

## Technical Inquiries for API Standard 620, *Design & Construction of Large, Welded, Low-Pressure Storage Tanks*

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Section	Edition	Inquiry No.	Submitted Inquiry	SCAST Response
1.2.1	9th - Feb. 1996	620-I-10/00	<p>1: Does Section 1.2.1 prevent tanks with umbrella roofs and eccentric cones, from being marked as being in accordance with API Standard 620?</p> <p>2: Does Section 1.2.1 prevent tanks with flat bottoms from having a slope?</p>	<p>1: No.</p> <p>2: No.</p>
4.2 Table 4-1	10th - Feb. 2002	620-I-13/02	Can 1/2 in. A 36 plate (not A 36 mod 2) be used for the shell of an API 620 tank with a design metal temperature of 53.6°F?	Yes. Refer to API 620 Table 4-1 and Section 4.2.3.2.
4.2 Table 4-1	9th - Feb. 1996	620-I-06/00	<p>1: Is it permissible to utilize plate materials at design metal temperature and thickness combination which are outside the limits contained in API 620, Table 4-1 if impact testing is performed?</p> <p>2: Does API 620 allow impact testing to be performed in lieu of normalizing for combinations of plate material grade, thickness and design metal temperature that require normalizing?</p> <p>3: May impact testing be utilized in lieu of normalizing for plate materials where Table 4-1 of API 620 and the ASTM specification require normalizing e.g., A 516 with thickness greater than 1-1/2 in.?</p>	<p>1: No.</p> <p>2: No.</p> <p>3: No.</p>
4.2.3.2	10th - Feb. 2002	620-I-06/02	Should the thickness stated in Table 5-1, Note 5, be 3/4 in.?	Yes. This was a typographical error introduced in the previous edition of the standard. This note will be corrected in the next addendum of Std. 620.
4.2.5	9th - Feb. 1996		For a tank design to basic API 620 requiring impact testing of plate material per Section 4.2.5: (a) Should the long dimension of impact test specimen be parallel to direction of maximum stress (biaxial stresses are not equal) and the minimum absorbed energy value per Table R-5? or; (b) Should the impact test specimen be taken transverse to the final plate rolling and the absorbed energy value per Table R-2?	As stated in API 620, Section 4.2.5, the direction of the axis of the impact test specimen is dependent upon the direction of plate rolling by the mill. The direction of maximum stress when installed in the tank is not a factor. The impact test energy criteria applicable to either type of specimen is per Table R-2, or per Table R-5 where applicable.
5.1.1	10th - Feb. 2002	620-I-05/02	Are umbrella roofs, eccentric cone roofs and bottoms, and bottoms sloped to one side, among those designs for which API 620 does not present design rules as noted in Section 5.1.1?	Yes.
5.3	10th - Feb. 2002	620-I-03/03	Does a coned roof have a minimum thickness similar to that noted for the sidewall in 5.10.4.1 and bottom in 5.9.4.2?	Yes, see 5.3 and 5.10.4.1. Section 5.10.4.1 specifies the minimum thickness of the tank wall and 5.3 defines "tank wall" to include the roof. Therefore, the minimum thickness of the roof is 3/16 in. for cone roofs.
5.3.3	9th - Feb. 1996		Are there hydrostatic test guidelines for stresses allowed in API 620?	No. Refer to 5.3.3.

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5.5.4.6	10th - Feb. 2002	620-I-10/02	<p>1: Does the word "local" as used in 5.5.4.6, refer to the general bending stress across the whole cross section of the cylinder (normal to its longitudinal axis) that is compressive on one half of the cross section and tensile on the other half?</p> <p>2: In Section 5.5.4.6, can the sentence "For tanks full or partially full of liquid and for an earthquake induced compression stress, the allowable compression stress need not be limited for biaxial stress as otherwise may be required by Figure 3 1" be restated as: "For tanks full or partially full of liquid <u>subjected to</u> an earthquake . . .?"</p> <p>3: In Section 5.5.4.6, can the sentence "For tanks full or partially full of liquid and for an earthquake induced compression stress, the allowable compression stress need not be limited for biaxial stress as otherwise may be required by Figure 3 1" be restated as: "For tanks full or partially full of liquid subjected to a local axial compressive buckling stress in a cylindrical shell from a moment in the cylinder, and also for: tanks subjected to an earthquake induced compressive stress, the allowable compressive stress need not . . ."</p>	<p>1: Yes.</p> <p>2: Yes.</p> <p>3: No.</p>
5.5.6	9th - Feb. 1996		Is there a conflict between Section 5.5.6 and Section 5.6.5?	No, Section 5.5.6 is in Section 5.5 and applies to walls. Tank wall is identified in A.3.
