

API Standard 1104 - Welding of Pipeline and Related Facilities+A3					
Standard	Edition	Section	Inquiry #	Question	Reply
1104	18th May-94		1104-I-01-96	The section on essential variables for Weld Procedure Qualifications, Section 2.4.2.5, states a change from one group to another. However, this section does not specify which group. Is the first group specified in Table 2 which is ≤ 12.7 mm and > 12.7 mm? Or is it the group specified under Welder Qualification Tests which is < 4.8 mm, 4.8 mm - 19 mm, and > 19 mm?	The groups are not specified in API-1104, they are to be selected by the user. See Para. 2.3.2.3.
1104	18th May-94		1104-I-01-96	The essential variable list in Section 2.4 for Weld Procedure Qualification does not cover diameter groupings although Welder Qualification Tests do have groupings. Is it correct in saying that qualifying a procedure on 2" diameter would qualify, say, a 40" diameter butt weld provided all other essential variables were met?	Yes.
1104	18th May-94		1104-I-01-96	Welder Qualification Tests for Automatic Welding Section 9.7 does not specify any essential variables for Welder Qualification Tests. Is this correct?	Welder Qualification Tests for Automatic Welding - Since Para. 9.6 provides that both the equipment and the operator are qualified at the same time, the Essential Variables specified in Para. 9.5 apply.
1104	18th May-94		1104-I-01-96	Weld Procedure Qualification - Automatic Welding Under Section 9, this appears to be leaving the groupings of diameters and wall thickness to the Contractor as it states this will be stated in the WPS. Should these groupings be per API 1104 and/or Company requirements?	Weld Procedure Qualification for Automatic Welding - The groupings are left to the writer of the procedure specification.

1104	18th May-94		1104-I-02-96	Clarification of the requirements of paragraph 6.3.8.2.c with respect to cluster porosity is required since the collective aggregate size of porosity is being interpreted differently by different inspectors.	If the cluster porosity cannot be proven to be in the finish pass, the criteria of Para. 6.3.8.2 applies. If Para. 6.3.8.2c applies, then figures 18 and 19 must be used even if the indication on the radiograph has been defined as cluster porosity.
1104	18th May-94		1104-I-02-96	With similar size porosity all falling into the medium category, the density which is in the assorted chart cannot be defined. When a cluster of 5 to 7 pores cannot fit into an inscribed circle on the fine chart, the client is rejecting it even though there is no other porosity within the entire radiograph. An attached sketch illustrates the condition.	If the size of the porosity is the size shown in the "medium" charts of Figures 18 and 19, then that is the chart which must be used as the acceptability standard.
1104	18th May-94		1104-I-04-96	If the Company has not required the use of a line-up clamp in its project specific specification, does API 1104 require the use of a clamp?	No. See Para. 2.3.2.11
1104	18th May-94		1104-I-04-96	As paragraph 4.3 is concerning butt welds, is this indicating that a clamp must be used for butt welds and that the weld procedure specification (as discussed in 2.3.2.11) <u>for butt welds</u> must reflect this?	Para. 4.3 requires that the use of line-up clamps must be in accordance with the procedure specification. If the procedure specification does not require a line-up clamp, then none needs to be used when making the production weld. See Para. 2.3.2.11.
1104	18th May-94		1104-I-04-96	Why is a clamp required for a weld procedure qualification, when the pipe nipples for the WPS will have been cut from the same length of pipe and hence the dimension fit up will be very good; whereas, the field fit ups are from pipes that will vary in dimension, ovality, etc.?	A line-up clamp is not required for the weld procedure qualification. See Para. 2.3.2.11.
1104	18th May-94		1104-I-04-96	Regardless of what the form of words that API 1104 uses, <u>what was the intention of the committee</u> in regard to the use of clamp for butt weld joints?	We cannot comment on the intention of the committee, only what is written.

1104	18th May-94		1104-I-04-96	API 1104 only discusses the clamp as a method of weld alignment. If API 1104 permits the use of other methods of alignment, why are they not discussed and parameters given for their use, removal, etc.? If other methods are permitted, what are they and what other parameters govern their use?	API 1104 does not discuss specific types of line-up clamps, only the method, i.e. internal, external or no clamp.
1104	18th May-94		1104-I-05-96	If a tensile strength is conducted for welder qualification, <u>what information should be recorded regarding the test?</u> Currently, (a) I measure the specimen before testing, document that, (b) calculate the specimen's area, document that, (c) test the specimen documenting the load, and (d) calculate the tensile strength of the specimen, documenting the computed tensile strength. If it meets the required specified minimum tensile strength of the material, it is accepted. <u>But this is not a requirement of welder qualification is it?</u> It appears to me, that all that is required for welder qualification is for the tensile specimen to break outside the weld zone or meet nick-break requirements if it does break in the weld zone, and the documentation is accepted or rejected and nothing else. <u>Is this correct?</u>	Paragraph 3.5.3 requires that the soundness requirements of Paragraph 2.6.3.3 be met. The tensile strength need not be calculated. It is therefore not necessary to measure the tensile specimen or to record the breaking load. Only the results of the examination per Paragraph 2.6.3.3 need to be recorded. Paragraph 3.5.3 requires that the soundness requirements of Paragraph 2.6.3.3 be met. The tensile strength need not be calculated. It is therefore not necessary to measure the tensile specimen or to record the breaking load. Only the results of the examination per Paragraph 2.6.3.3 need to be recorded.

