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## **Addendum 1**

*Throughout document: Replace the word “union” with “union connector(s)”*

*Section 2 (Normative References): The following updates shall be made:*

*Delete the following reference:*

*ASTM E428, Standard Practice for Fabrication and Control of Steel Reference Blocks Used in Ultrasonic Inspection*

*Add the following references:*

*API Specification 20D, Qualification of Nondestructive Examination Services for Equipment Used in the Petroleum and Natural Gas Industry*

*ASTM E127, Standard Practice for Fabrication and Control of Flat Bottomed Hole Ultrasonic Standard Reference Blocks*

*ISO 9712, Non-destructive testing – Qualification and Certification of NDT Personnel*

*ISO 10893-2, Non-destructive testing of steel tubes – Part 2: Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections*

*ISO 10893-3, Non-destructive testing of steel tubes – Part 3: Automated full peripheral flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal and/or transverse imperfections*

*ISO 10893-4, Non-destructive testing of steel tubes – Part 4: Liquid penetrant inspection of seamless and welded steel tubes for the detection of surface imperfections*

*ISO 10893-5, Non-destructive testing of steel tubes – Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections*

*Table 6: Footnote “a” shall be deleted from the table.’*

*5.13: The lone paragraph shall be replaced by the following:*

*Materials for mud gas separators shall be in accordance with the requirements of NACE MR0175/ISO 15156.*

*5.13.1: The section shall be moved below 5.12.1 and renumbered as 5.12.2.*

*Table 8: The table shall be renumbered as Table 9.*

**Table 9—Pressure-containing Parts Material Designation**

*Table 9: The table shall be renumbered as Table 10.*

**Table 10—Pressure-containing Parts Material Property Requirements**

*Table 10: The table shall be renumbered as Table 8.*

**Table 8—Acceptance Criteria Charpy V-notch Impact Requirements**

*6.2.3: The first paragraph shall be replaced by the following:*

When impact testing is required by the base material specification, the testing shall be performed in accordance with Annex G, or the alternative method below.

*Section 7: The following shall be added, and subsequent subsections renumbered and references updated:*

**7.1 General**

The organization shall establish, document, implement, and maintain a QMS in accordance with an existing internationally recognized quality management standard.

*7.3.1: The section shall be replaced with the following:*

**7.3.1 Nondestructive Examination (NDE) Personnel**

NDE operations referred to in this standard (except visual inspection) shall be conducted by a minimum of a Level II inspector.

Personnel performing NDE shall be qualified in accordance with the documented training program that conforms to the requirements specified in ISO 9712 or ASNT SNT-TC-1A.

*7.4.1: The section shall be replaced with the following:*

Quality control activities shall be controlled by manufacturer's documented instructions that shall include appropriate methodology and quantitative or qualitative acceptance criteria.

Alternative NDE technologies may be used for surface and volumetric examinations.

Alternative NDE technologies shall meet the following requirements:

- a) Validated in conformance with a recognized industry standard (e.g., ASTM, ASME, ISO).
- b) Measuring equipment validated to confirm it is capable of evaluating current acceptance criteria.
- c) Acceptance criteria equivalent to the NDE method replaced.
- d) Documented procedure approved by a NDE Level III.
- e) Inspection personnel trained, qualified, and competent in the alternative NDE technology.

7.4.2: The section shall be replaced with the following:

Nondestructive examination (NDE) instructions shall be detailed regarding the requirements of this specification and those of applicable referenced standards. All NDE instructions shall be approved by a Level III individual.

Welding inspectors, NDE inspectors, and dimensional inspectors shall take and pass an annual vision examination that includes near-vision and color acuity in accordance with the manufacturer's documented procedures that conforms to the applicable requirements of ISO 9712 or ASNT SNT-TC-1A.

7.4.3.7.2.3: The first bulleted item shall be changed to the following:

- $1/16$  in. (1.6 mm) flat bottom hole for metal thicknesses less than  $1\frac{1}{2}$  in. (38.1 mm);

Table 17: The table shall be changed as indicated in the red box:

| Quality Requirement | Metallic Parts (Wetted) | Metallic Parts (Non-wetted) | Nonmetallic Parts |
|---------------------|-------------------------|-----------------------------|-------------------|
| Tensile testing     | 5.12.1                  | 5.13.1                      | N/A               |
| Impact testing      | 5.12.2                  | N/A                         | N/A               |

...

7.4.12.2.1: "Through-wall" shall be removed from the section title, so it reads as follows:

#### 7.4.12.2.1 Ultrasonic Testing

7.4.12.2.2 and 7.3.12.2.3: The two subsections shall be combined into one subsection with the following title:

#### 7.4.12.2.2 NDE—Rigid Piping

The numbering of subsequent subsections and references to the subsections shall be updated..