5.5.6	9th - Feb. 1996	620-I-09/98	What is the maximum allowable compressive stress for a cylindrical tank subject to a combination of design loadings, including wind and seismic, both with and without internal gas or liquid contents per Section 3.5.6?	For all combinations of design loadings per Section 3.4, excluding wind and seismic, the maximum allowable compressive stress shall be limited to value, $S_{cs}$ , calculated per Section 3.5.4.2. For any combination of design loadings plus wind or seismic, the maximum allowable compressive stress may be increased to 1.33 times $S_{cs}$ . For seismic loading only, the maximum allowable compressive stress shall be per Appendix L, Sections L.5.2 and L.5.3. For the test condition, API 620 does not provide specific guidance on the maximum allowable compressive stress.
5.5.6	10th - Feb. 2002	620-I-10/02	Is it necessary to apply an appropriate joint efficiency to the stress limits specified in 5.5.6, Q.8.1.3, and R.8.1?	No. See Table 5-2 for maximum allowable efficiency for arc welded joints.
5.6.5	9th - Feb. 1996		Does Section 5.6.5 allow an increase of 25% for seismic loading of roof structural members?	No, this section addresses external structural members subject to stresses produced by combination of wind and other applicable loads. The API 620 Standard does not address seismic design of roof framing members, nor does it address allowable stresses for seismic loading of roof framing.
5.7	9th - Feb. 1996	620-I-08/98	Is corrosion allowance an absolute requirement under API 620?	No. A corrosion allowance is a requirement only if specified by the purchaser. It is intended to provide for future corrosion over the design life of the tank.
5.9.4.2	9th - Feb. 1996		Does API 620 have a minimum thickness for the bottom of a flat bottom tank?	Yes, see Section 5.9.4.2 and Q.3.4.7.

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5.9.4.4	Ed 12 Ad 1	INQ-620-D004	Does the three-plate joint spacing in 5.9.4.4 apply to lap and butt joints?	Yes
5.10.2.5	9th - Feb. 1996	620-I-02/00	Per API 650 Section 5.10.2.5.1 through 5.10.2.5.3, a tank with a frangible roof may fail at shell-to-roof juncture before shell-to-shell joint or shell-to-bottom joint. Does this mean that shell should be able to resist pressure of 0.153 W/D2 (inches of water), resulting from the equation for A in 5.12.5.3 in any tanks designed by this section?	No, the shell to be designed for the maximum liquid level and internal pressure per Sections 1.1.1, 3.6.3, and F7.1.
5.10.3.5	10th - Feb. 2002	620-I-14/02	Does API 620 Section 5.10.3.5 address the requirements for conical roofs, since one of the R's equals infinity?	Yes. Refer to 5.2.10.5.b and footnote 15 for further information on this subject.
5.10.3.5	10th - Feb. 2002	620-I-17/02	1: Can the design rules of Section 5.10.3.5 be used to determine the thickness of a self-supported conical roof whenever the negative latitudinal unit force $T''$ is greater than the negative meridional unit force $T''$ and $R' = R_1$ is infinite?  2: If the design rules of 5.10.3.5 cannot be used to determine the thickness of a self-supported conical roof whenever the negative latitudinal unit force $T''$ is greater than the negative meridional unit force $T''$ and $R' = R_1$ is infinite, may such a roof be designed per 1.1 (second paragraph) and 5.1.1 (second sentence)?	1: No.  2: Yes.
5.10.4.1	10th - Feb. 2002	620-I-10/02	1: Regarding the least permissible thickness described in 5.10.4.1.c and listed in Table 5-6, although not specified, it seems that these are intended only for a cylindrical shell. This is confirmed by comparing the above Table 5-6 to Section 3.6.1.1 of API 650 for a cylindrical shell. If this is not correct then what will be radius of tank wall for shapes other than cylindrical shell at various elevations?  2: Does 5.10.4.1c and Table 5-6 refer only to a cylindrical shell? If not, what is the definition of the radius for other than cylindrical shapes in Table 5-6?	1: Spherical radius if sphere. Maximum radius if unequal latitudinal and longitudinal radii.  2: No. The radius for shapes other than cylinders is not defined in Std. 620.