1104	18th May-94		1104-I-0810-96	1) Do a procedure and welder qualification on a butt weld, according to API 1104, qualify for unlimited fillet welds as it does with other codes such as ASME XI.	1) PROCEDURE QUALIFICATION One of the essential variables listed in Paragraph 2.4 is 2.4.2.3 "Joint Design." Here it states that a major change in joint design constitutes an essential variable. A change from a butt to a fillet weld is a major change in joint design, thus requiring that a new procedure be qualified. WELDER QUALIFICATION If a welder qualifies by making a butt weld per Paragraph 3.2 "Single Qualification," that welder is subject to the essential variables listed in 3.3.2. Here in subparagraph "g," it states that a change in joint design constitutes an essential variable. A change from a butt to a fillet weld is a major change in joint design. That welder would therefore, not be qualified to make fillet welds. (2) Paragraph 4.3 requires that the use of line-up clamps must be in accordance with the procedure specification. If the procedure specification does not require a line-up clamp then none needs to be used when making the production weld. See Paragraph 2.3.2.11.(3) A line-up clamp is not required for the weld procedure qualification. See Paragraph 2.3.2.11. (4) We cannot give advice on the use of clamps, only interpret what is written. (5) API 1104 does not discuss specific types of line-up clamps, only the method, i.e., internal, external, or no clamp. This covers every possible method.
1104	18th May-94		1104-I-0913-96	On samples extracted such that their length is parallel to the pipe axis, are shear values required from testing? Is pipe mill roll direction relevant to the testing of site-produced vertical butt welds?	The API-1104 Standard does not require charpy testing. Therefore, we cannot respond to your question.

1104	18th May-94		1104-I-1015-96	Four examples of repair situations that could arise are attached. They are labeled Examples 1, 2, 3, and 4 and are only scenarios and are not actual cases that have occurred on any project. Please review the four examples. In each example, is the repair acceptable in accordance with sections 6 and 7 of API Standard 1104?	Example 1 Yes. Example 2 Yes, assuming that "Clause 6.3.2.a" in the first sentence was intended to be 6.3.8.2. Example 3 Yes. Example 4 Depends upon the diameter of the pipe. See paragraphs 6.3.4.c and 6.3.7.2.g.
1104	18th May-94		1104-I-1015-96	What is the definition of the words "injurious Defect" as they are used in paragraph 7.1.2, Removal and Preparation For Repair, API Standard 1104, 18th - May 1994?	Any defect that exceeds the standards of acceptability.
1104	18th May-94		1104-I-1015-96	What is the definition of the words "Sound Metal" as they are used in paragraph 7.1.2, Removal and Preparation For Repair, API Standard 1104, 18th - May 1994?	Sound metal, as used in Paragraph 7.1.2, is the metal that remains after the injurious defect has been removed.
1104	18th May-94		1104-I-1019-96	Paragraph 2.6.3.2 states that nick-break samples shall be broken by:) pulling in a tensile machine b) supporting at each end and striking the middle; c) supporting one end and striking the other end. Is it the intent of the code to specifically rule out other methods of causing fracturing through the weldment?	Paragraph 2.6.3.2 provides only three methods of breaking a nick break coupon so that it is all that can be used . However, your point is very understandable so we are sending your letter to the Welding Procedures and Welder Qualifications subcommittee for review and possible revision to the standard.
1104	18th May-94		1104-I-1122-96	Can I use a fillet weld procedure qualified using a non-bevel lap fillet to complete a 45 degree single bevel fillet weld? And, vice versa.	Paragraph 2.4.2.3 "Joint Design" specifies that a major change in joint design constitutes an essential variable thus requiring requalification. A change from a non-bevel lap fillet weld to a bevel fillet weld is a major change as it involves a bevel in addition to the fillet. However, if the same procedure is qualified on a bevel fillet weld, the same procedure can be used to weld a lap fillet because in the qualified procedure, once the bevel is filled, the joint design remaining is essentially the same as that of a lap joint.

