API Specification 6A, 20th Edition

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Addenda 1, 2, 3, 4 (June 2016)
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[NOTE 1 Interpretations are reviewed and approved by API and become part of the published document Interpretations apply only to the edition cited above. Interpretations may be used as a basis for change to the subsequent editions of the document

NOTE 2 Newly added interpretations are identified in red

6A-2017-21
Section/Table/Figure: Section 3.1.80 & F.1.6.3
Question: Referring to API 6A, paragraph 3.1.80 and paragraph F.1.6.3: can the definition of the pressure integrity be applied also to the valve internal parts (i.e. seats and gates)?
Response: Yes.

6A-2016-43
Section/Table/Figure: Section 3.1.140
Question: API Spec 6A, Section 3.1.140 defines wetted surface as any surface that has contact with pressurized well bore fluid, either by design of because of internal seal leakage. We seek clarification to if we need to inlay test ports, lockdown screws holes and VR plugs when making HH-NL equipment with inlay. Does that include test ports, lockdown screws and VR plug preparations?
Response: Yes. For HH equipment, if the surface adjacent to the test ports, lockdown screws holes and VR plug prep is required to be inlay, then the test ports, lockdown screws holes and VR plug prep is required to be inlayed as well.

6A-2016-28
Section/Table/Figure: Section 4
Question: Please can we have a written clarification on material class in API 6A. Our customer is requesting Class EE material for a spool and cross. However, they actually require carbon steel body with overlaid ring grooves only. Our interpretation of the standard is that this product would be classed as DD as not ALL wetted parts are stainless steel lined. Is this correct?
Response: Yes The carbon steel spool and cross you described meets the requirements for AA, BB, DD and EE.

- For a spool or cross there is no difference between Material Classes DD and EE because there are no pressure-controlling parts, see Table 3
- Weld overlay of ring grooves with either stainless steel or CRA does not change the material class.

6A-2012-08
Section/Table/Figure: Section 4.2.3.2
Question: Is H2S Partial Pressure rating required to be marked in addition to the material class for a blind flange? For example, is "EE" sufficient or would the marking on the blind flange need to be "EE-NL".?
Response: Yes

6A-2017-20
Section/Table/Figure: Section 4.2.3.3
Question: Is there an approved list of acceptable alloys that satisfy the HH class?
Response: No. There is no approved list. Alloys for material class HH must satisfy the following criteria as a minimum:

- API 6A, Section 3.1.31
- API 6A and manufacturer's minimum mechanical properties,
- NACE MR0175 / ISO 15156 (Parts 1 and 3)

NOTE: The 6A definition for CRA (API 6A, Section 3.1.31) is more restrictive than the definition in NACE MR0175. Stainless steels, including duplex stainless steels, do *not* meet the chemical composition requirements in API 6A for a CRA and are not acceptable for pressure-containing or pressure-controlling parts in Material Class HH.

6A-2018-05
Section/Table/Figure: Section 4.3; 5.10, 10.6.4
Question: This RFI requests clarification on the following sections: 4.3.2; 5.10; and 10.6.4 b. Do lock screws, tie-down screws, and alignment pins need to meet the requirements of NACE MR-01-75, when they are installed in casing-head housings, casing-head spools, tubing-head spools, cross-over spools, and multi-stage head housings and spools that are rated for material class DD, EE, FF, or HH?
Response: Your question cannot be answered as written. The specific material requirements for lock screws (tie-down screws) and alignment pins is not addressed in the materials sections (API 6A, Section 4.2.3 or API 6A, Section 5). Therefore, determination of the applicability of NACE MR0175 to these components would fall to the manufacturer or purchaser.

NOTE This topic is addressed in the next edition of API 6A (21st) and therefore this interpretation may not apply to that document.

6A-2013-02
Section/Table/Figure: Section 4.3.4
Question: The maximum allowable tensile stress, SA, for closure bolting shall be determined considering initial bolt-up, rated working pressure and hydrostatic test pressure conditions. Bolting stresses, based on the root area of the thread, shall not exceed the limit given in Equation (9):

SA =0,83 SY (9)

where SY is the bolting material-specified minimum yield strength.

Bolting stresses shall be determined considering all loading on the closure, including pressure acting over the seal area, gasket loads and any additional mechanical and thermal loads. Is bolting stress the tensile stress averaged across the minimum bolt cross sectional area resulting from direct tension without bending and neglecting stress concentrations, determined considering initial bolt-up, rated working pressure and hydrostatic test pressure conditions?
Response: Yes. Stress is based on the root (minor diameter) area if there is no smaller area, and should not include stress concentrations, bending, or torsion.

6A-2012-05
Section/Table/Figure: Section 4.4
Question: The valve produced is a bolted configuration and API 6A section 4.4 states that the end and outlet connections are to be an integral part of the body. The body of the valve produced has a bolted plate that closes the body off on each end and then optional end connections can be bolted on after. Does this meet API 6A – the valve would not be tested with the end connections themselves because the customer buys whatever they need and bolts them on later?
Response: The design of the feature used on a body to connect an end closure (bonnet) or other wellhead and Christmas tree equipment is an end connection. According to API 6A definition 3.1.9 a body must have more than one end connection. End Connections are defined in API 6A. Equipment that meets the requirements of API Spec 6A may be identified as conforming to API Spec 6A.

6A-2018-03
Section/Table/Figure: Section 5.1.2
Question: Referring to API 6A at 5.12 "Material requirements for clamp hubs, specified dimensionally in ISO 13533, shall be equal to the material requirements of the equipment to which the clamp hub is connected. Minimum requirements are those for PSL 2 bodies, bonnets and end and outlet connections (see 5.4)." Am I right on my interpretation: this apply to Clamp Hubs used as an end connector (definition of end connector is :used to joint together equipment that contains or controls pressure) When an ISO 13533 Clamp Hub is used as an end connector on equipment specified by the API 6A International Standard (i.e. connecting a 10K Valve to the pipeline) the requirements that apply to the clamp-Hub are based on the

equipment to which the clamp hub is connected?
Response: No. That is not correct. For an API 16B or 16BX clamp hub, the material requirements shall be as specified in API Spec 16A, based on the pressure rating of the hub.
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6A-2015-05
Section/Table/Figure: Section 5.2.2
Question: The manufacturer's written specifications for Body shall specify NDE requirements for PSL 1. Is it required to carry out surface NDE at the raw material stage for PSL 1?
Response: No. NDE is not required by API 6A for PSL 1, unless specified by the manufacturer.

6A-2016-25
Section/Table/Figure: Section 5.2.2
Question 1: The manufacturer's written specifications, for bodies, bonnets, end and outlet connections, stems, valve bore sealing mechanisms and mandrel hangers, shall define NDE requirements along with accept/reject criteria for PSL 1, 2 to 4. There are no specific NDE requirements on raw materials in API Spec 6A, Clause 5. Is it the intent of API Spec 6A that NDE requirements of raw materials are left to the manufacturers with respect to type of NDE, extent of NDE & acceptance criteria?
Response 1: No NDE requirements are identified in API 6A, Section 7 for the specified PSL level. The manufacturer must determine whether the required examinations can be performed in conformance to the requirements on raw materials, semi-finished (in-process) equipment, or finished equipment.
Question 2: Are NDE requirements specified in Table 17 of Cl 7.4.2 meant for only in-process inspection stages?
Response 2: No
Question 3: Or are the requirements of Table 17 applicable to raw materials also?
Response 3: Yes However all of API 6A, Table 17 may not apply to raw material. API 6A, Table 17 is used in conjunction with the text sections referenced in the table that contain the detailed requirements, including the point(s) in the manufacturing process at which the inspection is required.

6A-2017-10
Section/Table/Figure: Section 5.2.3
Question 1: Does the graphite sealing is subjected to API 6A requirements for non-metallic seals such as API 6A §5.2.3, API 6A §7.4.8 and table 28? Need written material specification?
Response 1: Yes
Question 2: If yes according to what requirements?
Response 2: Yes, See requirements of 5.2.1 and 5.2.3. The reference therein to generic base polymer does not apply to the graphite material.

6A-2012-04
Section/Table/Figure: Section 5.4.2 (Temperature)
Question: Scope of supply is an API 6A Class 10.000 valve in cast 22 Cr duplex material.
According to the standard we need 60K yield strength (we use integral flanges) which is easily achieved by the material as 22Cr has a yield of 65K. Our example has a temperature classification "U" which is -18 to 121 °C or 0 to 250 °F. API 6A does not derate the pressure in its classifications. If pressure is not derated (like in ASME B16.34) this means the 10.000 psi maximum working pressure can also be applied at 121 °C or 250 °F. The required 60K yield however is asked for on room temperature. The problem with duplex is the fact that the yield strength of the material drops below the required 60K at approximately 85 °C or 185 °F.
Ultimately this leads to the dilemma if we can we use 22Cr duplex as body material for API 6A valve in temperature rating "U"? In other words;
• is the 60K limit only applicable at room temperature as stated in the standard under paragraph 5.4.2 or
• is the 60K yield strength requirement in the standard also applicable at the upper temperature limit of the classification range.
Response: All alloy and stainless steels lose some strength at 250 °F. The fact that specification tests to 1.5 times working pressure and normally design for test conditions compensates for this. The tenet is that the properties can be considered to be constant up to 250 °F, but at 251 °F or higher the manufacturer should consider the effect of temperature on the material properties.

6A-2014-06

Section/Table/Figure: Section 5.7.2.3
Question: I am trying to verify an interpretation of API 6A specification requirements for QTC size mentioned in the paragraph 5.7.2.3. Paragraph 5.7.2.3 specifies: "The ER of the QTC shall be equal to or greater than the dimensions of the part it qualifies, except as follows: a) for PSL 2: 1) forging: size not required to exceed 63 mm (2.5") ER....", the interpretation used in the industry is that the size of the QTC of forged bar products does not have to be larger than 2.5" diameter ER regardless of diameter of the forged bar stock. Example of the above scenario: a 20" diameter forged bar stock can be qualified by a 2" square QTC for PSL 2 and a 4" square QTC for PSL 3-4 as long as they are heat treated together and they are from the same mill heat. Is it a correct interpretation? Pls. advise if it is or if it is not. If it is not then pls. explain why not.
Response: No, however, the sizes are correct for batch type heat treatment, not for continuous furnace heat treatment.

6A-2015-11
Section/Table/Figure: Section 5.7.3.3
Question 1: Currently we the heat treatment (batch type) with the product but It is difficult to satisfy. So we find the standard I would like to know more about the following sentence (API 6A 5.7.3.3) "if the QTC is not heat-treated as part of the same heat-treatment load as the part(s) it qualifies, the austenizing, solution-treating or age hardening (as applicable) temperatures for the QTC shall be within 14℃ of those for the parts." In the context of the above, each product in the production (each lots), QTC don't need to heat treatment with the product?
Response 1: For parts heat-treated in batch furnaces, it is not required that the QTC be heat-treated with the parts it qualifies.
Question 2: After the heat treatment in the QTC (alone), is it possible to guarantee the product?
Response 2: API specifications do not address product warranty or manufacturers' guarantees.

6A-2016-02
Section/Table/Figure: Section 6.3.2.2b
Question 1: API 6A/16A for Welding Procedure Qualification states that deposited weld metal mechanical properties shall meet or exceed the minimum specified mechanical properties of the material. Can this statement be proven by performing a full sized tensile specimen that has a ductile fracture in the base material above and beyond the base metal; and subsequent Charpy impacts, hardness, etc. that meet all of the requirements for the base material?
Response 1: Yes Per ASME Section IX, QW-153.1d, 2013
Question 2: Or does this mean that an all weld metal tensile specimen is necessary for qualification?
Response 2: No See above.

6A-2015-09
Section/Table/Figure: Section 6.3.2.3c
Question1: ASME Section IX does not specify when PWHT must be done, only that it is an essential variable when it is required by another code. If the welding procedure qualification (PQR) requires PWHT (as stated in 6.3.2.3.c), is it required that any production weld made in accordance with that qualification must also receive PWHT?
Response 1: Yes
Question 2: Because this is a requirement for PSL-1, does it follow that PSL-2 and PSL-3 also require PWHT of the PQR?
Response 2: Yes

6A-2017-06
Section/Table/Figure: Section 6.3.3.4
Question: Local post-weld heat treatment shall consist of heating a circumferential band around the weld at a temperature within the range specified in the qualified WPS. The minimum width of the controlled band at each side of the weld on the face of the greatest weld width shall be the thickness of the weld or 50 mm (2 in) from the weld edge, whichever is less. Heating by direct flame impingement on the material shall not be permitted. Based on this, the local PWHT cannot "consist of a circumferential band around the weld" like a girth joint. We can place resistance band above the spot repair, like the example below. Do you see any problem to perform this kind of local PWHT?
Response: API does not provide technical assistance. However, repair welds are addressed in 6.4.

