be as per NFPA20 4.14

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.

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 (as per NFPA20 4.14.1.1.3).

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

17.7.1

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

17.7.1.1

This location should be dry and free of condensate. To accomplish the correct environment, heating or cooling may be required.

17.7.1.2

This location shall be provided with a floor drain that discharge's to a frost-free location.

17.7.1.3

This location shall have provision for ventilation.

17.7.1.4

This location shall have provision for artificial and emergency lighting.

17.8 Location and environment

17.8.1 Standard design and construction

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

17.8.2 Material and coatings

The changing of materials or coatings could result in that component being no longer listed. The water mist system manufacturer shall clarify their position. Clear guidance shall be found in the manufacturer's DIOM manual.

17.8.3 Corrosive Environments.

For systems within corrosive environments, 6.1.3 shall apply. Any deviation to a listed solution shall be at the acceptance of the authority having jurisdiction.

17.9 Hazardous Area

Systems situated within a hazardous area may use components that are not part of the water mist system manufacturer's standard design and construction, but are approved for use in these areas.

17.10 Materials

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

17.11 Painting and Coating

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

IOGP S-715 applies to the offshore and marine sector.

17.12 Low Voltage Motors

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

IOGP S-703 applies only for applications located within hazardous areas.

17.13 Tubing and Fittings

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

17.14 Instrumentation

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

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

17.15 Impact of Frame Agreement

All water mist fire protection systems shall be at minimum to the water mist system manufacturer's standard design and construction for the listed or fire scenario engineered application. This specification overrides any frame agreement.

17.16 Human Factors

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

17.17 Nameplate, Tagging and Identification

All water mist fire protection systems shall include the following items to be tagged/color coded or with nameplate (where applicable) at minimum:

- (1) Water container nameplate as per 6.2.2.6
- (2) Gas container nameplate as per 6.2.2.8
- (3) Pump information plate as per 6.9.1.6
- (4) Manual pull stations as per 14.2.4.2.7
- (5) Conversion fittings from metric to fractional units shall be identified as per 6.4.1.2.1 (color or tagging)
- (6) Abort switches as per 14.2.4.2.8.1
- (7) Shore connection as per 16.1.9.4.1 and 16.1.9.4.2

Note: Additional project specific tagging and identification will be addressed in the data sheet.

17.18 Documentation

All water mist fire protection systems shall include the following documentation (where applicable) at minimum. This may be known as the technical file or technical manual. Items listed below can be included:

- (1) DIOM manual(s)
- (2) Set of drawings (general arrangements, detailed drawings, P&ID, electrical schematic)
- (3) Hydraulic calculations / pneumatic calculations
- (4) Fire test certificate / approval report or fire scenario engineered test report(s) from internationally recognized organization
- (5) Primary component data sheets
- (6) System bill of materials
- (7) Logic diagram
- (8) Written sequence of operation
- (9) System acceptance report/certificate
- (10) Declaration of conformity

Note: System training, and training documentation for the operation, maintenance and repair, may be provided by the supplier on a case by case basis.

Annex A

A.4.1

Add new list item 11)

- (11) Oil and gas applications: turbine enclosures, generators, switch gear, hydraulic power packs, accommodation spaces, exhaust ducts, UPS/battery rooms, etc.

Public Review Draft

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

Draft