1104	18th May-94		1104-I-1122-96	When qualifying welding procedures for fillet welds, one must note the range of wall thickness and diameters over which the procedure is applicable. Is API 1104 referring to the wall thickness and diameter of the branch or header piping?	Both.
1104	18th May-94		1104-I-0130-97	Under Section 3.2.2 and 3.3.2 for multiple qualification of welders, is it correct in understanding that a welder who has successfully completed the multiple qualification tests using filler metal from the group 1, (example E-6010& E-7010), in the downhill travel progression would also be required to successfully complete those same two tests using filler metal from the group 3, (E-7018), in the uphill travel technique to install attachment fittings on pipelines such as thread-o-lets, requiring the use of E-7018, since the weld joint for fittings is a full penetration single bevel?	Yes. Paragraph 3.3.2.b requires requalification. if the direction of welding changes from vertical uphill to vertical downhill or vice versa. Also, paragraph 3.3.2.c requires requalification. if the filler metal classification is changed from Group 1 or 2 to Group 3 or from Group 3 to Group 1 or 2.
1104	18th May-94		1104-I-0130-97	After completion of the multiple qualification tests prescribed in section 3.3.2 using E-6010 and/or E-7010 electrodes in the downhill progression, and electing not to certify on a full size branch test again, is the only other option for a welder to be qualified for welding fittings on a pipeline using E-6010 for the root and E-7018 for the fill and cover passes are those outlined in ASME Section Ix, Boiler & Pressure Vessel Code, QW 452?	No. The welder could be qualified under 3.2 "Single Qualification."
1104	18th May-94		1104-I-0130-97	Question 3 refers to API RP 1107, Third Edition April 1991. Section 3.1 allows for a welder to perform maintenance welding after successfully completing the requirements of API Std 1104 3.1 to 3.6 or API RP 1107 3.2 to 3.5. Is a welder qualified to install sleeves using E-7018 if the welder test on a Butt and Branch using E-7018?	We assume that by "---on a butt and branch---" you mean the butt weld and branch described in paragraph 3.3.1 of API 1104 and to the branch described in paragraph 3.2 of API 1107. With this assumption the answer to your question is yes. However, to install sleeves the welder does not need to make a butt weld qualification test. The welder can make a single qualification test as described in the second paragraph of 3.2.1 of ASPI 1104.

1104	18th May-94		1104-I-0130-97	<p>Questions 4 & 5 refer to API 1104, 18th - May 1994 and API RP 1107, Third Edition, April 1991. Provided a procedure was qualified and a welder was tested on the 12-3/4" dia. butt weld and a 12-3/4 dia. full size branch test, per API Std. 1104 Sec. 3.3, using E-6010 downhill for the root passes and E-7018 uphill for the fill and cover passes, wouldn't this welder meet the criteria as outlined in API Std. 1104, Sec. 3.3.2 for qualifications to weld in all positions, all wall thickness', joint designs, and fittings on all pipe diameters, including the installation of full encirclement sleeves as outlined in API RP 1107, Sec. 3.1?</p>	<p>Yes but the welder would only be qualified to weld using Group 1 or 2 electrodes downhill on the root pass and Group 3 electrodes uphill on the fill and cap passes.</p>
1104	18th May-94		1104-I-0130-97	<p>DOT CFR 192, Sec. 192.229(C) states that welders are required to re-certify after 6 months unless proof of welding using the process for which they are certified under is produced. DOT 195, Sec. 195.222 does not address a specific qualification term limit. Both DOT sections 192-Transportation of Natural Gas and DOT Section 195-The Transportation of Hazardous Liquids by Pipeline, reference API Std. 1104 and ASME Sec. IX for welder qualification testing. ASME B31.3 (1990 Edition), Sec. 434.8.3 references API Std 1104 and/or ASME Sec. IX for welder certification. ASME B31.4 (1992 Edition), Sec. 328.2 references only ASME Sec. IX for certification testing. ASME Boiler & Pressure Vessel Code Sec. IX, QW-322 does address six months without welding requiring a new qualification. With the Federal Regulations and required codes referencing API, why doesn't the API Std. 1104, Sec. 3.7 and API RP 1107, Sec. 3.6 stipulate a time limit for qualification of welders?</p>	<p>The subject of a time limit for the qualification of welders has always been left to the codes and user companies. However, this subject will be presented to the API 1104 Subcommittee On Welder Qualification for review.</p>
1104	18th May-94		1104-I-0507-97	<p>Does a specific procedure for the branch weld in a multiple qualification test of welders need to be in place when doing the multiple qualification?</p>	<p>Yes, a welder must use a qualified welding procedure when qualifying. See the first paragraph of Paragraph 3.3.1, "For multiple qualification, a welder shall successfully complete the two test welds described below, using qualified procedures." We point out that the welder who successfully makes the procedure test weld is also qualified.</p>