6A-2012-03

Section/Table/Figure: Section 6.3.4.2.3

Question 1: Section states that hardness testing carried out on a PQR for a cross section greater and 13 mm: "six hardness tests shall be made in each of the base material(s), the weld and HAZ. Figure 4 shows 3 base metal and 3 HAZ punches per side of the weld joint. If qualifying a joint with 2 different alloys, is the requirement to have 6 base metal hardness tests PER alloy and 6 HAZ hardness tests PER alloy?

Response 1: No. Figures indicate the required hardness punches described by Sedition 6.3.4.2.3.

Question 2: Would figure 4 not be applicable to a PQR joining different alloys?

Response 2: No. Figure 4 would be applicable for joining both a single base material and different base materials.

Question 3: In the case of a PQR with 2 different alloys, would only 3 hardness tests be needed for each alloy in the base metal and 3 hardness tests in the HAZ of each alloy giving a total of 6 base metal tests and 6 HAZ test for both alloys combined as per figure 4?

Response 3: No. Figure 4 would be applicable for joining both a single base material and different base materials.

6A-2016-32

Section/Table/Figure: Section 6.5

Question 1: We currently purchase PSL-3 Valve Bore Sealing Mechanisms with tungsten carbide overlaid sealing surfaces. The supplier applies the tungsten carbide overlay by utilizing a High Velocity Oxygen Fuel (HVOF) thermal spray method. ASME Sect IX, Article II, QW-216 addresses Spray Fuse methods of hard facing using Oxyfuel and Plasma Arc as welding processes to prevent wear and/or abrasion. The as-welded tungsten carbide surfaces are then further processed by grinding and lapping to the final overall dimension, required flatness, and surface finish. Is HVOF thermal spray considered a welding process within the scope of API Spec 6A, Section 6.5?

Response 1: No, API 6A does not consider HVOF thermal spray a weld process.

Question 2: Does surface NDE performed on the VBSM base metal; prior to application of tungsten carbide hard facing utilizing the HVOF method and completion of grinding/lapping operations, meet the requirements of API Spec 6A, Section 7.4.2.3.8 or 7.4.2.3.11 for PSL-3 VBSMs?

Response 2: API cannot comment on manufacturing using the HVOF process since it falls outside the scope of Spec 6A (see Response 1).

6A-2014-09

Section/Table/Figure: Section 6.5.1.2.2

Question: UNS N06625 filler wire is used to deposit an overlay with requirements of either Fe 5 or Fe 10 per Table 15. Question: Does the overlay chemistry have to meet the composition limits of UNS N06625?

Response: No, API Spec 6A, 20th Edition does not require that a UNS N06625 overlay meet the full composition limits of UNS N06625. Section 6.5.1.2.2 specifies the qualification requirements and Table 15 requires that the iron composition meet either 5% max or 10% max.

6A-2016-23

Section/Table/Figure: Section 6.5.2.3

Question: A fabricated component (included PWHT, due the overlay welding procedure) needs to be repaired. The repair procedure asks for another PWHT (second), totally 2 cycles of PWHT. Is it necessary to qualify a PQR with 2 PWHT cycles to comply 6.5.2.3?

Response: Yes The rules for aggregate times and temperature in ASME Section IX apply

6A-2016-03

Section/Table/Figure: Section 7.3.1

Question: We qualify our NDT personnel to ASNT SNT-TC-1A in areas of the world where this standard is accepted. During a recent audit, the Lead Auditor interpreted this to require the NDT Level III to hold certification from American Society for Nondestructive Testing (ASNT). Is it a requirement of API Spec 6A, Clause 7.3.1 that NDT personnel be certified by American Society for Nondestructive Testing (ASNT)?

Response: No Per 7.3.1, personnel performing NDE shall be qualified in accordance with the manufacturer's documented training program that is based on the requirements specified in ISO 9712, EN 473 or ASNT SNT-TC-1A.

6A-2016-05
Section/Table/Figure: Section 7.4
Question 1: I need clarification regarding UT bond check for PSL 3 product. Is it 100% required to check?
Response 1: Yes. This is required where accessible and practicable.
Question 2: Is it mandatory check UT bond after only PWHT?
Response 2: Yes. Per Annex O, Table 18 note: "Completion" refers to after all welding, post-weld heat treat and machining, except for volumetric NDE which shall be done prior to machining that would limit effective interpretation of results".
Question 3: Can check UT bond after final machining? If yes, how?
Response 3: Yes. If final machining does not inhibit the ability to check, it is performed. See Annex O, Section 7.4.2.1.7a
Question 4: If UT bond to check 100% and after only PWHT, so what will the process for welded spacer spool and buffer chamber?
Response 4: See Above.

6A-2016-29
Section/Table/Figure: Section 7.4.2.1.3b
Question: Hardness testing shall be performed in accordance with procedures specifies in ISO 6506 or ASTM E10 (Brinell) or ISO 6508 or ASTM E 18." We use hardness equipment calibrated and which complies to ASTM E10 clause Annex A.1.4. The method of hardness test performed as specified in ASTM E 10 clause 5 & 6. However, we don't conduct daily verification of hardness equipment as specified in ASTM E 10 Annex A.1.5. We don't conduct daily verification because we don't use hardness equipment daily, sure that equipment in good condition and storage in proper environment. Does API 6A clause 7.4.2.1.3.b also required to conduct daily verification of hardness equipment as specified in ASTM E-10?
Response: ASTM E-10 is a normative reference. API does not provide interpretations of normative references that are maintained by standards organizations other than API.

6A-2018-02
Section/Table/Figure: Section 7.4.2.1.3
Question 1: Our company is holding 6A Monogram for OEC Other End Connectors. In the specific, we produce a Clamped Hub connection which is different from the API Clamp Hub, dimensionally specified in the ISO 13533 Our product, being a connection used to joining pressure-containing or pressure-controlling equipment and whose dimensions are not specified in the API6A international standard, is considered as an Other End Connector OEC (Ref. API6A Para 10.18.1 General) The product is delivered to clients loose, it will be than installed and connected by client in their equipment by welding. Equipment Marking is performed following the requirements of the Para 8 Equipment Marking including: Ref. API6A Para 8.1.9 Other end connector – a) marked "OEC" following the size/pressure rating. If the product is considered a Loose connector: As per API6A Para 7.4.2.1.3 Hardness Test – Loose connectors do not require hardness testing (PSL1) As per API6A Para 7.4.2.2.3 Hardness Test – PSL 2 shall be Identical to the requirements for PSL1, except …. this means that Loose connectors do not require hardness testing?
Response 1: Yes. That is correct for material classes AA, BB or CC only: The statement in 7.4.2.1.3 is supported by the last sentence of 10.18.5, "It is not necessary to test loose OECs." Neither of these statements include any reference to PSL or implication that it is limited to PSL-1 OECs. I.e., 7.4.2.1.3 does *not* say "*PSL-1* Loose connectors do not require hardness testing,"
No. However, for material classes DD, EE, FF or HH, subclause 7.4.1.5 applies: "*Each pressure-containing or pressure-controlling part for use in H2S service shall be hardness-tested individually to confirm that the ISO 15156 (all parts) (NACE MR0175; see Clause 2) hardness values have been satisfied (except for ring gaskets, which may be sampled in accordance with 7.4.6.3). If the other requirements of 7.4.1 satisfy this requirement, additional testing or examination is not required*."
Question 2: As per API6A Para 7.4.2.3.3 Hardness Test – "PSL 3/3G shall be identical to the requirements for PSL2, except that one hardness test shall be performed on each finished part (body, bonnet, and end connections)" this means that Loose connectors do not require hardness testing on each finished part?
Response 2: This is essentially the same question as Question 1, and the same responses and explanations apply. The phrase "…on each finished part," includes hardness testing performed after heat treating in an area which is not machined afterward.
Question 3: Is this section applicable only to specified products (body, bonnet, and end connections)?
Response 3: No. That is not necessarily correct. Subclause 7.4.2.3.3 is part of clause 7.4.2, so it applies to the equipment types listed in the title: "**7.4.2 Bodies, bonnets, end and outlet connections and clamp**

hub end connectors." In addition, reference to 7.4.2.3.3 is not limited to 7.4.2; normative reference in another part of 6A may be made to any part of clause 7.4.2 to define the same requirement for other parts or equipment.

6A-2015-04
Section/Table/Figure: Section 7.4.2.2.8 & 7.4.2.2.9
Question 1: API 6A which is minimum requirement of design Clause 7.4.2.2.8 Surface NDE-ferromagnetic materials a) Sampling: All accessible wetted surfaces and all accessible sealing surfaces of each finished part shall be examined by liquid-penetrant or magnetic-particle methods after final heat treatment and final machining operations. Also for Non –ferromagnetic materials: Clause 7.4.2.2.9 Surface NDE — Non-ferromagnetic materials a) Sampling: All accessible wetted surfaces and all accessible sealing surfaces of each finished part shall be liquid penetrant inspected after final heat treatment and final machining operations. Is MT after forging which has heat treated (Austenitizing, Quench, and temper) mandatory?
Response 1: No.
Question 2: Is MT after forging which has heat treated & machined (Austenitizing, Quench, temper, Machined) mandatory?
Response 2: Yes, after final heat treatment and machining
Question 3: Parts after forging and Heat treatment (Austenitizing, Quench, temper) has oxide and has to clean and remove oxide then shall perform MT and Forging supplier complains about this and wants to skip MT this step of work.
Response 3: This is a contractual issue. API does not comment on contractual agreements needed to meet specification requirements.

6A-2016-08
Section/Table/Figure: Section 7.4.2.2.8
Question: The criteria state "No relevant indication with a major dimension equal to or greater than 5mm (3/16");" Does this apply to linear indications? I ask as similar criteria within our industry specifications e.g ASME VIII Division 1, state relevant indications as being any (true) indication greater than 1.5mm (1/16") and that relevant linear indications shall not exceed this size. Only relevant rounded indications are typically permitted <5mm (3/16").
Response: Yes. It does apply to linear indications. / No. ASME, VIII Div. 1 is not used for NDT acceptance criteria

6A-2017-09
Section/Table/Figure: Section 7.4.2.2.8
Question: Should the intent of the document be: "All accessible surfaces and all accessible sealing surfaces of each finished part shall be examined by liquid-penetrant or magnetic-particle methods after final heat treatment and final machining operations test method:"?
Response: No. For PSL 2, the minimum surface NDE required by 7.4.2.2.8 only includes the accessible wetted surfaces and sealing surfaces.

6A-2014-02
Section/Table/Figure: Section 7.4.2.2.8a) and b)
Question: API 6A Section 7.4.2.2.8 (a) and (b) state the following for surface NDE of ferromagnetic materials for PSL 2 applications Are there any restrictions on acceptable inspection methods based on accessibility of wetted / sealing surfaces other than those specified in Section 7.4.2.2.8 (b)?
Response: No, acceptable methods, for PSL2 ferromagnetic materials, are specified in document and accessible wetted surfaces are defined in 3.1.2.

6A-2016-07
Section/Table/Figure: Section 7.4.2.2.11
Question: Our client has interpreted "100% of all welds shall be visual examined..." as meaning that both crown and root of the weld is required to be visually examined. This requires a full penetration weld to be performed. As our welds are partial penetration, we interpret this as 100% of all visual parts of the weld should be visually examined, i.e. crown only. Do both crown and root of the weld need to be visually examined or does the visual examination only apply to the parts of the weld that is exposed, i.e. the crown?
Response: Yes But only if the root is accessible; visual examination applies to all accessible parts of

the completed weld. The sampling rate of 100% requires that all welds be examined.