5.10.5	10th - Feb. 2002	620-I-04/03	What are the requirements for vacuum testing tanks built to API 620?	Tanks built to API 620 cannot be designed for vacuum, refer to API 620 Section 5.10.5.2. Therefore, the tanks are not tested for vacuum.
5.12.5	10th - Feb. 2002	620-I-10/02	Sections 5.12.5.2, 5.12.5.3, and 5.12.5.8 describe the requirements for added material when the code mandates such addition. However, there may be cases where the additional material is not required but is specified for safety reasons. Is it required to meet the requirements in the aforementioned sections for a reinforced compression area when such reinforcement is not required?	Yes.
5.12.5 Fig. 5-5	10th - Feb. 2002	620-I-10/02	In Figure 5-5, if $Wc$ is greater than the vertical leg length of the angle or thickened bar, can the remaining portion of $Wc$ be included as participating in the included area of the compression ring?	Yes.

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5.12.5.2	9th - Feb. 1996	620-I-02/00	<p>Item (c) of API 620, Section 5.12.5.2, states if the compression area required is not provided in the compression-ring region with minimum thickness plates, then the additional required compression area provided in the composite corner compression region should ideally lie in the horizontal plane of the corner formed by the two members. In no case shall the centroid be off the plane by more than 1.5 times the average thickness of the two members intersecting at the corner.</p> <p>Does this mean that the horizontal centroid of the additional angle excluding the effective shell (Wh) and roof (Wc) as per Fig. 5-6 detail a, b, c, d, h and i, or the horizontal centroid of the total cross-sectional of composite corner compression region lies ideally in the horizontal plane of the corner formed by two members? In addition, shall the centroid of the composite corner compression region not be off the horizontal plane by more than 1.5 times the average thickness of the shell (tc) and roof (th) or of the two members of any additional angle?</p>	The horizontal centroid of the total cross-sectional area of the composite corner compression region shall not be off the horizontal plane formed by the intersection of shell and roof by more than 1.5 times the average thickness of the shell (tc) and roof (th). If an angle is welded to the top of the shell and the roof attaches to the angle, than tc shall be equal to the thickness of the angle and the corner is the intersection of the angle and the roof.
5.12.5.2	9th - Feb. 1996	620-I-02/00	Is it required to use a top angle for tanks designed per API 620 and API 650 Section F.7.2 and F.7.3 for the case where the effective area of shell and roof can resist the Q-force and the horizontal projection of Wh is at least 0.015Rc according to API 620 Section 3.12.5.2?	No.
5.12.5.8 Fig. 5-6	10th - Feb. 2002	620-I-10/02	<p>1: Is it required to meet <math>L \leq 16t</math> in Details f and f-1 of Figure 5-6 to satisfy 5.12.5.8 when the projecting part is not braced and <math>I_1</math> is not met?</p> <p>2: Is it correct for Detail f and f-1 of Figure 5-6 that Wh minus L should not exceed 16t? Is it required to meet this criterion also for Detail e?</p> <p>3: In Details e, f, and f-1 of Figure 5-6, should the outer extended part be treated as a bar, as defined in item b of 5.12.5.2, 5.12.5.3, and 5.12.5.8?</p> <p>4: In Details e, f, and f-1 of Figure 5-6, should the outer extended part meet Equation 28 when required by 5.12.5.8?</p>	<p>1: Yes.</p> <p>2: No.</p> <p>3: Yes.</p> <p>4: No.</p>
5.15	9th - Feb. 1996	620-I-05/01	Does API 620, Section 5.15, permit the two openings to be one opening in the roof and one opening at the bottom of the side wall?	Yes. API 620 does not stipulate the location of the two openings.
5.16.5	9th - Feb. 1996		Does "t" as determined by calculation method detailed in Section 5.10 apply to roofs and bottoms as well as sidewalls with respect to calculating nozzle reinforcement as defined in 5.16.5?	Yes.

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5.25.3	Ed 12, Ad 0	620-2014-F6	Is the 1/4" thickness limit given in 5.25.3 based on the shell thickness only exclusive of any reinforcing pad?	Yes.
5.26.2	9th - Feb. 1996	620-I-03/98	Referring to API 620, if a reinforcement pad covers a vertical or horizontal weld seam of a tank, is radiographic examination or other NDE required at the weld seam before installing the reinforcing pad?	Depending on the thickness of the tank shell, or on the joint efficiency of the design, radiographic examinations may be required. Refer to 5.26.2. However, API 620 does not specify the timing of this examination, deferring to the practical aspects of accessing the weld if a repair is necessary. Note, for tanks built to Appendices Q or R, reinforcing pads are not permitted to cross weld seams.