1104	18th May-94		1104-I-0910-97	Is branch connection diameter considered an essential variable when qualifying welding procedures for fillet welds on branch connections? Is it correct to assume that header diameter in a branch connection weld is NOT an essential variable?	Diameter is not an essential variable in the qualification of a welding procedure as it is not listed in Paragraph 2.4.2. However, Paragraph 2.3.2.3 requires that the company establish its own diameter range for which the procedure is applicable. This range must then be recorded in the procedure specification. Having done this, pipe with diameters that were outside the selected range can be welded without requalifying the welding procedure. However, the procedure specification covering that weld must be changed to include the new diameter range for which the procedure is applicable.
1104	19th Sep-99	9.3.9	1104-I-0106-00	Does the standard intend that any elongated porosity indication in the root pass should be considered to be hollow bead?	Yes.
1104	19th Sep-99	9.3.9	1104-I-0106-00	If so, does the standard intend that the definition of linear indication (length more than 3 times the width as in MT and PT) be applied to porosity indications in radiographic applications? At the moment, we have a project (.250" wall pipe) in which a proe of porosity 1/16" wide and 5/32" long is deemed rejectable because it does not meet the linear indication criteria, and is considered a single pore rather than hollow bead. If the same indication was over 3/16" long, it is considered hollow bead and is acceptable. In other words, the shorter indication is rejectable and the longer indication is acceptable. This interpretation is causing some confusion.	No.
1104	19th Sep-99	6.1	1104-I-0121-00	Is the entire procedure qualification test rejected and thus the welding procedure not qualified?	The welding procedure is not qualified because all of the test specimens shown in Table 2 and figure 3 have not been successfully tested.

1104	19th Sep-99	6.1	1104-I-0121-00	Is the welder's test for the "A" side also rejected and thus the welder not qualified?	Both welders have failed because their qualification weld must have been made using a previously qualified procedure. See the first sentence of 6.1 "General." However, had the procedure been qualified, i.e. both the A and B side tests passed, then the procedure and both of the welders would have been qualified provided the proper number of test specimens were successfully tested as discussed in the third sentence of 6.1 "General."
1104	18th May-94	3.8	1104-I-0301-00	<p>"A record shall be made of the tests given to each welder and of the detailed results of each test. A form similar to that shown in Figure 2 should be used. (This form should be developed to suit the needs of the individual company but must be sufficiently detailed to demonstrate that the qualification test met the requirements of this standard.) A list of qualified welders and the procedures for which they are qualified shall be maintained. ..."</p> <p>Some people presume that Section 3.8 of the Standard requires that written documentation must be made to verify that each welder welded within the established parameters of the qualified welding procedure(s). This would include written notations of the electrodes used, amperages, voltages, and travel speeds of each pass, preheat temperature(s) and interpass temperatures.</p> <p>However, others contend that the Standard does not require written details of the welder qualification tests other than a pass/fail designation and a reference to the qualifying radiograph when welder qualification by radiography is utilized. (Para. 3.6) They contend that as long as the welder tests were "monitored", no other documentation is required.</p> <p>Please provide clarification as to the meaning of API 1104 Section 3.8 requirements, especially regarding "detailed results."</p>	API 1104 Standard does not specifically specify information regarding the parameters of welding that is to be recorded, i.e. electrodes used, amperage, etc. This is left to the discretion of the individual companies. However, a record must be made of the tests given and the detailed results of each test (see Paragraph 3.8).

1104	18th May-94	Para. 3.2.1	1104-I-0302-00	<p>Clarification is requested regarding the utilization of multiple welders whose qualifications are in a lesser wall thickness grouping than the full thickness of a production weld. For example, welders on the job are qualified to weld thicknesses between 4.78 mm (3/16") and 19.05 mm (3/4") but the production weld has a thickness of 25.4 mm (1").</p> <p>Is it permissible to utilize two welders wherein each welder would only deposit up to 19.05 mm weld deposit thickness in order to fill up the weld groove? Basically, the first welder would weld the Root, Hot Pass, and Part of Fill passes; and the second welder would complete the balance of the weld thickness, i.e. part of the fill passes and the Cap.</p>	No. Each welder must weld the entire wall thickness when he/she is qualifying. See Paragraph 3.2.1.
1104	19th Sep-99	Figure 12, Note 1	1104-I-0224-00	<p>When two welders are being qualified using 20" diameter pipe and each person is welding one-half of the weld, do you have to weld tow sets of nipples in order to get the sixteen test samples required per welder?</p>	<p>There was a mistake in the printing of the 19th Edition of API 1104. While the title of Figure 12 is correct, the drawing is incorrect. The drawing should be identical to Figure 12 of the 18th Edition, which shows 12 total weld specimens instead of 16. The response to your question is no. You do need to test 12 weld specimens from each welder's half (see Table 13). The weld specimens should be equally spaced around the segments welded by each welder being qualified (see Figure 12, Note 1).</p>
1104	19th Sep-99	Figure 12, Note 1	1104-I-0224-00	<p>If you have a welding procedure that was qualified with the MIG process using AWS ER 70S-3 and you are going to use AWS ER 70S-do you have a requalify the procedure using the new filler metal or can you just make the substitution?</p>	<p>You must requalify the procedure. AWS ER70S-3 is not listed in Table 1. The note to Table 1 therefore requires requalification.</p>
1104	18th May-94	Fig. 10 pg. 15	1104-I-0221-00	<p>In reference to Figure 10 on Page 15 (the non-branch connection sketches), is the weld specimen for fillet-weld procedure qualification one piece of pipe (smaller diameter) slipped into another piece of pipe (larger diameter)?</p>	<p>Not necessarily. The larger pipe can be split and fitted to the smaller pipe.</p>