7.4.12.2.2: In the first bulleted item, "ISO 9303" shall be changed to "ISO 10893-10".

- ultrasonic testing in conformance with ISO 10893-10 or ASTM E213 (longitudinal and transverse). Alternatively, phased array techniques may be used;

7.4.12.2.2: In the second bulleted item, "ISO 9402" shall be changed to "ISO 10893-3" and "ISO 9598" shall be changed to "ISO 10893-3".

- flux leakage testing in conformance with ISO 10893-3 or ASTM E570 (longitudinal and transverse).

7.4.12.2.2: In the third bulleted item, "ISO 9304" shall be changed to "ISO 10893-2".

- eddy current concentric coil testing in conformance with ISO 10893-2 or ASTM E309;

7.4.12.2.2: The reference to 7.4.12.2.6 shall be changed to 7.4.12.2.4.

7.4.12.2.3: *The paragraph shall be replaced with the following:*

NDE equipment calibration shall be controlled and calibrated in accordance with 7.2.

7.4.12.2.4: *This subsection shall be deleted, and the numbering of subsequent subsections and references to the subsections shall be updated.*

7.4.12.2.4 (renumbered): *“Surface” shall be removed from the section title, so it reads as follows:*

**7.4.12.2.4 NDE Notch Standard**

7.5.11.2: *This section shall be deleted.*

10.2.5: *The title shall be changed from “Unions and Swivel Unions” to “Swivel Unions and Union Connectors”.*

**10.2.5 Swivel Unions and Union Connectors**

10.2.5.2: *The text “unions and swivel unions” shall be changed to “swivel unions and union connectors”.*

10.2.5.3: *The text “unions and swivel unions” shall be changed to “swivel unions and union connectors”.*

10.2.5.4: *The text “unions and swivel unions” shall be changed to “swivel unions and union connectors”.*

Table 22: *The table shall be changed as indicated in the red box:*

**Table 22—Quality Control Requirements for Male and Female Subs**

| Quality Requirement | Section |
|---------------------|---------|
| Tensile testing     | 5.12.1  |
| Impact testing      | 5.12.2  |

...

10.6.1: *The section shall be changed to the following:*

The pipe wall thickness for a rated working pressure of 10,000 psi (69.0 MPa) or less shall conform with ASME B31.3, Part 2, or ASME BPVC, Section VIII, Division 2, or API 6X. For rated working pressures above 10,000 psi (69.0 MPa), ASME B31.3 Chapter 9, or ASME BPVC, Section VIII, Division 2, or API 6X shall be used. The use of von Mises equivalent stress shall be permitted.

*10.14.2: The section shall be changed to the following:*

Atmospheric mud gas separators shall be designed and constructed in conformance with ASME BPVC, Section VIII, Division 1, or equivalent national or international standards. The MGS shall be designed to a rated working pressure that conforms to or exceeds the greater of:

- a) the hydrostatic pressure, specified by the purchaser, resulting from the vent line being filled with mud at 2.2 specific gravity; or
- b) the hydrostatic pressure resulting from the vent line being filled with mud of the maximum density, as specified by the purchaser; or
- c) 125 psi.

The mud gas separator rated working pressure (RWP) shall be communicated to the purchaser. The manufacturer shall provide the vessel testing documentation prior to or upon delivery or receipt of the vessel.

A minimum of a 0.063-in. (1.6-mm) corrosion allowance shall be included in the wall thickness calculations. The design package shall state a required minimum acceptable metal thickness for the rated working pressure.

*10.14.5: The section shall be changed to the following:*

Structural attachments and the lifting apparatus shall be in conformance with an internationally recognized design code. When intended for offshore use, the additional requirements of API RP 2A-WSD shall apply.

NOTE Examples of Internationally recognized design codes include DNV, ABS, and ASME.

*B.3.2: The paragraph shall be changed as indicated by the red box:*

The controlling and recording instruments used for the heat-treatment process should provide an accuracy of +/- 1 % of the full-scale range.

*B.3.4: The paragraph shall be changed as indicated by the red box:*

Equipment used to calibrate the production equipment should be regularly recalibrated and have an accuracy of +/- 0.25 % of full-scale range.

*F.1: The last sentence of the fifth paragraph shall be changed as indicated by the red box:*

Because the float mechanism and the active discharge control system provide active liquid seal integrity, the separation capacity of a mud gas separator using these discharge systems is typically greater than the “passive” mud leg discharge system alone.