5.26.2	9th - Feb. 1996		Does API 620 require full radiography of a butt-welded tank wall when the wall thickness is designed using a joint efficiency of 1.0, for: 1) the case of wall thickness, $t$ , greater than 1-1/4 inch and $S_t$ greater than $0.1 T_s$ , 2) the case of $t$ less than or equal to 1-1/4 inch and $S_t$ greater than $0.1 T_s$ , and 3) the case of $t$ greater than 1-1/4 inch and $S_t$ less than $0.1 T_s$ ?	1) Yes, full radiography is required, because a joint efficiency of 1.0 is being used, and, per Section 5.26.2, both the thickness and stress level requirements are met.  2) Full radiography is required, because the joint efficiency of 1.0 is being used, per Table 3-2. Otherwise, spot radiography could be used, per Table 3-2 and Section 5.26.2.  3) Full radiography is required because the joint efficiency of 1.0 is being used, per Table 3-2. Otherwise, spot radiography could be used, per Table 3-2 and Section 5.26.2.
5.26.3.2	9th - Feb. 1996	620-I-02/01	Does Sections 5.26.3.2 require that the butt joints of the dome steel roof compression ring be radiographed?	Yes, unless exempted by 5.26.2.
6.4	9th - Feb. 1996	620-I-01/00	Does API 620 require that shell plates be rolled prior to erection to the design radius?	No, unless forming impairs the mechanical properties. Refer to Section 6.4 of API 620
6.4	9th - Feb. 1996		Does API 620 allow higher allowable stresses for structural connections than provided in Table 5-3 (reference Footnote 13 Section 6.4)?	Yes, if the bolting material is not specified in API 620 and is of higher tensile and yield strength.
6.5.8	9th - Feb. 1996		Referring to the Ninth Edition - Addendum 1 of API 620, Section 6.5.8, is "D" intended to be the diameter of the roof (twice the radius of the roof), when considering the tolerance of a double-curvature roof for a cylindrical tank?	Yes.
6.5.8	9th - Feb. 1996		Does the term "outside (or inside) the design shape" mean "outside (or inside) the theoretical shape"?	Yes.
6.13	9th - Feb. 1996		Regarding API 620, Section 6.13, what is the interpretation of the words "longitudinal or meridional" and "circumferential or latitudinal" when applied to vertically erected and welded flat plates?	The smaller undercut criteria would apply for welds perpendicular to the direction of the larger primary stress. The larger undercut criteria would apply to the welds perpendicular to the direction of the smaller primary stress, assuming there is a 2:1 ratio of stress. If not, then the smaller undercut would apply to all welds.

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6.7.1	Ed 12, Ad 0	620-2014-F1	According to 6.7.1, is thermal stress-relieving of a plate after welding to a nozzle neck considered a change to the plate's heat treated condition and therefore a change to an additional Supplementary Essential Variable for purposes of qualification of a weld procedure for subsequent joining of this plate to another?	No.
7.16	9th - Feb. 1996	620-I-07/00	Does API 620 address the maximum local deviation/weld distortion on a 6 mm thick bottom plate resulting from the full penetration butt-welds in transverse and longitudinal butts?	No.
7.17.1.3	9th - Feb. 1996	620-I-02/01	If the requirements of magnetic particle testing of Section 7.17.1.3 are met, is additional radiographic examination of these joints required?	No.
7.17.3	9th - Feb. 1996		Does API 620 require compliance with Section 7.17.3.2 or 7.17.3.4 for main seam spot radiography?	As stated in Section 7.17.3.1, the requirements in 7.17.3.2 through 7.17.3.4 must be satisfied.
7.18	10th - Feb. 2002	620-I-10/02	1: Does API 620 contain rules for allowable stresses during a hydrostatic test?  2: If the reply to Question 1 is no, does that mean that the unspecified hydrostatic test stresses are not required to be checked?  3: If the reply to Question 2 is no, then does that mean that the unspecified hydrostatic test stresses are to be the same as those during operation?	1: No.  2: No, see 5.3.1.2.  3: No.