1104	18th May-94	Fig. 10 pg. 15	1104-I-0221-00	Is there a standard procedure and welder qualification report template that is offered pre-printed from API?	No.
1104	18th May-94	Fig. 10 pg. 15	1104-I-0221-00	Is radiography acceptable to qualify a welding procedure or only a welder?	Only a welder, not a procedure. However, please note that in Sections 9 and 10 "Automatic Welding" and "Automatic Welding Without Filler-Metal Additions" nondestructive testing is required in addition to destructive testing when qualifying a procedure. (See Par. 9.2 and Par. 10.2.1)
1104	18th May-94	Fig. 10 pg. 15	1104-I-0221-00	Is destructive testing the only way to qualify a welding procedure?	See 3 above.
1104	18th May-94	Fig. 10 pg. 15	1104-I-0221-00	If a welder is qualified using a standard type MIG welder, does a change to the use of a pulse type MIG welder require requalification; assuming that all other variables remain the same?	Requalification is not necessary.
1104	19th Sep-99	App. B	1104-I-0327-00	Paragraph 2.2.1.3 of Appendix B states " <i>For in-service fillet welds, pipe wall thickness is not an essential variable.</i> " Does that also apply to the thickness of a hot tap fitting (e.g. the fillet weld joining the fitting to an in-service pipe)? I understand that the wall thickness of the in-service pipe is not an essential variable but what about the sleeve wall thickness?	Yes, the reference to wall thickness applies to both the thickness of the sleeve and to the thickness of the service pipe. Neither are essential variables.

1104	19th Sep-99	App. B	1104-I-0327-00	Can I use butt welding and fillet welding procedures qualified under Section 5 of API 1104 to make in-service welds or must I requalify?	You must re-qualify because Appendix B has requirements for procedure qualification that are not required in Section 5.
1104	19th Sep-99	App. B	1104-I-0327-00	In a previous technical inquiry (TI 1104-081096), it is stated that a change from a butt weld to a fillet weld is considered a major change in joint design and thus requires a new procedure to be qualified. In branch connection welding, if I change the weld prep on the branch pipe from a square edge to a single bevel edge, must I consider that a major change too?	Yes. See the last paragraph under Par. B.1 and the sentence under B.2.
1104	18th May-94	Par. 6.3.8.c	1104-I-0419-00	Clarification of the requirements of API 1104 Eighteenth Edition, May 1994 is requested for Paragraph 6.3.8 with respect to "Aligned Porosity as shown in Figure 18. The inquirer is welding an 18" diameter pipeline with a wall thickness of 6.35mm (0.250)". In radiographs of the girth welds, we are able to see images of aligned porosity similar to that shown in Figure 18. Figure 18 shows the distribution matrix, but the note at the bottom of the Figure states <i>The size of the gas pockets is not drawn to scale; for dimension, refer to 6.3.8. @</i> In the case of paragraphs 6.3.8.2 (a) and (b), there is a specific dimension for rejection, but for Figure 18 - "Aligned Porosity (three or more)" no specific dimension has been identified. Hence, NDT interpretation by Inspector and Client is done as per Figure 18 dimensions only. Please identify the size of the pore for each type shown in Figure 18, that is, with spacing 4T, 2T and 1T between the aligned pores.	Acceptance or rejection of porosity is based on two factors, size of the individual pores (Par. 6.3.8.2 a and b) and amount (Par. 6.3.8.2 c). In judging the amount, the reader is directed to Figures 18 and 19, in your case Figure 18. Figures 18 and 19 are not intended to show size, only amount or distribution (see the note). All pores shown in Figure 18 and 19 would be smaller than 1/8" or 25 percent of the thinner wall thickness. Otherwise, they would be rejected under Par. 6.3.8.2 a or b. Therefore, the reader must use judgement as to which of the four examples shown under "aligned" meets his case. Please refer to Par. 6.2 "Rights of Rejection."
1104	18th May-94	Sec. 8.1	1104-I-0427-00	With reference to Section 8.1 Radiographic Test Methods, is it permissible to radiograph welds joining API 5LX-60 pipe with wall thickness of 0.312" and 0.375" using gamma radiography?	Yes as API Standard 1104 does not specify the conditions under which gamma radiography is used. It is the imaging results that determine acceptability of the method. See Par. 8.1.1.