6A-2016-14
Section/Table/Figure: Section 7.4.2.3
Question: Per API 6A licensing agreements, are we required to volumetric test raw barstock for components being manufactured for PSL 3 choke parts and assemblies (at the stage of sawing the bar into individual pieces) if the MTR shows that UT was done at the mill?
Response: No A licensing agreement is not a requirement of API Spec 6A, therefore it is not relevant. Conformance to API 6A requires the volumetric examination to be performed before any operation that would inhibit the results of the examination. This would be acceptable provided the UT performed by the mill meets the requirements of API Spec 6A and the mill has provided the manufacturer with records to show NDT personnel meet the requirements of either SNT-TC-1A or ISO 9712.

6A-2017-19
Section/Table/Figure: Section 7.4.2.3.3
Question: Hardness testing requirements for PSL 3 shall be identical to the requirements for PSL 2, except that one hardness test shall be performed on each finished part (body, bonnet, and end connections) with additional tests on each end connection face at locations specified in the manufacturer's design documents" However, for PSL2 we locate the hardness test at the top end connection face of the casing spool (According to API 6A 20th Edition 7.4.2.1.3 b), it is up to the manufacturer to determine the location of the hardness test). Therefore, according to the above requirement for PSL3, we do three (3) more hardness tests at the two-side outlet faces and the bottom end connection face. Resulting in total of four (4) hardness tests located at all of end connection faces for that spool. Is that enough to comply with PSL3 hardness test requirement?
Response: Yes. The phrase "additional tests on each end connection face" is not intended to require more than one test on any end connector. Where all end and outlet connector faces are hardness tested, the PSL 3 requirement is satisfied.

6A-2016-37
Section/Table/Figure: Section 7.4.2.3.8
Question 1: Surface NDE and Weld NDE for "weld metal overlay" surface preparation; API Spec 6A, Table 18 shows that visual inspection must be performed for PSL 3 weld metal corrosion-resistant alloy overlay preparation surfaces. API Spec 6A, Section 7.4.2.3.8 requires surface NDE weld metal overlay surface preparation for PSL 3. May I conclude that visual inspection is a type of Surface NDE?
Response 1: Yes. Visual inspection may be classified as a form of surface NDE but visual examination is treated separately from surface NDE in the context of API Spec 6A.
NOTE: Requirements for inspections methods are specified in that revised API Spec 6A, Table 18 per Annex O.
Question 2: Or is liquid-penetrant (or magnetic-particle) testing required in the preparation surface?
Response 2: As phrased your question cannot be answered. Please refer to API Spec 6A, Annex O for the latest version of Table 18. Required inspections are stated in the table and related text of API Spec 6A, Section 7.

6A-2015-07
Section/Table/Figure: Section 7.4.2.3.13
Question: Statement in API 6A: "At least one hardness test shall be performed in both the weld and in the adjacent unaffected base metals after all heat treatment and machining operations." In my opinion there are 2 ways to interpret this statement: 1. At least one hardness test shall be performed in both the weld and in the adjacent unaffected base metals "only" after all heat treatment and machining operations. 2. At least one hardness test shall be performed in both the weld and in the adjacent unaffected base metals "and if heat treatment and machining operations are performed then hardness testing shall be performed afterwards". Which is the correct one?
Response: All parts must be hardness tested after welding, in both the weld and in the adjacent unaffected base metal, whether post-weld heat treatment is performed or is not required by the manufacturer.

6A-2016-17
Section/Table/Figure: Section 7.4.2.3.15
Question: I have some questions related to the volumetric testing requirements for weld metal corrosion

resistant alloy overlay referred to in Table 18, page 70 and section 7.4.2.3.15, page 74. Table 18, subnote i, states "...If the overlay is considered part of the manufacturer's design criteria or of the design criteria of this International Standard, volumetric examinations shall be in accordance with the methods and acceptance criteria of 7.4.2.3.15." Our current interpretation: Section 7.4.2.3.15 states criteria for volumetric NDE for base material and for overlay welding part of design criteria. Is this correct?
Response: See 7.4.2.1.7 and Table 18 which was revised in Annex O to clarify the issue.

6A-2017-12
Section/Table/Figure: Section 7.4.2.3.15
Question: Do we need to conduct full body volumetric examination as stated on table 17? [What we did is stress relieved treatment and it shows that for the clause 7.4.2.3.15, it is for hot worked parts.] Do we need to verify it again volumetrically for PSL 3?
Response: No. It is required, but only once. It is not required that a complete volumetric inspection be repeated after overlay welding and stress relief. (See, API 6A, Section 7.4.2.3.15 a).

6A-2011-03
Section/Table/Figure: Section 7.4.2.14
Question: If a back-pressure valve has a modified straight thread form end and outlet connection, is it a monogrammable product?
Response: Yes. Clause 10.2 applies to Back Pressure Valves utilizing API Spec 5B in the design. Other threads or retention features may be utilized in monogrammed Back Pressure Valve designs.

6A-2016-04
Section/Table/Figure: Section 7.4.8
Question: Where required, we require the elastomer manufacturer/supplier to provide us with batch traceability, cure date certification and physical property data. As part of our storage and age control program we calculate the shelf life expiration date using a published industry standard (SAE ARP 5316) consistent with our storage methods. Our method of determining shelf-life expiration is based on tracking from the cure date. During a recent audit, the Lead auditor insisted that we must obtain this information from the manufacturer and that it be marked on the packaging in storage. Is it a requirement of API Spec 6A, Table 28, that the shelf-life expiration be provided by the non-metallic seal manufacturer/supplier and that this information be marked on the packaging?
Response: No. As previously interpreted, Manufacturer is to be read only as “Manufacturer of the API Specification 6A Equipment.” It does not apply to the non-metallic seal manufacturer/supplier. Therefore, it would be the responsibility of the user of the Spec 6A document to determine the expiration.

6A-2016-01
Section/Table/Figure: Section 7.4.9.3.3
Question: Hydrostatic body test — Single-equipment units: "The hydrostatic body test shall be the first pressure test performed. Is correct to consider that this item is referent to Hydro test to be performed in pressure containing parts, and in this understanding the "first test" meaning that the first test pressure in this pressure containing bore? And considering assembled equipment, is acceptable perform test pressure in pressure controlling parts before the Hydrostatic Body test on the pressure containing parts bore?
Response: No. For products that include both pressure containing and pressure controlling parts, the equipment must be pressure tested as assembled equipment. The hydrostatic body test must be performed before pressure controlling parts are tested.

6A-2016-12
Section/Table/Figure: Section 7.4.9.3.3
Question: If tubing head spools are used as cross-over spools (example figure 20), the rated working pressure of the upper connector of the spool is 103.5MPa, The rated working pressure of the lower connector of the spool is 69MPa, The rated working pressure of the outlet connector of the spool is 69MPa（The required of API 6A 20TH standard 10.6.3.3 that the rated working pressure of outlet connector shall be consistent with that of the upper end connector, but the required of the client is 69MPa for field pressure condition. According to “10.1.4 loose flanges do not require a hydrostatic test prior to final acceptance” and “7.4.9.3.3 a) loose connector, bullplug, and valve-removal plugs do not require a hydrostatic test”, So, the hydrostatic test of body are mainly test the connect area of body where don’t have standard size requirement of API , so here mentioned connect area of body is the place of tubing spool

where except for the upper and lower connector. According to “7.4.9.3.3 b) Test a cross-over connector at a test pressure based on the pressure rating for the upper connection. Apply test pressure inside and above the restricted-area pack-off of the lower connection. The lower connection shall be tested below the restricted-area pack-off to a level based on its pressure rating. The upper connector rating pressure is 103.5Mpa, and the lower connector rating pressure is 69Mpa, the side outlet rating pressure is 69mpa, we want to consult with you weather the tubing spool body hydrostatic test pressure to be 103.5Mpa?
Response: No. As a tubing head spool, this is outside the scope of API 6A because the outlet must be rated to the upper connection

6A-2016-22
Section/Table/Figure: Section 7.4.9.3.3
Question: Reference paragraph 7.4.9.3.3 and Table 35. Are these requirements for hydrotesting applicable to a manufacturer who only makes the bodies for crosses, tees, tubing heads, or spools? The manufacturer does not provide the final assembly for any of these products but ships them to other users who may do the further (final) machining.
Response: No. API 6A only addresses that the API 6A manufacturer of the equipment that fully meets all requirements of 6A have a hydrotest; the manufacturer of a body (alone) is not meeting full requirements of API 6A.

6A-2017-17
Section/Table/Figure: Section 7.4.9.4.5
Question 1: As per clause 7.4.9.4.5, (a) paragraph 2, "After the pressure has been applied to one side of the gate or plug, hold the pressure and monitor for a minimum of 3 min". Does the term HOLD PRESSURE mean, during the hold period, pressure drop is unacceptable?
Response 1: This cannot be answered. A pressure drop criterion is not defined for the test. Acceptance criterion for a hydrostatic test is “no visible leakage”. For API 6A, Section 7.4.9.4.5, the test pressure applied during the test is equal to the working pressure of the equipment.
Question 2: Clause F.1.10 (b) states "Pressure shall be considered stabilized when the rate of change is no more than 5 % of the test pressure per hour or 3,45 MPa/h (500 psi/h), whichever is less. Pressure shall remain within 5 % of the test pressure or within 3,45 MPa (500 psi), whichever is less, during the hold period.". Is this applicable for PSL3 and 3G production testing?
Response 2: No. The requirements of Annex F are independent the PSL of a product. Annex F requirements are not applicable to Factory Acceptance testing.
Question 3: As per API 6A, for PSL3 or 3G hydrostatic body, seat test, NO VISIBLE LEAKAGE DURING HOLD PERIOD alone is stated, this means pressure drop during hold period is acceptable or permitted or not acceptable / not permitted?
Response 3: This cannot be answered. Pressure drop is not defined as an acceptance criterion or control parameter for the test.
Question 4: API 6A clause F.1.6.3 (a) is applicable for PSL3 or PSL3G hydrostatic body, seat production testing or only for PR 1 & 2 testing?
Response 4: No. API 6A, Section F.1.6.3 is only applicable to Annex F testing.
NOTE: Production testing requirements are in API 6A, Section 7.4.9.

6A-2017-01
Section/Table/Figure: Section 7.4.9.5.3c
Question: We do not use a chart recorder as pressure measuring devise to record our pressure tests. We have an electronic data acquisition system with a calibrated pressure transducer that records that test data
7.4.9.5.3 Records of Pressure Tests
a) A chart recorder shall be used on all hydrostatic tests. The record shall identify the recording device, shall be dated, and shall be signed.
c) If the chart recorder is not qualified as a pressure-measuring device in accordance with 7.2.2, it shall be used in parallel with a calibrated pressure-measuring device, and the pressure-measuring device readings at the start and stop of each hold period shall be written on the chart as part of the record.
Question: Do we have to record start and stop time on our pressure test record with our pressure transducer and electronic data acquisition system?
Response: No. The pressure test chart required for PSL 3, 3G & 4 (ref. 7.4.9.5.3) is a plot of pressure against time; some indication of elapsed time must be on the chart. The time of day is not required. The pressure test record required for PSL 2, 3, 3G & 4 must conform with 7.5.2.6.b.

6A-2011-04 (also see 10.21.1)
Section/Table/Figure: Section 7.5.3.2
Question 1: Would bullplugs and valve removal plugs be considered encompassed as end and outlet connections"?
Response 1: No. Bullplugs and valve removal plugs are categorized as Loose Connectors in API Spec 6A, Clause 1.2 e). Valve removal plugs and bullplugs have end connections.
Question 2: Since PSL's are not applicable to back-pressure valves, is it correct that Clause 7.5.3.2 does not require records to be applicable to back-pressure valves under this PSL scheme?
Response 2: Yes. Back-pressure valve records are not required to be furnished to purchaser under section 7.5.3.2.

6A-2011-02
Section/Table/Figure: Section 8 and Annex P
Question 1: Is marking "API 6A" considered equivalent to marking "API Spec 6A"?
Response 1: Yes
Question 2: Is marking "API 6A" in place of "ISO 10423" considered equivalent to marking "ISO 10423"?
Response 2: Yes. As long as the additional requirements (or limitations) of Annex O "API Regional Annex" are met then "API 6A" or "API Spec 6A" can be marked in addition to or in place of "ISO 10423.