8.2	9th - Feb. 1996	620-I-04/01	1: Does the term erector, as used in Section 8, mean the party that is responsible for field assembly will complete welds on the tanks during that assembly?  2: For tanks built to API 620 that are completely welded out in a fabricator's facility with field installation consisting of another company setting and anchoring without performing any welds on the tanks, does the responsibility for the hydrostatic test rest with the fabricator or the installer?	1: Yes.  2: API 620 covers field-assembled tanks, not shop-built tanks. See Section 1.1 of API 620. Appendix J of API 650 prescribes requirements for shop-built tanks, including testing and division of responsibility for same.
F.5.2	10th - Feb. 2002	620-I-03/04	In Section F.5.2 Example 2, the formula for $t_{rn}$ . Should the value shown of $29.9 \text{ lbf/in.}^2$ be $24.9 \text{ lbf/in.}^2$ ? When one solves the formula using $29.9 \text{ lbf/in.}^2$ they get a result of $0.0215 \text{ in.}$ , using $24.9 \text{ lbf/in.}^2$ one gets the result shown in the standard of $0.018 \text{ in.}$	Yes.
Figure 5-6	9th - Feb. 1996	620-I-11/00	Is the width of lap of the roof panels, onto or beneath the compression ring plate, prescribed in Figure 5-6 Details e, f, f-1, and g?	No. See 5.22.1.5
Figure 5-6	9th - Feb. 1996	620-I-12/00	May the lap welds of the roof panels, onto or beneath the compression ring plate, prescribed in Figure 5-6, Details e, f, f-1, and d be double-lap welds or single-lap welds if the appropriate joint efficiency and inspection are applied?	Yes.

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Figure 5-6	9th - Feb. 1996	620-I-13/00	May the roof be butt-welded to the compression ring as an alternative to the lap weld shown in Figure 5-6 Details e, f, f-1, and g, if all requirements for circumferential butt welds are met?	Yes.
Figure 5-6	9th - Feb. 1996	620-I-14/00	1: Does the expression, $wh - L < 16t$ , apply to Figure 5-6 Detail e as well as to Figure 5-6 Details f and f-1?  2: Does the outward extension limitation at a maximum of $16t$ of the plate compression ring in Figure 5-6, Detail e apply as well to Figure 5-6 Details f and f-1?	1: Yes.  2: Yes. .
Figure 5-6	9th - Feb. 1996	620-I-15/00	1: Is the dimension, $w_h$ , of Figure 5-6 Details f and f-1, a limitation on the greatest inward physical projection that a plate compression ring may have?  2: Is the dimension, $w_h$ , of Figure 5-6 Details f and f-1, a limitation on the "effective" portion of the plate compression ring that may be considered as contributing to the required cross-section area, $A_c$ ?  3: Is the dimension, $wh$ , of Figure 5-6 Details f and f-1 also applicable to Figure 5-6 Details e and g?	1: No  2: Yes.  3: Yes.
Figure 5-6	9th - Feb. 1996	620-I-16/00	Are the roof plates of Figure 5-6 Detail e not permitted to contribute to the required cross-sectional area of the compression region because of the lap weld between the roof and the compression-ring as stated in Section 5.12.2 and Note 17?	Yes.
Fig. 5-8, Annex Q	Ed 12, Ad 0	620-2014-F5	Do Q.5.1.3.2 and Q.5.1.3.3 permit Panel w of Figure 5-8 as an acceptable manway closure for the inner tank of an Annex Q vessel?	Yes. The "connection" referred to in Q.5.1.3.2 and Q.5.1.3.3 is the neck to shell connection, not the opening closure. Closures are addressed by Q.5.1.3.5.
General	10th - Feb 05	620-I-04/06	What is the definition of weld metal and heat affected zone?	These terms are defined in API 620 Section 3.4.15 and 3.4.6 respectively.
General	10th - Feb. 2005		Does API 620 section Q6.1 require that the welding and testing of the two all weld metal specimen be performed by the fabricator.	API Section Q6.1 does not specify the party responsible for the welding and testing of the all weld metal specimens required in Section Q.6.1. The only case that would require the fabricator to perform the test is when the welding procedure qualification test shows the deposited weld metal tensile test strength is lower than the specified minimum ultimate tensile strength of the base metal.
General	10th- Feb.		Does API 620 require or permit that only the minimum yield strength of the weld metal be determined when the specified minimum ultimate tensile strength is equal to the specified minimum UTS of the base metal?	No. Both the minimum yield and tensile strengths shall be determined. Refer to Q.6.1.