1104	18th May-94	Sec. 2	1104-I-0519-00	With reference to Section 2 of API 1104, is it permissible to list more than one filler metal rod size for each welding pass in a welding procedure specification when the procedure was qualified using only one rod size? The rod size used in the procedure qualification is not necessarily the size or sizes listed in the procedure specification.	Yes.
1104	19th Sep-99	Fig. B-2	1104-I-0728-00	Figure B-2 "Suggested Procedure and Welder Qualification Test Assembly" does not have specific information such as dimensions for the assembly nor flow rates for the cooling fluid into and out of the assembly. Is there a relationship between what the length of the assembly should be compared to the pipe diameter?	No.
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817-00	Paragraph 2.2 states that forms similar to those shown in Figures 1 and 2 should be used. Figure 1 contains a sketch showing the sequence of beads. Paragraph 2.3.2.5 requires that the "sequence of beads shall be designated". Is the welding procedure required to contain a sketch of the sequence of beads?	No. Paragraph 2.2 does not make Figure 1 mandatory as it states "Forms similar to those shown in Figure 1 and 2 should be used. However somehow the user must designate the sequence of beads as required in Paragraph 2.3.2.5.
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817-00	Paragraph 2.3.2.5: Can a welding procedure specify more than one size of electrode, for example, 5/32" or 3/16" diameter electrodes for the fill pass? Or are two separate welding procedures required?	Yes, the welding procedure can so state without requiring the qualification of two separate welding procedures. Electrode diameter is not an essential variable (see Paragraph 2.4)
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817-00	Paragraph 2.3.2.13: For the materials being welded, the welding procedure requires preheat. The welding inspector is checking that the proper preheat is achieved. Is the welding procedure required to specify how the inspector measures the preheat?	No.

1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817-00	This question concerns the information to be recorded during the welding procedure qualification. The allowable values/ranges are put in the welding procedure specification. Do the actual values used during the test weld have to be recorded for number of passes, size and type of electrodes, speed of travel, voltage, and amperage?	a. Number of passes – The minimum number must be recorded but not the actual number. See Paragraph 2.3.2.5 b. Electrode size- The sizes for which the procedure covers shall be listed but it is not required to list the actual sizes used to qualify the procedure. (see Paragraph 2.3.2.5) c. Type of electrode- The type (classification number) of the filler metal must be listed (see paragraph 2.3.2.5) d. Speed of travel – The range, not the actual speed must be listed. (see Paragraph 2.3.2.16) e. Voltage and Amperage- The range for each electrode, not the actual, must be listed. (see Paragraph 2.3.2.6)
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817A-00	Question 2 asked if the procedure can show more than one rod size for the fill pass. If that is done how do you show the revision to comply with Part 2.4.1 to show the changes from one rod to another.	Par. 2.4.1 does not specify how the revision is to be shown only that it be made.
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817A-00	On your reply to question 4 does the person conducting the test give testimony by signing and stamping that the ranges specified in the procedure were followed.	No.
1104	18th May-94	2.2, 2.3.2.5, 2.4	1104-I-0817A-00	Also is the letter an official interpretation or opinion.	Yes, the letter to Mr. Holk is an official API interpretation.

1104	18th May-94	2	1104-I-0908-00	If a procedure specification qualified under API 1104 Section 2 lists only one diameter and one wall thickness (.250"), is it only qualified for the specified wall thickness and diameter or can it be used outside the ranges listed as long as the WPS is revised to show the change?	The procedure can be used for any diameter without requalification because diameter is not an essential variable. However the welding procedure specification must be revised to include the diameter to be welded. If the range for wall thickness has not been established before the start of any production welding, the procedure can be used for other wall thicknesses without requalification provided the welding procedure specification is revised to include the wall thicknesses to be welded.
1104	18th May-94	2	1104-I-0908-00	If a fillet weld procedure specification only lists one wall thickness (.250") and one diameter, can it be used for material over 1/2" thick.	See 1 above.
1104	18th May-94	2	1104-I-0908-00	To qualify a welder under Section 3.3 - Multiple Qualification, must the weld test specimens be over 1/2" thick? Must the procedure specification specify thicknesses over 1/2"?	The wall thickness need not be over 1/2" thick but it must be at least 1/4". (see the second sentence of the second paragraph of Paragraph 3.3.1 and the second sentence of the third paragraph of Paragraph 3.3.1). The procedure specification need not specify thicknesses over 1/2".
1104	18th May-94	2	1104-I-0908-00	Under Section 2.2, what is meant by complete results?	This refers to the results of the tests performed as specified in Paragraphs 2.6 and/or 2.8.