6A-2014-13
Section/Table/Figure: Section 8 Marking
Question 1: Per API 6A 8.3 and 8.6, adapters and adapter connectors are required to be marked in accordance with Table 39. Table 39 requires the connectors to be marked on each connector OD with the end and outlet connector size, the rated working pressure, the ring gasket type and number, and other information. Per 10.15.2 a), the rated working pressure of an adapter spool shall be the lowest rating of the end and outlet connectors on the adapter. Depending on how these requirements are interpreted, this could require a flanged adapter spool to be marked with its rated working pressure (per Table B.53, B.54, etc.) in addition to the spool working pressure. It is understood that the rated working pressure of the equipment is based on the spool rated working pressure, but the flange rated working pressure is useful for identifying the correct mating flange. For adapters and adapter connectors, is it required to mark the flange rated working pressure (per Table B.53) in addition to the spool rated working pressure?
Response 1: Yes, on the OD according to API Spec 6A, Table 39 for "Connectors and Fittings". NOTE: Additional marking such as temperature derating in API Spec 6A, Annex G, could also apply, as appropriate.
Question 2: For adapters and adapter connectors, is it permissible to mark "2 1/16 10,000 BX152 2LP 5000 PSI MAX WP" (along with the other requirements from Table 39 for temperature class, material class, etc.)?
Response 2: Yes. NOTE: API Spec 6A currently does not address the issue of additional product markings (i.e., beyond those that are specified in API Spec 6A, Section 8 and the applicable product requirements of API Spec 6A, Section 10).

6A-2017-07
Section/Table/Figure: Section 8
Question 1: Background: API Spec 6A, 20th Edition specifies R and RX ring gaskets/grooves. Interestingly the Specification has a Table B.63 titled "Type R ring gaskets," and a Table B.64 titled "Type RX pressure energized ring gaskets." These tables provide dimensions for both ring gaskets and grooves. The existence of these two specific tables might lead a person to believe that there are different dimensions for the ring grooves that accept R or RX ring gaskets, when in fact the grooves in the tables are identical. Since the ring grove R or RX is identical, does the manufacturer apply marking ring gasket type at flange connection with R type only?
Response 1: No. R and/or RX marking is allowed according to Table 39.
Question 2: Is the correct marking of "Ring Gasket Type and Number" at flange connection (Table 39)….
• An identification of the ring gasket to be installed into the ring grooves?
• Or an identification of the ring groove at flange connection?
Response 2: Yes. Manufacturer can mark a product connection with either gasket type, however the grooves are interchangeable with R and RX type of gaskets.

6A-2015-02

Section/Table/Figure: Section 8.1.8

Question 1: Does it meet the API 6A 8.1.8 requirements to mark solely the numerical value of the hardness (for example, “237”) adjacent to the test location?

Response 1: Yes, It is sufficient to mark the numerical value only.

Question 2: When a portable Brinell hardness tester in accordance with ASTM E110 is used, does API 6A require “HBW/P” to be included in the stamping of the hardness test value (for example, “237 HBW/P”)?

Response 2: No, It is sufficient to mark the numerical value only.

Question 3: When a portable Brinell hardness tester in accordance with ASTM E110 is used, does API 6A require “HBW/P” to be included in the records of the hardness test values (for example, “237 HBW/P”)?

Response 3: No. API 6A does not address specific requirements for portable Brinell hardness records.

6A-2016-09

Section/Table/Figure: Section 8.1.8

Question: The below interpretations appear to directly conflict with the referenced document and could be perceived to set a precedence of negating any requirements of the referenced documents unless they are explicitly reiterated in API’s Standards. If this is the intent, what is the purpose of referencing another document?

Question: Does it meet the API 6A 8.1.8 requirements to mark solely the numerical value of the hardness (for example, “237”) adjacent to the test location?

Response: Yes, It is sufficient to mark the numerical value only.

Question: When a portable Brinell hardness tester in accordance with ASTM E110 is used, does API 6A require “HBW/P” to be included in the stamping of the hardness test value (for example, “237 HBW/P”)?

Response: No, It is sufficient to mark the numerical value only.

Noted Conflict Citations:

API Spec 6A Clause 7.4.2.1.3 b) states “Hardness testing shall be performed in accordance with procedures specified in ISO 6506, parts 1 through 4 or ASTM E10 (Brinell), or ISO 6508, parts 1 through 3 or ASTM E18 (Rockwell).” ASTM E10 Clause 5.6.1 states Brinell hardness values shall not be designated by a number alone because it is necessary to indicate which indenter and which force has been employed in making the test (see FIG. 1 Principle of Test Table 3). Brinell hardness numbers shall be followed by the symbol HBW, and be supplemented by an index indicating the test conditions in the following order:

5.6.1.1 Diameter of the ball, mm

5.6.1.2 A value representing the test force, kgf, (see Table 3) and,

5.6.1.3 The applied force dwell time, s, if other than 10 s to 15 s.

5.6.2 The only exception to the above requirement is for the HBW 10/3000 scale when a 10 s to 15 s dwell time is used.

Only in the case of this one Brinell hardness scale may the designation be reported simply as HBW.”

ASTM E110 Clause 8.3 states “The measured hardness number shall be reported in accordance with the standard methods and appended with a /P to indicate that it was determined by a portable hardness tester.”

Response: No. The purpose is to cover the requirements not identified in the product spec. In this case, marking is addressed in the product spec so those requirements in the referenced spec are not applicable. Please note differences between marking and reporting in that the reference document only requires reporting.

6A-2015-06

Section/Table/Figure: Section 8.5

Question: The VPAs that we sell all conform to an EE-NL material class. The actuator company then uses a stem and/or bonnet that would make the valve as an assembly only EE-0,5. Because we are not always told about the usage or intensions and the actuator company is ordering our VPA for their "stock" whose responsibility would it be to mark the assembly correctly? Or should we not mark the Material Class for the VPA since it is not a completed assembly?

Response: Equipment shall be marked in accordance with API 6A Clause 8 as appropriate for the components or equipment supplied.

6A-2013-02

Section/Table/Figure: Section 8.10
Question: Referring to API 6A, 20th Edition (ISO 10423:2009), Section 8.10 on page 114, it is stated that "Valve-removal plugs shall be marked with "ISO 10423" followed by the nominal size and ...".. Please clarify: Is the nominal size stated in Spec 6A, Section 8.10 referring to the nominal outlet connection size, or the nominal thread size of valve removal plug? For instance, a valve removal plug that is defined under Annex L, last item in Table L.2 on page 399, it has a nominal outlet size of 4-1/16 inch, and a nominal thread OD size of 3-1/2 inch. Please clarify which is the nominal size that intended to be marked for such a case.
Response: "Nominal Size" referenced in API Spec 6A, Section 8.10 is the "Nominal Outlet Size" identified in Table L.1 and Table L.2.

6A-2015-11
Section/Table/Figure: Section 10
Question 1: Equipment such as valves, chokes, and fittings with OECs (namely, hammer unions) are commonly used as surface wellhead equipment for operations generally addressed in full or part by API 16A, API 16C, or API RP 16ST. In each of those Specifications or the Recommended Practice, API 6A and/or ISO 10423 is invoked for said equipment. Users of this equipment are requiring with increased frequency that said equipment bear the API monogram for 6A equipment. It is my desire to obtain confirmation of my interpretation of what equipment with hammer unions can or cannot be monogrammed per API 6A. Section 10.5.3.1 b) 3) [Valves] It is stated that a valve is permitted to have OECs and in which case the valve has no requisite face-to-face dimensions. Does this statement imply that a valve with OECs (for ex., hammer unions), that has an arbitrary face-to-face length, and meets all other requirements of 6A; is monogrammable. An interesting observation of 10.5.3.1 is that other end connectors are recognized, but 10.18 is not invoked or even mentioned, why is this? A RFI was identified that appears related to the subject of face-to-face length, it is provided below:

Spec 6A 20th Tables 67-72 (and B.67-B.72) Question1: If a particular size and pressure rating of a valve is not listed in those tables, can a valve of that size and pressure rating be identified as a 6A product? Reply 1: No

Question2: If a particular size and pressure rating of a valve is listed in those tables, but no face to face valve length is specified, can a valve of that size and pressure rating be identified as a 6A product? Reply 2: No

Assume the valve in question 2 is a 2 1/16 nominal size, with 2.06 bore, 15,000 psi rated working pressure, and utilizes OECs; and does not comply with the face-to-face length of 19.00 per Table B.71. Per 10.5.3.1 b) 3) this valve would have no requirement for face-to-face length due to the use of OECs and thus could be monogrammed at a length other than 19.00 The response above seems to contradict this.
Response 1: Yes There are no face to face length requirements for valves with OEC's. However, note that 10.5.3.1 does not exempt valves with OEC end connections from meeting the bore dimensions specified in tables 67 through 72 or the drift test specified in 10.5.3.12a.
Question 2: Section 10.9.3.2 & Figures 17-18 [Chokes] It is stated that end connectors shall conform to 10.1, 10.2, or 10.18; and that the A and B dimensions are as agreed between the manufacturer and purchaser. If a choke is supplied with OECs (e.g., hammer unions), and has arbitrary but agreed upon A and B dimensions, and meets all other requirements of 6A, is it monogrammable? Note that the A and B dimensions of the choke are essentially face-to-bore dimensions as described below for tees and crosses.
Response 2: This task group cannot address the eligibility of applying a monogram to a product. With respect to question, the equipment conforms with API 6A.
Question 3: Section 10.10.2.2 & 10.10.2.3 [Tees & Crosses] It is stated that end connectors shall conform to 10.1 or 10.18 and that bore and center-to-face dimensions shall conform to those shown in Tables 87 and 88. There is no provision for tees and crosses to have face-to-bore dimensions other than what is listed in Tables 87-88. If valves and chokes utilizing hammer union connectors per 10.18 are permitted to be monogrammed with face-to-face or face-to-bore lengths as decided between the manufacturer and purchaser, then why does 10.10 not provide a similar provision for tees and crosses with OECs (for ex., hammer unions) to either have no requisite center-to-face dimensions or permit those dimensions to be as agreed between the manufacturer and purchaser?
Response 3: This cannot be answered. All inquiry questions must be worded form such that the answer is either "yes' or "no".
Question 4: Is it intended that elbows be excluded from the scope of 6A (n elbow being a variant of a tee or cross but with only two openings)? It is suggested that the 6A committee consider harmonizing the face-to-face or face-to-bore allowances between valves, choke, and fittings (crosses, tees, elbows) and that

elbows be explicitly permitted.
Response 4: No

6A-2016-38
Section/Table/Figure: Section 10.1
Question: I have a flanged joint RTJ with dissimilar materials or cathodic protection system is necessary to install insulation gasket between the flanges for to mitigate corrosion risk or to assurance normal operate System. Is permitted to install insulation gasket shaped disc in RTJ face?
Response: No**.** Only API ring gaskets (API Spec 6A, Section 10.4) can be used in assembled equipment with 6B and 6BX flanged connections.
NOTE: End connectors other than those specified in 10.1 and 10.2 are considered other end connectors (OEC) and must meet specified requirements (see API Spec 6A, Section 10.18).

6A-2016-42
Section/Table/Figure: Section 10.1
Question 1: Our client is asking for 1-13/16 & 4-1/16 10 ksi blind flanges. These two sizes are not listed in API Spec 6A, Table 59, however, they are listed in Table 57 as "blind and test flanges". The discussion with the client is if the 1-13/16" and 4-1/16" 10ksi blind flanges are API 6A standard products. Can "Blind and test flanges" listed in API Spec 6A, Table 57 be delivered without the hole which accommodate the 1/2" line-pipe (note "g")? In the standard it is not written that this hole is optional as it is mentioned for dimension "B"
Response 1: No**.** For API Spec 6A, Table 57, there is no allowance to provide blind flanges without a test port.
Question 2: Are 1-13/16" and 4-1/16" 10ksi "blind flanges" API Spec 6A standard products? If yes, please mention what figure/table is applicable.
Response 2: Yes**.** API Spec 6A, Table 57 provides dimensions for blind and test flange; however the flanges contain a test port.

6A-2017-08
Section/Table/Figure: Section 10.1
Question: I am considering an API 6A 18-3/4" (10k) Blind Flange which clients require a 7-5/8" reg box cut into the rear to put a drill stem into and use as a running tool (running tool to be compliant with API 8C).
Question: Could you tell me if cutting a threaded portion into the rear of a blind flange would be acceptable for code (6A)?
Response: N**o.** The described drill pipe connection and function are not consistent with requirements for a Blind Flange.