General	10th Feb 05	620-I12/06	Is the term knuckle region defined in API 620?	No, however, refer to Figure 5-9 Panel C.

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General	9th	620-I-09/00	<p>1. Does API 620 require that weld procedures be qualified by standard qualification tests in accordance with ASME Section IX, using the contractors actual welding procedure, without any all-weld-tensile tests, except for the additional tests required by Question 2 below?</p> <p>2. Does API 620 require or permit additional, separate qualification tests for proof of weld metal strength assumed for design using the AWS test-piece as per Figure 9 of AWS 5.11, which will be different from Reply 1 above (Since single-sided welds with backing strips are not used for tank construction)?</p> <p>3. Does API 620 allow the use of test plates for proof of weld metal strength assumed for design in accordance with AWS A5-11, Table 3, note 1, which is referred to by Figure 2, note 1 of AWS 5.11, and which specifically permits the use of buttered carbon steel test plates?</p>	<p>1. Yes</p> <p>2. Yes</p> <p>3. Yes</p>
L	9th - Feb. 1996	620-I-17/00	<p>1: Is vertical acceleration considered in API 620 Appendix L.</p> <p>2: If specified, should vertical earthquake force be taken into consideration?</p>	<p>1. No.</p> <p>2. Yes.</p>
L.3.3.1 L.3.3.2	9th - Feb. 1996		Can values lower than given for C1 and C2 in Sections L.3.3.1 and L.3.3.2 be used by agreement between purchaser and manufacturer?	No, not if the seismic design is to be in agreement with API 620 Appendix L.
N	9th - Feb. 1996	620-I-04/02	Does API 2000 allow you not to comply with the discharge piping area requirements of API 620 Appendix N?	No, the requirements of both standards must be met.
P	10th - Feb. 2002	620-I-01/05	Does API 620 have allowable nozzle load guidelines similar to API 650 Appendix P?	No
Q	10th - Feb 05	620-I-04/06	Does an all weld metal tensile test defined in API 620 Appendix Q exclude the heat affected zone?	Yes
Q	10th - Feb 05	620-I-04/06	In the case of a LNG storage tank fabricated in accordance with API 620 Appendix Q using A553 Type 1 base metal, can the 2 all-weld-metal specimens required for the welding procedure qualifications defined in Appendix Q, be omitted when the plate thickness of the tank shell is too small?	No refer to API 620 Section Q.6.1 and Table Q-3-Note a.
Q	10th Feb 05	620-I-02/06	Referring to API 620, Appendix Q .5.3 (Minimum Wall Requirements) and API 620, Appendix Q.5.3.1 (Outer Tank), when corrosion allowance is specified, is it required to add the corrosion allowance to minimum nominal thickness (3/16")?	Yes, Refer to Section 5.10.4.1



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Q	9th - Feb. 1996	620-I-05/00	Can a tank containing condensate consisting of methanol and other organic compounds (methanol concentration, 20,000 ppm, i.e. not flammable) with pressure range of $\pm 35$ in. water column and fabricated out of SA-240 Type 304I be built per API 620, Appendix Q?	Yes, by agreement between the owner and the manufacturer, provided the tank is field erected. If the tank is shop fabricated, it should be fabricated per API 650 Appendix J, S, and F.1.3. The minus 35 in. water column design pressure is beyond the scope of both API 620 and 650. Additional design methods, by agreement between the owner and manufacturer, must be used to properly address this external pressure.
Q.1.3	9th - Feb. 1996		Can Section Q.8.1.3 be used for tanks covered by the basic design rules in API 620 but do not require the use of Appendix Q?	API 620 does not address the use of Appendix Q materials for non-Appendix Q tanks.
Q.1.4	10th - Feb. 2002	620-I-16/02	<p>1: Is a roof of an API 620 Appendix Q inner tank that is in contact with LNG and is stressed by liquid and/or vapor pressure considered to be a primary component?</p> <p>2: Is a deck of an API 620 Appendix Q inner tank that is designed to support insulation above the inner tank product level and is not stressed by liquid or vapor pressure considered a primary component?</p> <p>3: Are structural components, such as ladders and platforms, exposed to LNG at temperatures less than -60°F considered primary components?</p>	<p>1: Yes. See Q.1.4.1.</p> <p>2: The component addressed is not specifically covered within API 620; however, material must be selected for compatibility with service conditions.</p> <p>3: Ladders and platform requirements are not addressed in API 620; however, attachments to walls (reference footnote 1) must be considered as primary components.</p>
Q.6.6.4	10th - Feb. 2002	620-I-01/02	For low-temperature and cryogenic tanks constructed under the provisions of API 620, Appendices Q and R, when circumferential joints are welded by a technique where the weld is produced by a machine but it is constantly observed and various adjustments are periodically made by a welding operator, do sections Q.6.6.4 and R.6.3.4 require production weld tests for the circumferential welds?	No.