1104	18th May-94	2	1104-I-0908-00	<p>Under Section 2, if a company takes the procedure specification, has a welder make welds that are destructively tested and pass can they just date the specification and use it for the permanent qualification record?</p> <p>This assumes that they welded within all of the essential variables of the specification but did not record the ACTUAL variables as they were used?</p> <p>An example would be an amperage range of 80-120 on the specification. They actually welded at 100 amps but didn't record this information anywhere. Can the specification now be used as the permanent record of qualification?</p>	Yes, provided the test results are attached.
1104	18th May-94	2	1104-I-0908-00	<p>If a procedure is qualified and the wall thickness range is specified as 3/16" through 3/4", does the procedure have to be tested differently accordingly to the thickness groupings listed in Table 2 under Section 2?</p>	<p>Your question is not clear. Table 2 prescribes the number and type of test specimens that must be tested depending upon the diameter and wall thickness of the test weld. For example, if the test weld was made on 16" diameter x .375" wall pipe 16 total test specimens would be required (4 tensile, 4 nick-breaks, 4 root bends and 4 face bends).</p>
1104	19th Sep-99	Sec. 6.2.2 f	1104-I-0925-00	<p>Does this allow a welder who successfully passes a single qualification butt weld test at 45 degrees to do butt welds and weld on sleeves, saddles, and similar encirclement fittings in all positions?</p>	Yes.