6A-2015-03
Section/Table/Figure: Section 10.2
Question: In several cases for threaded companion flanges, I have found that when using the proper counter bore, angle, and MFT of the given thread via API 6A and 5B, there is not enough length to return to the proper thru bore dimension of the respective flange due to the length restriction of the hub. (Tables 49, 50, and 51: Dim. LL and LC). For threaded companion flanges, does the bore at face of the flange still have to comply with Tables 49, 50, 51 Dimension B?
Response: Yes, The maximum bore diameter shall not exceed dimension B at the flange face. However, there is no requirement for a straight unthreaded bore between the threads and the flange face. The minimum value of B is not specified for threaded flanges.

6A-2017-15
Section/Table/Figure: Section 10.3.2
Question: The manufacturing process of alternative material meets the ASTM specification, but chemical component of alternative material may not be in conformity with ASTM specification fully, for example, we choose the Chinese Standard material 42CrMo as the alternative material. Is this allowed?
Response: Yes. API 6A, Section 10.3.3.1 allows for the use of alloys or material composition other than those in the referenced ASTM bolting standards, provided the required mechanical properties of Table 62 are satisfied, as a minimum.

6A-2016-15
Section/Table/Figure: Section 10.5

Question: We have a requirement of API 6A (10000PSI) Angle globe Valve (B564 Alloy 625) of Size 4-1/16" with integral Flange. As confirmed, Vendor can provide the MTC which ensures 60K requirements. If the Angle Valve is manufactured from forged bar, because of Grain structure orientation in one direction, only one flange of the Valve will meet the requirements of 60K. The other flange of the valve does not meet API 60K requirements. The vendor is insisting that Forged Bar required to manufacture this angle type should have 'L' Shaped grain structure so that both the Valve flanges will meet 60K requirements. Is this needed?
Response: The valve type identified in the question is outside the scope of API 6A.

6A-2015-36
Section/Table/Figure: Section 10.5
Question 1a: For a valve with the following configuration:
a) Nominal Size: The 2-1/16 inch nominal size is listed in Tables 70 and B.70 for 10,000-psi working pressure. Therefore 10.5.3.1.a) is satisfied.
b) End Connections: The studded connectors are the design of the purchaser, a 6A licensee, and are certified as meeting requirements of API 6A for Other End Connectors (OEC's). On that basis, the use of OEC's is in conformance to 6A.
c) Face-to-face Dimension: Per 10.5.3.1.b)4), there are no required lengths for valves with OEC end connectors. On that basis, the non-standard length of 11.00 is in conformance to 6A.
d) Bore: 6A gate valves must meet the requirements either for a full-bore valve or for a reduced-opening valve. But, a full-bore valve must have a bore dimension as specified in Tables 67-72/B.67-B.72, and be able to pass a drift as dimensions in Table 30 of 6A. The valve in question cannot satisfy these requirements, and therefore cannot be considered a full-bore valve for purposes of conformance with API Spec 6A. So the question of whether a valve with a 1.5 inch minimum bore at the end connection, 2.09 inch bore at the end closure mechanism and 2.099 inch bore at the closure mechanism meets the requirements for a reduced-opening valve is posed. Is it required as a condition of conformance to API 6A that a "reduced-opening valve" have an opening through the valve bore sealing mechanism that is smaller in area than the circular bore dimension in Tables 67-72/B.67-B.72?
Response 1a: Yes. Per the definition of a reduced-opening valve (see API 6A, 3.1.91), it must have either a regular or Venturi-type opening, either circular or non-circular, through the closure mechanism. And further, by definition, a Venturi-type opening is one in which the transformation from the full-opening ends to the reduced-closure area is well streamlined to reduce pressure loss. The configuration of the valve described in the query is the reverse of this requirement.
Question 1b: Is it required as a condition of conformance to API 6A that a "reduced-opening valve" bore at the end connections conform to the bore dimension of those same tables?
Response 1b: Yes. The end connections are a component of the mechanism used for sizing the valve and only those end connection sizes identified in Tables 67-72/B.67-B.72 are acceptable. Furthermore, it is not clear if the valve meets the requirements for OEC since per API 6A, 10.18.3b, *OECs shall be designed with the same nominal sizes and pressure rating s shown in 10.1*…" Therefore 1.5 inches is not an acceptable end connection size for 10,000 psi valve per the Tables identified in Spec 6A, Section 10.1.
Question 2: Does the valve described above conform to the requirements of API Spec 6A, for reduced-opening valves?
Response 2: No. Reduced-opening valves are subject to the requirements in the requirements identified in responses 1a and 1b. Therefore, the valve would not conform to API Spec 6A requirements.

6A-2012-30
Section/Table/Figure: Section 10.5.2
Question 1: Does it mean that the manufacturer shall open and close valves at both maximum and minimum temperature and the rating pressure?
Response 1: No. An operating cycle for a valve includes fully opening a previously closed valve and returning it to the fully closed position. Table 66 provides general design requirements, which are not necessarily validation test requirements. Table 66 does not address temperature rating or testing.
Question 2: If the methods specified in Annex F has not been specified (consequently the manufacturer will not perform that test), then would it be possible to conclude PR2 rating by evaluating design and cumulative past performance of other components of the valves (for instance, by looking at FEA confirm the suitability of design, by testing material confirming suitability of material and so on)?
Response 2: API does not provide review and approval or advice on manufacturer-specified requirements.

6A-2016-20

Section/Table/Figure: Section 10.5.7.2.2
Question: API 6A para 10.5.7.2.2 given rules on full bore diameter for check valve. Valve bore dimensions are given on Table 76, but this is not clear if this is the minimum diameter of the bore; and so, there are no limits for maximum diameter. The tolerance given on table (1,6 mm) must be respected as maximum diameter?
Response: Yes

6A-2014-12
Section/Table/Figure: Section 10.6.3
Question: 6A 10.6.3 requires designs to consider thermal tubular loads. Almost without exception the packages that I have seen (P-U) state that such loads are minimal and can be ignored. Similarly, external axial and bending loads are usually discounted. Any comment on where they ARE significant in the view of the committee**.** What did they have in mind? ... are there are specifics where we would consider that such loads ARE significant?
Response: The manufacture shall consider loads provided by the user. The data sheet provides input for casing hanging weight and clause A.2 states "The effects of external loads (i.e. bending moments, tensions, etc.) on the assembly of components are not explicitly addressed by this International Standard (see 4.2.1.3). The purchaser should specify any exceptional loading configuration".

6A-2016-31
Section/Table/Figure: Section 10.6.3.3a
Question: Clause is not clear what the requirements for end connections with consistent pressure rating means. It is logical that end connections cannot have a pressure rating less than the top end connection as the head cannot be tested to the FAT requirements. The outlet marked with a pressure rating greater than the top connection cannot be tested with the standard API FAT test pressure for the outlet if the end connection "size" (example 2-1/16 5k) is upgraded. In order to achieve higher external load capacity or commonality of either equipment on a wellhead it is desirable to use a side outlet on a head that has an upgraded flange size. Example of this would be Casing head with a 2 ksi outlets could be provided with 3ksi outlets and valves. Outlet could be marked Connector Size: 2-1/16 3ksi Rated Working Pressure: 2ksi (derated) Ring Gasket: R 24 Other outlet connections such as test fittings and downhole control line terminations often have a upgraded pressure rating but their service is limited by the rating of the head.
Would a head with an upgraded outlet connection (connection size having and equal or greater pressure rating) be conforming to API 6A if all other aspects of API 6A were met?
Response: Yes

6A-2012-06
Section/Table/Figure: Section 10.7.4
Question 1: Clause 10.7.4 states "All materials shall meet the requirements of Clause 5." Clause 5.1 (General) states "Clause 5 describes the material performance, processing, and compositional requirements for bodies, bonnets, end and outlet connections, clamp hub end connectors, hangers, wear bushings, pressure-boundary penetrations, and ring gaskets. Other pressure-containing and pressure-controlling parts shall be made of materials that satisfy 5.2 and the design requirements of Clause 4." Clause 5.2.1 (General) states "All metallic and non-metallic pressure-containing or pressure-controlling parts shall require a written material specification." Clause 5.2.2 (Metallic Requirements) states "The manufacturer's written specified requirements for metallic materials for bodies, bonnets, end and outlet connections, stems, valve bore sealing mechanisms, and mandrel hangers shall define the following, along with accept/reject criteria:" The balance of Clause 5.2.2 details the requirements for materials for these specific parts. Clause 5.3 is for "Mandrel Tubing and Casing Hangers." There is no other clause or sub-clause in Clause 5 that deals with the materials for slip hangers. Do the materials of construction for slip hangers have to meet the requirements of Clause 5.2.1?
Response 1: Yes
Question 2: Do the materials of construction for slip hangers have to meet the requirements of Clause 5.2.2 or 5.3?
Response 2: No

6A-2016-41
Section/Table/Figure: Section 10.12
Question: We have a request to design and manufacture a ring-shaped spacer connector that will connect between two flanged ends of wellhead equipment, and has a standard nominal bore size and pressure

rating; and includes a fluid-access function via a 1" N.P.T. threaded port. This ring does not have a flange body, and its outside diameter sits within the made-up bolt circle of mating flanges, therefore it does not have bolt holes. Can this item be classified as a Fluid-Sampling Device per API Spec 6A, section 10.12?
Response: No. Based on information provided, this does not meet all the requirements of API Spec 6A, Section 10.12

6A-2016-18
Section/Table/Figure: Section 10.15
Question: One customer is continually telling us he thinks any spacer spool over 7-1/16" need to be monogrammed with 16A, and do not fall in the scope of 6A. We as an organization see this differently as 6A specifically talks about spacer spools and give the dimensions for the end connection that are higher in size. Can a 6A manufacturing facility monogram spacer spools with a bore size over 7-1/16"?
Response: This task group does not address monogramming questions. However, there is no minimum or maximum bore size requirement in order to conform to the requirements of 6A.

6A-2014-07
Section/Table/Figure: Section 10.16.4
Question: As per section 10.16.4 Materials can be material class AA provided written specifications can define Chemical, Mechanical and Heat treatment procedure. Question: Does the pressure containing components of the Hydraulic actuator (Cylinder, Piston) be of FF material class when the Actuator assembly is FF-1.5?
Response: Yes, if the actuator is a retained fluid powered actuator; No, if the actuator is not a retained fluid powered actuator, i.e. powered by hydraulic control fluid.

6A-2017-18
Section/Table/Figure: Section 10.17.1
Question: API 6A, clause 10.17.1 states "This International Standard is not applicable to lock screws, alignment pins and retainer screws." Does this mean lock down pin material does not impact the trim definition for the assembly?
Response: Yes. A relationship to lock screws is not defined for API material classes.
NOTE: The partial pressure marked in association to the material class could be affected by the lock screw's exposure.

6A-2014-04
Section/Table/Figure: Section 10.19
Question 1: In clause 10.19 - Top Connectors, paragraph 10.19.9, requires that the top connectors are equipped with a bleeder plug. API specification 6A does not specify any requirement, however it is important to clarify the bleeder plug material, the purpose of the bleeder plug, the design (or bleed plug blind plug). Question: What are the requirements for this bleeder plug?
Response 2: No, a bleeder plug is not required as indicated in 10.19.9 (an erratum to this statement has been issued by API). The only requirement is that the cap be capable of venting prior to top connector release. Any such mechanism shall meet the requirements for pressure-boundary penetration.
Question 2: I would like to delve into the reason why the material requirements for bullplugs and valve-removal plugs are PSL3 requirements and the type of material must be DD, EE, FF.
Response 2: API only addresses questions that reference specific sections of the document and that in the form where the reply will be either "yes" or "no". Therefore, API cannot provide a reply. For additional guidance, see: http://www.api.org/publications-standards-and-statistics/faqs-and-inquiries/faqs/technical-question/guidelines-for-submission

6A-2011-04 (also see 7.5.3.2)
Section/Table/Figure: Section 10.21.1
Question: Does clause 10.21.1 support bullplugs under the "end and outlet connections" classification while the requirements for valve-removal plugs are aligned with bodies (Reference 10.22.4).
Response: No. Valve removal plugs and bullplugs requirements are defined separately from other equipment. Specific requirements for bullplugs and valve-removal plugs are given in 10.21 and 10.22, respectively.