Q.7.3.1	10th - Feb. 2002	620-I-01/04	<p>1: Per API Standard 620, does stiffening ring angle that is cold formed from 9% Nickel flat sheet require postweld heat treatment when the fiber strain from cold forming exceeds 3%?</p> <p>2: Does piping that is cold formed from 9% Nickel flat sheet require postweld heat treatment when the fiber strain from cold forming exceeds 3%?</p>	<p>1: Yes. See Q.7.3.1</p> <p>2: Yes. See Q.7.3.1</p>
Q.7.6.1	10th - Feb. 2002	620-I-02/02	When the operating membrane stress on both vertical and horizontal weld seams is greater than 0.1 times the specified minimum tensile strength of the material, which of the following does Q.7.6.1 of API 620 require: (a) Complete joint radiography of both vertical and horizontal weld seams, or; (b) 100% radiography of the vertical seams, all T-joints, and Spot radiography of the horizontal seams, per Figure Q-2?	Item (a) is required by Q.7.6.1.

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Q.8.1.3	10th - Feb. 2002	620-I-10/02	<p>1: Section Q.8.1.3 in Appendix Q places a limit on stress as "the maximum fill shall not produce a stress in . . .". Is it correct to read the "stress" in the above sentence as "membrane tensile stress" similar to R.8.1 in Appendix R?</p> <p>2: Is it true that the allowable hydrostatic test stress in Q.8.1.3 refers only to tensile stress and not to a compressive stress?</p> <p>3: Appendix Q has not defined allowable stresses for hydrostatic test conditions except in Q.8.1.3. Is it intent of code that the unspecified hydrostatic test stresses are not required to be checked?</p> <p>4: If the reply to Question 3 is no, is it intent of code that the unspecified hydrostatic test stresses should be equal to those for operating conditions?</p>	<p>1: Yes.</p> <p>2: Yes.</p> <p>3: No.</p> <p>4: No.</p>
Q.8.3	10th - Feb. 2002	620-I-03/02	Regarding the quality of test water specified in the section Q.8.3, does the test water in a tank built with 9% Ni steel have to comply with the 50 ppm chloride content limit?	API 620 does not define the chloride content for test water in 9% Ni steel tanks.
Q6.1	10th - Feb. 2005	620-I-06/03	<p>1. Does API 620 require that weld procedures be qualified by standard qualification tests in accordance with ASME Section IX, without any all-weld tensile tests, except for the additional tests required by Question # 2 below?</p> <p>2. Does API 620 require in addition to the requirements in Section 6.7, the testing of two all weld metal specimen that conform to the dimensional standard of Figure 9 of AWS A5.11, to establish the allowable stress to be used in the design of the tank?</p>	<p>1. Yes</p> <p>2. Yes a single test, consisting of two all weld metal specimen, for each weld procedure is required when any of the conditions outlined in Section Q.6.1 exist</p>
R	9th - Feb. 1996		Is a tank designed and fabricated in accordance with API 620 Appendix R required to be tested per API 620 Section 5.18.25?	Yes.
R	9th - Feb. 1996	620-I-01/99	Does API 620, Appendix R permit the use of the local stress-relief method specified in the ASME Section VIII, Div. 1, UW-40(a)(3) for the stress-relieving a nozzle-neck-to-shell weld in a shell plate that has been welded to another shell plate?	No. The PWHT is must be done in a furnace to achieve uniform heat treatment. See Section 6.18.2.
R	10th - Feb. 2002	620-I-12/02	<p>1: Referring to API 620, Appendix R, do both longitudinal and circumferential joints have to be 100% radiographed?</p> <p>2: Referring to API 620, Appendix R, do only longitudinal joints have to be radiographed?</p>	<p>1: No.</p> <p>2: Yes.</p>

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R.3.4.6	9th - Feb. 1996	620-I-03/99	1: Referring to API 620, Appendix R, Section R.3.4.6, does lapping of two bottom plates on butt-weld annular plates constitute a three-plate lap weld?  2: If the answer to Question 1 is no, is there a minimum distance a two-plate lap weld must be from the butt welds in an annular plate?	1: No.  2: No.