6A-2015-10
Section/Table/Figure: Figure 3a

Question: Figure 3 shows what is meant by T/2 for a round. However, based on who you ask, the interpretation of where T/2 and T/4 are in a solid bar is not clear. For instance, Section 5.7.4.1 states testing to be done at T/4. Some say T/2 is closer to the center than T/4. I would say that T/4 is closer to the center based on Figure 3. Is T/4 closer to the center on a solid bar than T/2?
Response: For a solid round bar, T/2 is simply the diameter divided by 2 and T/4 is simply the diameter divided by 4. For a solid round bar, a test specimen taken at the T/2 location is at the center of the bar. A test specimen taken from within the T/4 envelop may be anywhere from the mid-radius in to the center of the bar.

6A-2012-01
Section/Table/Figure: Figure 3c
Question: We believe there is an error in Figure 3 c) "Keel block configuration" on page 45 of API 6A / ISO 10423. The "Envelope for test specimen removal" per annotation "f" is defined in Figure 3 c) as "0,25 R". We believe this should read "0,25 T". We offer the following justifications for our belief. Section 5.6.4.1 (and 5.7.4.1) contains the following text: Test specimens shall be removed from the TC (QTC) such that their longitudinal centerline axis is wholly within the center core 1/4T envelop. To be consistent with these sections, Figure 3 c) should indicate "0,25 T" instead of "0,25 R". The dashed line as drawn has a radius more than twice 0,25 R. It is consistent with a radius of approximately ¼ T. We have reviewed the 15th, 16th and 17th editions of API 6A and all of these editions specify a "1/4 T envelope for specimen removal" in the figures showing a keel block. For reference, part of Figure 5.1 from the 17th Edition is reproduced below. The change from "1/4 T" to "0,25 R" appears to have been introduced with the 18th Edition of API 6A which was subsequently withdrawn. We believe this change was introduced in error but has remained in subsequent editions. We request that you review the above and advise if our interpretation is correct – i.e. that Figure 3 c) should specify "0,25 T" for the envelope for test specimen removal instead of "0,25 R".
Response: The subcommittee has considered your question and it is being addressed in API Ballot 2713. Any change resulting from the ballot will be issued in the form of an addendum. Addenda and errata are available at no cost from the API website at: http://www.api.org/Publications-Standards-and-Statistics/Standards-Addenda-and-Errata/Standards-Addenda-and-Errata/Exploration-and-Production-Addenda-Errata.aspx

6A-2013-03
Section/Table/Figure: Table 3
Question: The applicable requirements of Section 4 are as follows:

- "Equipment shall be designed with materials, including metallics that meet the requirements set forth in Table 3."
- Table 3 stipulates a minimum material requirement for pressure-controlling parts used in material class DD of "Carbon or low-alloy steel"
- The note b specifies "In accordance with ISO 15156 (all parts)"
- ISO 15156, part 1, clause 3 defines carbon and low-alloy steel. Low-alloy steel is defined as "steel with a total alloying content of less than about 5% mass fraction, but more than specified for carbon steel".

410SS seats used in the valve clearly exceed the maximum 5% alloying content and therefore do not meet the minimum material requirements of Table 3. However 410SS seats in a gate valve classified as DD is being proposed. The company feels that the requirement of a "carbon and low-alloy steel" by using a "stainless steel (CRA Part 3 as classified in NACE MR-01-75)" is exceeded. Is it accurate to qualify the stainless steel under the quoted area of NACE?
Response: No. S41000 does not qualify under ISO 15156, part 1, clause 3 as a carbon or low alloy steel. However, API 6A, Table 3 - Material requirements and Clause 4.2.3 do not prohibit the use of stainless steel valve seats in DD valves. Determination of the suitability between materials is outside the scope of the specification.

6A-2016-26
Section/Table/Figure: Tables 5 & 6
Question: If a required flange material is stated as 316 St-St, regardless of Table 3 material requirements i.e. AA, CC etc must the material meet the mechanical properties of tables 5 & 6 in all circumstances i.e. for a weld neck flange to be supplied as 5K must the material meet the minimum yield of 310 MPa and the UTS of 483 MPa (for example both material classes of AA (replacing C/St or low alloy) and say, CC or FF?
Response: Yes The mechanical properties specified in API 6A, Tables 5 and 6 must be satisfied for any integral or loose 6B or 6BX flange. NOTE This may affect the choice of alloys that can be used.

6A-2017-22

Section/Table/Figure: Tables 5

Question 1: As mentioned the requirement of materials for equipment in standard and non-standard material table (Table 5) body and bonnet can be 36K up to 75K. For example, in 5000 class but also indicated that integral end connection flanged shall be only 60K, 75K. If we want to select valve with flanged end and manufacture by forging or casting integrally, do we have to use 60K for body and bonnet too?

Response 1: No The requirements of API 6A, Table 5 for integral end connections apply regardless of the method of manufacture. The valve bonnet design is the manufacturer's responsibility, and the material type and material properties are specified by the manufacturer based on design criteria.

Question 2: Or flanges are from the body parts and we can use 36K for 5000 and below classes?

Response 2: No. 36K material does not meet the design criteria for API 6B or API 6BX flanges. API 6A, Table 5 permits the use of lower strength material for the body than is required for the flanges, but this is to allow for welded body construction, where the flanges and body are not manufactured from the same piece of material. API Type 6B and Type 6BX integral flanges must be constructed of 60K or 75K material, as specified in API 6A, Table 5, *regardless of the method of construction for a body*.

6A-2015-08

Section/Table/Figure: Table 12

Question: I have read the API 6A interpretation question and response (below) on the API website. The question/ answer quoted refers to the 19th Edition. Can you please clarify the following?

> *Question: "Is it the intent of API Specification 6A, Table 12 that when applying 'corrosion resistant overlay' by welding to a body, bonnet or end and outlet connection with ring grooves, that you would apply the requirements of the line 'Weld metal corrosion-resistant overlay (bodies, bonnets and end and outlet connections)' and the line 'Weld metal overlay (ring grooves, stems, valve-bore sealing mechanisms and choke trim)'?"*
>
> *Answer: "No. The requirements for 'Weld Metal Overlay' for bodies, bonnets or end connections apply when the overlay is limited to the ring grooves. 'Weld Metal Corrosion-Resistant Alloy Overlay' requirements apply when the entire wetted surface is overlaid, including the ring grooves. The requirements of both do not apply to the same part."*

Shall valves that are overlaid only in the ring grooves and seat pocket sealing surfaces (not the entire wetted surface) be inspected to "Weld Metal Overlay" criterion because it is not all wetted areas; Or shall they be inspected to "Weld Metal Corrosion- Resistant Overlay" because the weld is not only limited to the ring grooves? It would seem the in-between case is most similar to welding ring grooves only in terms of scope of application. Also, when comparing the Weld Examination-Visual (7.4.2.2.11) with Weld NDE-Surface (7.4.2.2.12), is it the intent of the API 6A Specification to demand more stringent Visual Inspection acceptance criteria than Surface Penetrant Inspection in regards to sealing surfaces?

Response: The current version of API 6A is the 20th Edition, and it has Errata 1-7 plus Addenda 1-3. Your question refers to an interpretation of a superseded version. The revised Table 18 included in Annex O, for API 6A 20th Edition containing errata 7, delineates the quality control requirements that apply to "Weld metal overlay – partial overlay" and "Weld metal overlay – full overlay".

6A-2014-08

Section/Table/Figure: Table 15

Question: With regard to API Spec 6A, Table 15… Why are two classes given when this is not mentioned anywhere else in the standard? Why not just say a max of 10 percent? Obviously the 5 percent max is better but there is no way to determine what you get?

Response: API only addresses questions that reference specific sections of the document and that in the form where the reply will be either "yes" or "no". Therefore, API cannot provide a reply. For additional guidance, see: http://www.api.org/publications-standards-and-statistics/faqs-and-inquiries/faqs/technical-question/guidelines-for-submission

6A-2016-06

Section/Table/Figure: Table 23

Question 1: As per definition of Valve Bore Sealing Mechanism, it consists of closure member (ball in case of ball valve) and respective seat (metallic or nonmetallic seat). Does requirement in API 6A Table 23 Quality control requirements for Valve bore mechanism for PSL3 applies to soft seat(s) of a ball valve?

Response 1: No. There are no requirements for non- metallic seats in API 6A. It is the responsibility of

the manufacturer to address these requirements.
Question 2: Does pressure-controlling seals referred in Clause 5.2.3 of API 6A includes soft seat(s) of a Ball Valve or only seals like O-rings, lip seals of valves addressed by this clause?
Response 2: Yes. It is intended for nonmetallic.
Question 3: Does API 6A prohibit or does not include requirements for soft-seated ball valves for API 10000 PSL 3 or 3G application?
Response 3: No. It does not prohibit soft seated valves.
Question 4: Under Clause 7.4.9.5.8, PSL 3G gas seat test — Valves, the term "plug" refers to closure member of plug valve only or also includes ball valves? If the term does not include ball, then the entire clause is not applicable for ball valves?
Response 4: Yes. Per definition, 3.1.78, a ball is a plug.

6A-2017-13
6A-2018-01
Section/Table/Figure: Table 35
Question: Is it permissible for a hydrostatic body test pressure to be isolated by means of a suitable seal fixture to the entry bores or on the faces of the end and outlet connections?
Response: No. In the case of entry bores that would isolate the end connectors from test pressure; the intent of the body test is to verify the structural integrity of the entire pressure-containing envelope to the extent that is practical. Yes, in the case of fixtures with seals on the faces of connector, if the test fixture configuration does not prevent testing of the pressure-containing envelope at the end or outlet connection.

6A-2017-03
Section/Table/Figure: Table 38
Question: Shall my material be hardness-tested according to 7.4.1.5 (per table 38), or not according to 7.4.2.1.3?
Response: No. Testing and sampling must be accordance with both sections. The testing of each part per 7.4.1.5 is required. Since it exceeds the minimum requirement of 7.4.2.1.3, part (a), there is no conflict. Parts (b) and (c) of 7.4.2.1.3 specify the test method and acceptance criteria, which are not covered by 7.4.1.5.

6A-2015-12
Section/Table/Figure: Table 39
Question: We have a practice of marking equipment suitable for dual rated working pressures with a dual rated working pressure. For example: A 2-9/16 5000 valve has the same flange and end to end dimensions as a 2-9/16" 3000 valve. A 2-9/16" 5000 valve would be suitable for use in a 2-9/16 3000 application. For these applications, the marking practice has been to mark the valve as a 2-9/16" 3000/5000 valve rather than design and set up a valve based solely on the materials criteria for a 3000 PSI application. Is it a violation of Table 39 and Clause 4.2.1 to mark a piece of equipment with a dual rated working pressure when the equipment has been designed for the higher rated working pressure and is suitable for both rated working pressures (For example: A 2-9/16 5000 valve has the same flange and end to end dimensions as a 2-9/16" 3000 valve. A 2-9/16" 5000 valve would be suitable for use in a 2-9/16 3000 application)?
Response: No. However, all requirements of the dual rated product must be satisfied.
Example: API 6A Clause 7.4.9.3.5 Hydrostatic seat test — Valves states that the seat test pressure is to be "equal to the rated working pressure". So, for a dual 3000/5000 rating, the seat testing must be done at both working pressures.

6A-2012-07
Section/Table/Figure: Tables 67-72 (and B.67-B.72)
Question 1: If a particular size and pressure rating of a valve is not listed in those tables, can a valve of that size and pressure rating be identified as a 6A product?
Response 1: No.
Question 2: If a particular size and pressure rating of a valve is listed in those tables, but no face to face valve length is specified, can a valve of that size and pressure rating be identified as a 6A product?
Response 2: No.

6A-2016-21
Section/Table/Figure: Tables 75-79 (and B.75-B.79)

Question: The reference tables only address regular and full opening flanged swing and lift check valves, There are nozzle check valve that are used as API 6A equipment. Can Nozzle check be used for the listed RWP in Tables75, 76, 77, 78 & 79?
Response: API 6A does not address closure mechanism requirements for a check valve. All requirements per Section 10.5.7 for check valves apply.

6A-2012-09
Section/Table/Figure: Table B.57
Question: The 10K/15K layout does not look right, if J3 were to be very long, for argument's sake, and the 1.25 were held then the wall thickness would get very thin as J3 tapers. The two figures (B.57 and B.58) are not consistent. I have checked with earlier editions, i.e. 14th and 15th, and the same inconsistency is present. I believe the 10,000 and 15,000 psi flanges should be dimensioned like the 20,000 psi flange, with the 2.50 max dimension being replaced with a 1.25 max dimension, measured from the flange face, not the outer end. Should. the 10,000 and 15,000 psi flanges be dimensioned like the 20,000 psi flange, with the 2.50 max dimension being replaced with a 1.25 max dimension, measured from the flange face, not the outer end.
Response: Wall thickness of B.57 would same as weld neck flange in table B.55. In both tables wall thickness meets design criteria of Clause 4.3.

6A-2016-19
Section/Table/Figure: Table D.1
Question: I would like to seek clarification regarding what appears to be a contradiction between API 6A and API 17D with respect to the required stud bolt preload to be applied in flanged connections. According to API 17D, Section 5.1.3.5 (in Addendum 1), the closure bolting preload shall be 67% of the bolt´s yield strength. Annex G of API 17D still states the range of 67% to 73% that existed in Section 5.1.3.5 prior to Addendum 1, although I am now only considering the 67% in accordance with the change made in the Addendum. The opening paragraph of Annex G states that it applies both to type 6BX flanges as defined in ISO 10423 (API 6A) and type 17SS flanges as defined in ISO 13628 (API 17D). However, Table D.1 in Annex D of API 6A implies a bolt preload of 50% of yield strength. So, for a type 17SS flange it seems straightforward that the bolt preload should be 67% of yield. But for a type 6BX flange it is not so clear as there is a contradiction between the two documents. Could you please clarify if the bolt preload for a type 6BX flange should be 50% of the bolt´s yield strength as implied in API 6A, Table D.1 or 67% as stated in API 17D, Section 5.1.3.5 (Addendum 1)?
Response: Requirements in API 6A are informative and provide a convenient value for torque. Design acceptance criteria are given in section 4.3.4 and state that the bolt stress cannot exceed 83% of yield. Therefore, the requirements in 17D, section 5.1.3.5 do not violate these requirements.

6A-2014-05
Section/Table/Figure: Annex F
Question: To give a little background on the situation, this question is related to a load shoulder being tested in accordance with API 6A Annex F PR2 requirements. This load shoulder is used to support the downward force generated by a mandrel hanger. The load shoulder is being tested independently of a mandrel hanger. However, since the mandrel hanger that will be used in this application with this load shoulder will be a group 4 hanger we are using the group 4 mandrel hanger testing requirements as the driver for required testing on the load shoulder. The load shoulder does not have any pressure retaining capability and contains no seals of any kind and therefore the only applicable test from table F.17 (Design Validation for Group 4 Mandrel Hangers) is the load testing. load testing requirements in section F.2.25 point back to PR2 Group 3 requirements which then points back to F.2.11. Section F.2.11 specifically states "The pressure/temperature cycles of F.1.11 are not required". Based on this fact it appears that thermal cycling is not a requirement of Annex F as part of load testing. Is this a correct application of the requirements?
Response: Yes

6A-2016-10
Section/Table/Figure: Annex F
Question 1: Per section F.1.14.3.1 Design validation to pressure rating. "The test product may be used to validate products of the same family having equal or lower pressure ratings." F.1.14.3.2 Design validation by size "Testing of one size of a product family shall validate products one nominal size larger and one nominal size smaller than the tested size.". For a valve size of 2-9/16" 10K, based on Sect. F.1.14.3.1 and

Sect F.1.14.3.2, the qualification based on scaling is applicable to 2-1/16" 10K and 3-1/16" 10K for validation by size. It is also applicable to 2-9/16" 5K for validation by pressure?
Response 1: Yes. The sizes are coved in the same product family.
Question 2: Does the guidelines for Annex F scaling covers 2-1/16" 5K and 3-1/8" 5K.
Response 2: Yes. The sizes are coved in the same product family.
Question 3: Are these two sizes with a lower pressure rating define as the same family?
Response 3: This cannot be answered. Product family is determined by manufacturer using design criteria, per F.1.14.2.
Question 4: If the tested valves are 2-1/16" 10K and 7-1/16" 10K, does it qualify the all the sizes between 2-1/16" and 7-1/16" along the 5Ksi range based on scaling?
Response 4: Yes. It qualifies all in the same product family.
Note: Scaling by size and scaling by pressure rating are independent of each other.

6A-2016-39
Section/Table/Figure: F.1.2 and F.2.3.2
Question: The following query has been raised regarding the qualification testing requirements to API 6A, Annex F PR2 of a trunnion mounted, bidirectional ball valve that has both a Single Piston Effect (SPE)/Self-relieving (SR) Seat and a Double Piston Effect (DPE) Seat design. Referring to clause F.1.2, it states any change in design that affect the performance of the product requires validation. Given the DPE and SPE seats are different and perform differently in the valve our interpretation is that they both need to be subjected to qualification testing. On a more detailed assessment of the seat design it can be accepted the performance of both seats when in the upstream sealing condition is essentially the same and therefore the minimum testing requirement is to qualify one of the seats in the upstream sealing condition and qualify the DPE seat in the downstream sealing condition. Referring to Clauses F.2.3.2, F.2.2.2.2.1.b), F.2.2.2.3.2 each clause requires one of the seats to be subjected to the full number of cycles. Our understanding of these clauses is they have been written specifically for gate or plug valves that are downstream sealing and that either have the same seat design on both sides of the valve or are unidirectional. However the intent of these clauses is to ensure each seat design is subjected to full qualification testing, i.e. the full number of cycles as required by API Spec 6A, Annex F PR2 validation testing. **:** For a ball valve with both a Single Piston Effect (SPE)/Self-relieving (SR) seat and Double Piston Effect (DPE) seat design, does API Spec 6A, Annex F PR2 require as a minimum the SPE/SR seat and the back-side of the DPE seat to each be subjected individually to the full number and sequence of tests as outlined in API Spec 6A, Annex F PR2?
Response: API Spec 6A does not address specific designs or types of design. The testing shall follow the steps in F.2.2.2.2.1.
NOTE: The intent of API Spec 6A and specifically Annex F is to provide requirements needed to validate the functionality of the valve when used and operated as a wellhead or Christmas tree valve.

6A-2016-35
Section/Table/Figure: F.1.6.3
Question: There is a lack of understanding of the intent behind the requirements for leakage in API Spec 6A, Section F.1.6.3. Request clarification on the meaning of "The gas test at room temperature shall be acceptable if NO SUSTAINED BUBBLES are observed." Is the intent to require a decreasing trend of leakage, or test resulting in eventually no leakage?
Response: No**.** The word “sustained” is not necessary text for the requirements. Therefore, it is not the intent to require a decreasing trend or to require zero leakage.

6A-2016-34
Section/Table/Figure: F.1.6.3a
Question: API Spec 6A, Annex F.1.6.3 states: *a) hydrostatic test at room temperature*: The hydrostatic test at room temperature is passed if no visible leakage occurs during the specified pressure hold periods of the test. The pressure change observed on the pressure-measuring device during the hold period shall be less than 5 % of the test pressure or 3,45 MPa (500 psi), whichever is less. Is the 5% pressure change during the hold period a rate or an average? A rate would mean you could leak 5% early on in the 1 hour hold period but it stops, or it could mean that the 5% drop in pressure could occur in the final few minutes of the hour long hold and still be acceptable.
Response: The 5% pressure change is neither a rate nor an average. The change in pressure must be less than 5%of the test pressure or 3,45 MPa (500 psi), whichever is less, at any time during the hold period.

6A-2016-33
Section/Table/Figure: F.1.6.3b
Question: API Spec 6A, Annex F.1.6.3.b states: *b) gas test at room temperature*: Prior to design validation, all production testing requirements shall have been met. The gas test at room temperature shall be acceptable if no sustained bubbles are observed. If leakage is observed, the rate shall be less than the rates shown in API Spec 6A, Table F.1, measured at atmospheric pressure, during specified pressure-hold periods. Are the allowable leakage rates in API Spec 6A, Table F.1 and instantaneous rate or an average rate (cumulative total volume over the hold period) over the specified hold period?
Response: The rate acceptance criterion is the accumulated leakage over the specified hold period.

6A-2017-16
Section/Table/Figure: Section F.1.9
Question1: Section 4.2.2.1 states that the lower end temperature range is the for the ambient and the high end of the temperature range is for the process fluid. While Annex F1.9 b) states that the bore shall reach or exceed the high-end temperature Annex F.1.9 provides no acceptance criteria but merely states that the low end of the temperature range shall be applied externally. Figure F.1 describes a pressure and temperature cycling scheme including both Tmax and Tmin. Heat may be applied both externally and internally while cooling shall only be applied externally. Is it the intent that the bore shall be found to also reach the low end of the temperature range (e.g. -46°C for a L-rated flange) at the cold end of the temperature cycling?
Response 1: No. Measurement of the bore temperature is not a requirement. However, to claim conformance to Annex F satisfying the measurement location, defined in API 6A, Section F.1.9 a), is required.
Question 2: When heat is applied via the fluid, shall the external temperature be kept constant and the fluid temperature be cycled between Tmax and Tmin?
Response 2: No. As stated in API 6A, Section F.1.9.a) and F.1.9.b), the external surface shall be not artificially cooled when heat is applied from the bore. However, the ambient temperature shall be maintained at room temperature (between 40F and 120F see API 6A, Section 3.1.100).

6A-2016-16
Section/Table/Figure: F.1.10b
Question: Section F.1.10b. States pressure shall be considered stabilized when the rate change is no more than 5% of test pressure per hour. If I lose 5% in 15 min vs in an hour, is that still considered stable?
Response: No

6A-2016-27
Section/Table/Figure: F.1.14
Question: An API 6A 3-1/16" 10K Gate Valve is tested and qualified to Appendix F PR2. The sizes qualified under the same product family are 2-1/16" and 4-1/16" 10K and 3-1/8" 5K. Under design validation by pressure rating and size, does this product family on scaling covers 2-9/16" 5K and 4-1/8" 5K?
Response: Yes. A test of a 3-1/16” 10-ksi valve qualifies a 2-9/16" 5-ksi and 4-1/8" 5-ksi valve, provided they are of the same design family as specified in F.1.14.2. For the scaling provisions of F.1.14, 3-1/8” and 3-1/16” may be treated as one nominal size, and 4-1/8” and 4-1/16” may be treated as one nominal size. NOTE A test of a 3-1/16” valve does not qualify a 2-1/16” valve as stated in the inquiry.

6A-2017-04
Section/Table/Figure: F.1.14
Question 1: If I have qualified Elastomeric Seals, one with a smaller size (diameter) & cross section to Annex FPR2 as well as one with a larger size and larger cross section to the same pressure, temperature range and also made from the same compound, can I qualify by scaling sizes in between where the cross section of the seal could be based on the smaller or bigger cross section?
Response 1: Yes, provided requirements of F.1.14.2 and API product requirements are met.
Question 2: Can we procure from another vendor & claimed it's PR-2 qualified if its adhere to the same size, dimensions, cross section, pressure & temp range as the one qualified through the test?
Response 2: No. the elastomeric material (polymer type, durometer and physical properties) must be the same.

6A-2016-13

Section/Table/Figure: F.14.3

Question 1: F.14.3.1 Design validation by pressure rating: The test product may be used to validate products of the same family having equal or lower pressure ratings. F.14.3.2 Design validation by size: Testing of one size of a product family shall validate products one nominal size larger and one nominal size smaller than the tested size. Testing of two sizes also validates all nominal sizes between the two sizes tested. In API 6A, 20th edition the standard for the valve of 4 1/16 ¨ *138 MPa, there is basic flange dimensions (in Table 54~55), but there is no face-to-face valve length (in Table 72). We have finished the PR2 test on the 4-1/16" 20000psi Gate Valve, we want to know if this PR2 test certificate could cover the two sizes of 7-1/16" & 3-1/16" gate valve which with working pressure lower than 20000 psi?

Response 1: No. A 4-1/16" 20ksi valve is not within the scope of API 6A.

Question 2: Is there API Standard on the 5-1/8" 20000PSI gate valve's end flange basic dimension and face to face valve length of full bore valve or any other recommend standard on this?