R.5.6.2	Ed 12, Ad 0	620-2014-F2	Does the requirement in R.5.6.2 (stress greater than 0.1 times specified minimum tensile strength) for complete examination of wall course butt-welds apply to both longitudinal and circumferential welds?	Yes. But the rule is applied to each weld independently. If longitudinal butt-weld has stress perpendicular to it greater than the criteria and circumferential butt-weld has stress perpendicular to it less than the criteria, then only the longitudinal weld is required by R.5.6.2 to be completely examined.
R.6.3.4	10th - Feb. 2002	620-I-01/02	For low-temperature and cryogenic tanks constructed under the provisions of API 620, Appendices Q and R, when circumferential joints are welded by a technique where the weld is produced by a machine but it is constantly observed and various adjustments are periodically made by a welding operator, do sections Q.6.6.4 and R.6.3.4 require production weld tests for the circumferential welds?	No.
R.7.3	9th - Feb. 1996	620-I-11/98	If a tank complies with R.7.3, parts a and b, but not with part c, is PWHT required?	No
R.7.3.1	9th - Feb. 1996		Referring to API 620, Section R.7.3.1, is stress relieving of a nozzle assembly prior to installation required only if the nozzle assembly is fitted with a thickened insert plate?	No. Section R.7.3.1 requires all nozzle assemblies in primary components to be stress relieved, with specific exceptions. The use of a thickened insert plate is not a factor.
R.7.3.1	9th - Feb. 1996		Is local stress relieving acceptable if the above nozzle is welded directly to the shell with a reinforcing pad?	No, the rules in Appendix R take precedence over those in the basic document. See Section R.7.3.1.
R.7.6.1	10th - Feb. 2002	620-I-11/02	Does R.7.6.1 apply to horizontal shell joints?	Yes.
R.8.4	9th - Feb. 1996		Is a tank designed and fabricated in accordance with API 620 Appendix R to be vacuum tested per Section R.8.4.4 or Section 5.18.5?	Testing meeting requirements of both sections is required.
S	10th Feb 05	620-I-03/06	Can a stainless steel tank shell be fabricated in accordance with API 620 Appendix S without radiography and a joint efficiency of 0.70?	No. Refer to API 620 Table 5.2
Table 5-1	9th - Feb. 1996		Can the allowable stresses for materials not covered in Table 5-1 be calculated using Footnote 2?	No. See Appendix B for the use of non-listed materials
Table 5-1	9th - Feb. 1996		Can Footnote 2 in Table 5-1 be used to calculate the allowable stresses for stainless steel material?	No.
Table 5-1	9th - Feb. 1996		Can Footnote 2 in Table 5-1 be used to calculate the allowable stresses at elevated temperatures (say "t") by using the minimum ultimate tensile strength and the minimum yield point at the elevated temperature t?	No.

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Table 5-2	9th - Feb. 1996	620-I-03/00	Table 5-2 lists single welded butt joints with backing strip as having 75% basic joint efficiency. A spot radiographed joint is also listed at 75%. Are all single welded butt joints with permanent metallic backing strip not more than 1 1/4 in. thick required to be spot radiographed as a minimum?	Yes, however radiography is not required for E = 0.7 if nonmetallic or temporary metallic backing strips are used.
Table 5-2	9th - Feb. 1996	620-I-01/01	Does the magnetic particle examination covered by Note 3 of Table 5-2 in API-620 apply to the butt weld of a nozzle neck to a weld neck flange?	No.
Table 5-2	10th - Feb. 2002	620-I-10/02	1: Do the specified thicknesses in Table 5-2 refer to the as-constructed thickness?  2: Do the specified thicknesses in Table 5-2 refer to the actual thickness?	1: Yes.  2: Refer to Question 1.
Table Q-3	9th - Feb. 1996		Can the allowable stress (test) indicated in Table Q-3 be used for tanks that do not require the use of Appendix Q, i.e. for the storage of demineralized water, etc.?	API 620 does not address the use of Appendix Q materials for non-Appendix Q tanks.
U.1	Ed 12, Ad 0	620-2014-F4	May UT be applied in lieu of RT for tank seams in material between 6 mm and 10 mm?	No. U.1 limits the thickness to 10mm (3/8") or greater.