Response 2: No

Question 3: If we design it as per the API 6A design standard, could we use the API monogram on the product?

Response 3: No

6A-2016-36

Section/Table/Figure: F.G.5

Question: This is regarding API Spec 6A, Section G.5, *Design of Equipment for use at Elevated Temperature*:

1) Referring to clause G.5.2.1.2 "Derated Yield strength may be determined by one of the methods given in G.5.2.2 or G.5.2.3.

2) G.5.2.2 = Testing at elevated temperature.

3) G.5.2.3 = Reference sources, per Table G3 and or G4

Per API Spec 6A, G.5.2.1.2, we interpret that for Designing of Equipment for full rated pressure at elevated Temperature, the Material may be derated using derating factor "Yr" per table G.3 or G.4, and hence the Material Grade Qualification Testing API Spec 6A, G.5.2.2.2 at elevated temperature is not mandatory. Is this correct?

Response: Yes. API Spec 6A, Annex G does not specify that material testing G.5.2.2 is performed in addition to reference sources G.5.2.3.

NOTE: API Spec 6A, Annex G is informative and does not alleviate the user from determining the appropriate requirements for an individual application.

6A-2017-05

Section/Table/Figure: Annex G

Question 1: For Equipment under Classification X, operating temperature range of 0-350 °F. Using Annex G, paragraph G.5.2.2.2, Table G.4 as an example, Material AISI 4130 has a Derating Factor Yr of 0.90 at 350 °F. If I were to manufacture a blind flange of 15000psi rating, Under Paragraph 5.4.2, Table 5 & 6 states that 75K material designation is required. Its 0.2% offset yield strength shall be a minimum of 75000psi. Do the material yield strength requirements have to meet the minimum 75000psi rating BEFORE or AFTER the 0.9 Derating Factor, Yr, is applied?

Response 1: Yes.

Question 2: Does the material yield strength requirements have to meet the minimum 75000psi rating AFTER the 0.9 Derating Factor, Yr, is applied?

Response 2: Yes, if the material yield strength at elevated temperature meets the SMYS of 75000 psi, de-rating is not required. Alternatively, the design methods of G.5 may be used to determine de-rating of working pressure or the required SMYS.

Question 3: If AFTER, this effectively means the minimum yield strength of the material at room temperature has to be at least 83500psi to meet the 75000psi minimum yield strength requirement after derating. Is my assumption correct?

Response 3: See above responses for question 1 and 2.

6A-2016-24

Section/Table/Figure: Annex I

Question 1: There is no reference to mandatory use of test agency present in API 6A Annex I for sand slurry flow test. If a valve design is requested to be validated according to ISO 10423, Annex I - sandy

service (class II), is it mandatory to perform the sand slurry test at an independent third-party test agency?
Response 1: Yes. API 6A, Section 10.20.4.3 c) requires that testing be performed by a test agency as defined in API 6A, Section 3.1.119.
Question 2: Would a valve design which is tested in-house (i.e. at valve manufacturer test facility) according to ISO 10423 (API 6A), Annex I - sandy service (class II) and witnessed by any third-party inspection agency considered validated in front of API?
Response 2: No. See the definition of a test agency (API 6A, Section 3.1.119).
NOTE: API can only issue interpretations against API Specification 6A. If you require a specific interpretation against ISO 10423, you must contact ISO organization directly

6A-2014-03
Section/Table/Figure: Annex J
Question 1: API in clause J.5.3 - Repair equipment, sub-paragraph e) refers to the replacement or remanufacture the parts needed to return the equipment to its condition work. Moreover, Clause 3 - Terms, definitions and abbreviations, paragraph 3.1.94 states that the repair does not include manufacturing operations, while the remanufacturing does include these operations. Does repair include remanufacturing of components other than bodies?
Response 1: Yes, repaired equipment may include remanufactured parts except for those listed in J.5.3 (bodies, bonnets and end and outlet connections, stems and valve bore sealing mechanisms).
Question 2: If repair includes remanufacturing of components other than bodies, what is the difference between repair and remanufacturing?
Response 2: These terms are defined in the document. See API Spec 6A, Section 3.1.93 for remanufacture and Section 3.1.94 for repair. The NOTES associated with these definitions provide additional guidance.

6A-2014-10
Section/Table/Figure: Annex K
Question: Found in table K.5, for top connector size 4in 15,000psi, use O-ring SAE AS568-436-90 FKM. It means gland for O-ring have dimension OD range 5.782 - 5.776 (legend S as per fig K.2) and O-ring ID (as per AS568-436) 5.850 ID and .275 CS. Means this O-ring ID bigger than gland OD. In this situation how can this O-ring seat properly and 'bite' in gland?
Response: API only addresses questions that reference specific sections of the document and that in the form where the reply will be either "yes" or "no". Therefore, API cannot provide a reply. For additional guidance, see: http://www.api.org/publications-standards-and-statistics/faqs-and-inquiries/faqs/technical-question/guidelines-for-submission. However, please be advised that an erratum will be issued to change “SAE AS568-436-90 FKM” in table K.5 and replace “SAE AS568-435-90 FKM.

6A-2016-40
Section/Table/Figure: Table K.2
Question: API Spec 6A, Table K.2 specifies maximum bore sizes for nominal size tree caps which are not consistent with the requirements of Section 10.1, Flanged end and outlet connections. API Spec 6A, Figure K.1 refers to a Note 6: ID in accordance with Table K.2 or with 10.1. Are the maximum bores indicated in API Spec 6A, Table K.2 to be used as a reference only and the actual bore dimensions are to be as required by Section 10.1?
Response: No**.** In API Spec 6A, Annex K, the maximum bore is specified by sizes stipulated in API Spec 6A, Table K.2 ***or*** API Spec 6A, Section 10.1 (as specified in API Spec 6A, Figure K.1, Key 6).

6A-2015-01
Section/Table/Figure: Annex L
Question: L.3.1 Valve-removal preparation dimensions for 13,8 MPa (2 000 psi) through 69,0 MPa (10 000 psi) working pressures shall be in accordance with Table L.1 and Figures L.1 and L.2and L.3.3 Valve-removal preparation dimensions for 103,5 MPa (15 000 psi) through 138,0 MPa (20 000 psi) working pressure shall be in accordance with Tables L.3 and L.4 and Figures L.6 and L.7. From the above wording, it may be presumed that high pressure VR Plugs (15 000 psi and 20 000 psi) cannot be used in equipment rated from 2 000 psi and 10 000 psi. Please clarify if Valve-removal preparation dimensions for 103,5 MPa (15 000 psi) through 138,0 MPa (20 000 psi) working pressures can be used, and API Monogramed, in equipment rated from 13,8 MPa (2 000 psi) through 69,0 MPa (10 000 psi) working pressures.
Response: No, It would not be permissible to use HPVR preps in casing head housings, casing head spools or tubing heads rated from 13,8 MPa (2 000 psi) through 69,0 MPa (10 000 psi) working pressures.

6A-2017-02
Section/Table/Figure: M.4.3
Question 1: M.4.3 Calibration
"Temperature-controlling instruments and recording shall be calibrated at least once every three months."
It is understood that should be applied to the production, by being widely used. If applicable to the calibration of thermocouples, because this frequency has the oven calibration should be performed every 12 months.
M.4.2 Accuracy
The controlling and recording instruments used for the heat-treatment processes shall be accurate to ± 1 % of their full-scale range.
7.2.2.3 Calibration intervals Calibration intervals shall be a maximum of three months until recorded calibration history can be established by the manufacturer and new longer intervals (three months maximum increment) established.
Is this requirement is applicable for thermocouple calibration oven?
Response 1: Yes. Thermocouples must be calibrated within three months of use.
Question 2: Is this requirement applicable to just the production?
Response 2: Yes. Thermocouples must be calibrated within three months of use.

6A-2014-01
Section/Table/Figure: Flanges
Question: In the twentieth edition of API 6A, the outside diameters of flanges have been changed in regard to former editions. Some are smaller, and some are bigger than before. Some component parts, for example valves, are flanged to the external contour of another, bigger part, where just this diameter is countersunk. If this valve must be replaced, the new one would be manufactured according to the new standard; hence it would have a bigger outside diameter and would not fit into the existing countersink. Please check, if the modification of outside diameters of flanges is really intended - or if a correction is necessary.
Response: Yes, this was an intentional change and no correction is required.

6A-2018-04
Section/Table/Figure: General
Question: Does API 6A allow the material to be 3D printed and if the manufacturing process is acceptable what kind of quality controls are applied?
Response: No. 3D-printing is outside the scope of API 6A. The specification addresses the use of wrought, cast and HIP for metallic materials. At this time, the industry has not recognized 3D-printing as an acceptable equivalence for processing of materials. Furthermore, NACE MR0175 does not recognize 3D-printed or additive manufactured materials as an approved processing method for use in sour service. Since API normatively references MR0175, this would preclude use of this process for any such product.

6A-2014-14
Section/Table/Figure: General
Question: Is the intent of the use of this term applicable to the “manufacturer of the API Spec 6A equipment” vs. the manufacturer of a forging, casting or other component supplied in accordance with this specification? Specifically, in the materials section, does this term apply to the equipment manufacturer or the supplier who manufactures the material?
Response: No, “Manufacturer” is to be read only as “Manufacturer of the API Specification 6A Equipment.” It does not apply to the supplier who manufactures the material.

6A-2017-11
Section/Table/Figure: General
Question: Some people say that we should use rubber coated ring gaskets to hydro test the valves in order to protect the ring grooves while others insist that we must use the steel ring gaskets to test the integrity of the equipment. The ring grooves are always 100% dimensionally inspected, the designs are per 6A designs so the argument is that if the dimensions are checked and the designs are per 6A then rubber coated ring gaskets should be acceptable to perform the hydro test. There is nothing definitive in 6A that specifies which to use for testing purposes. What is the preferred method? (Rubber coated gaskets in order to protect the grooves or steel gaskets to verify groove integrity)?
Response: API does not provide technical guidance. API 6A does not specify type of gasket to be used

during FAT of API products.

6A-2017-14
Section/Table/Figure: General
Question 1: Are the flanges figures detailed in page 122-125-128-137-140 considered loose connector WN flanges?
Response 1: Yes.
Question 2: Are the flanges figures detailed in page 120-123-126-131-134 considered integral WN flanges?
Response 2: No. There is no method of attaching that is stated or implied.

6A-2012-02
Section/Table/Figure: Thread Gauges
Question: One of the dimensions listed is for the outside diameter of the ring gage. The specifications given do not leave enough material on the ring (the 1½" ring would have a wall thickness of approximately ¼"). It doesn't appear that there would be any interference issue if the ODs were larger. I believe that this specification should be removed from the standard and left to the manufacturers to make it functional, as it is for the line pipe rings in Spec 5B. Another inconsistency I see is the specification for the ring for the 1¼" thread. The 1¼" valve removal thread is a line pipe, but the ring specified is not the same as the 1¼ line pipe ring. Is there really a need to make a separate 1¼ line pipe ring to check this thread instead of just using the standard ring from Spec 5B? It would seem to me to make sense to just point to Spec 5B for these specs.
Response: Annex O L 6.1 and Clause 10.22.3 require dimensional inspection of VR plugs and profiles. Clause L 6.1 does not limit inspection method to Tables L.7 and L8 and Figures L.12 and L.13.

6A-2014-11
Section/Table/Figure: VR Threads
Question: Do you know if API 6A, API 5-series or any other API standard specifies which thread type is preferred for the VR profile for gas lifted wells? Or, do you know if any standard states that conical threads are not gas tight?
Response: No. Thread type is specified by connection and pressure rating of the equipment not the service.

For the full interpretations list including any additional background information that may apply (if you get a request box for user name and password, just click the "x" in the upper right corner), see:

http://mycommittees.api.org/standards/techinterp/default.aspx

For instructions on how to submit a request for interpretation to API (note that per API Policy, interpretation requests may take up to 12 months to be reviewed and interpretations issued) see:

http://www.api.org/publications-standards-and-statistics/standards/faqs-and-inquiries/faqs/technical-question/guidelines-for-submission

For an up-to-date list of errata and addenda for this document, see:

http://www.api.org/publications-standards-and-statistics/standards/standards-addenda-and-errata/standards-addenda-and-errata/exploration-and-production-addenda-errata