1104	19th Sep-99	Sec. 6.2.2 f	1104-I-0925-00	What is the definition of a lap fillet weld?	The definitions of terms used in the API 1104 Standard, unless defined otherwise in the Standard, are contained in AWS A3.0 (See Paragraph 2). There you will find a lap joint defined as "a joint between two overlapping members in parallel planes. "A lap fillet weld is shown in the center and lower test assemblies in Figure 10 and in the upper right corner of Figure 11.
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1104	18th May-94	Sec. 2.4.2.2	1104-I-1102-00	<p>Considering these groupings the materials we use are listed below and grouped accordingly. Group(A) SA-106 Gr.B, API 5L Gr.B, API 5L-X42 Group (B) API 5L-X52, API 5L-X60 Group(C) API 5L-X65</p> <p>Also considering compatibility of the base materials and filler materials within the groups, I would like to know if I understand API correctly:</p> <ol style="list-style-type: none"> 1. If I Qualify for group (A) X-42 (TO) X42, will it qualify all our materials in group (A)? 2. If I Qualify for group (B) X-52 (TO) X52 will it qualify all our materials in group (B)? 3. If I Qualify for group (C) X65 (TO) X65 will it qualify our material for group (C)? <p>B. We also weld the Base Material groups in combination. For example it is necessary to weld:</p> <ol style="list-style-type: none"> 1. Group (A) X42 TO Group(B) X52, 2. Group (A) X42 TO Group (C) X65 and 3. Group (A) X42 TO Group (C) X65 and <p>C. One question is, will Qualifying a procedure with each of the above combinations satisfy the materials we use in each group listed in A1 thru A3 & B1 thru B3?</p> <p>D. My other question pertains to Branch Connections:</p> <ol style="list-style-type: none"> 1. X42 TO X42 2. X42 TO X52 3. X42 TO X65 <p>E. Will I need to Qualify a Procedure for D1 thru D3 Branch Connections?</p>	<p>A. Regarding the question asked in A of your request for interpretation, we call your attention to Par. 2.3.2.2. There you will note that the qualification test must be made on the highest specified minimum yield strength in the group. Therefore, the answers to your questions are: A1 Yes. A2 No. A3 It will qualify x65 to x65 but not other materials that you might include in Group C, because each grade must receive a separate qualification test.</p> <p>Also we call your attention to the warning in the note at the end of Par. 2.4.2.2.</p> <p>B. And C. Regarding the question asked in C, we assume that by “above combinations” you mean those listed in your Question B. Procedures qualified for combinations of materials only qualify a procedure for using that combination of materials. Further note in Par. 2.3.2.2 that when welding materials of two separate material groups, the procedure for the higher strength group shall be used.</p> <p>D. And E. The same rules apply to branch connections as apply to butt welds.</p>
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1104	19th Sep-99	Sec. 6.4	1104-I-0404-01	<p>A recent comparison of the API-1104 18th and 19th Editions revealed a notable change to the visual examination criteria utilized for welder qualifications, i.e. Section 3.4 of the 18th Edition and Section 6.4 of the 19th Edition. References to defect tolerances (of the NDT acceptance standards section) shown in the 18th Edition have been deleted in the 19th Edition. When read verbatim, there is no tolerance for cracks, inadequate penetration, burn-through or other defects when performing visual examinations during welder qualifications under the 19th Edition. These are very onerous conditions to place on welder qualifications. Following this discovery, I contacted Mr. George Hickox on 02/21/01 to inquire as to the intention of this section. He agreed that these were very strenuous conditions and that this was not the intent of the API-1104 Committee. As Mr. Hickox explained, there must be a set of conditions by which to judge defects and that the proper conditions for use during welder qualification visual examinations were those listed in the NDT acceptance standards section, as was shown in the 18th Edition. Following our conversation, Mr. Hickox suggested that I submit this formal request for clarification. Please provide written clarification that the welder qualification visual examination criteria of the 18th Edition of API-1104 continue to apply under the 19th Edition.</p>	<p>There is no tolerance for cracks, inadequate penetration or burn-through on a welder qualification test.</p> <p>The references to the NDT sections in the 18th Edition were there to provide the definition of the defect, not the defect tolerance. In the first sentence of both Par. 3.4 (18th Edition) and 6.4 (19th Edition) it says, "----shall be free from----". The NDT references were removed from the 19th Edition to eliminate any confusion.</p>
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1104	19th Sep-99	11.4.6	1104-I-0517-01	<p>We are currently considering the use of automated ultrasonic inspection for a range of pipelines (6 thru 18" OD and 0.25 thru 1.25" wall thickness) and are unsure as to the intent of this paragraph.</p> <p>As part of the pipe manufacturing process (i.e., before the linepipe is delivered to the fabrication site) all linepipe is ultrasonically scanned using compression wave testing. This testing takes the form of automated UT and the 'dead zone' (i.e., approx a 4" band at the end of each pipe) is cut off after scanning or the end zone is manually ultrasonic scanned to ensure freedom from unacceptable defects.</p> <p>Provided the factory ends of the pipe are in the same condition as they were manufactured (i.e., they have not been cut back) is it necessary to repeat this scanning as part of the girth weld assessment. If so, why?</p>	<p>Yes. Paragraph 11.4.6 requires that requires that the compression wave test be made <u>after</u> completion of the circumferential butt weld.</p>
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1104	18th May-94	2.3.2.2	1104-I-0614-01	<p>Caltex Pacific Indonesia (CPI) are intending to run new welding procedures in accordance with API 1104. My interpretation of Section 2.3.2.2 is that if we run a weld qualification test on a higher grade pipe material, i.e (API5L) X 52, this higher grade will qualify CPI to weld to lower grades, i.e. (API 5L) Grade B. The qualification in X 52 material will eliminate the need to run weld qualification tests on Grade B material.</p> <p>Is my interpretation of Section 2.3.2.2 correct? Please clarify and advise accordingly.</p>	<p>Your interpretation is not correct.</p> <p>Par. 2.3.2.2 states what information you are required to include in your procedure specification regarding pipe and fitting materials. However, par. 2.4, "Essential Variables", identifies those changes to the welding procedure that require re-qualification of the procedure. Par. 2.4.2.2 addresses base materials, and there you will see the groupings of base materials. A change from one group to another requires qualification of a new procedure. In your case you would need one procedure for the Grade B material and another procedure for the X-52 material as they are in different groups. Also, note the last sentence in Par. 2.3.2.2.</p>
1104	19th Sep-99	5.6.4.1 & 7.2	1104-I-0711-01	<p>API 1104 clearly mentions that misalignment permissible as up to 3 mm. While machining the samples for bend tests, the code says that we should flush the weld to the Parent Metal. If there is a misalignment in the two plates being welded, should the flushing be done up to the lower plate level or should it be done in a tapered manner?</p>	<p>The Standard does not specifically address this question. However it does state in the third sentence of Par. 5.6.4.1 that the -----"reinforcements shall be removed flush-----". It does not permit the removal of base material other than that incidental to the removal of the reinforcement. This will result in a tapered bend test specimen at the misalignment.</p>
1104	19th Sep-99	App. B	1104-I-0713-01	<p>Concerning the application of a qualified weld procedure incorporating a temper bead sequence, with no change in joint design, heat input, bead size, or other essential variables but only a change in the number of deposited weld passes from 6 to 9; does this type of change constitute a need for requalification of the entire procedure?</p>	<p>No but the Procedure Specification (see Figure 1) must be changed to show the revised number of beads (see the second sentence of Par. 5.4.1). Also the minimum number and sequence of beads shall be designated as per Par. 5.3.2.5.</p>

1104	18th May-94	Sec. 3.2.2	1104-I-0818-01	If the single qualification option is chosen to qualify a welder for a V bevel groove weld joint design in the pipe diameter grouping over 12 3/4", and within the 3/16" to 3/4" wall thickness range, will that welder also be qualified to weld a butt weld fitting to the pipe. The butt weld fitting will have the same V bevel groove weld joint design, be in the same over 12 3/4" diameter group, and the same 3/16" to 3/4" wall thickness group as the pipe.	It is my interpretation the welder is qualified to weld the butt weld fitting to the pipe, provided none of the essential variables of paragraphs A - G of section 3.2.2 are changed, the requirements of 3.4 and either 3.5 or 3.6 are satisfied, and the welder is following all the requirements of a qualified welding procedure.
1104	18th May-94	Sec. 3.3	1104-I-0905-01	In the API 1104 18th Edition, Section 3.3 Multiple Qualification it states that for the second test, the welder shall lay out, cut, fit, and weld a full size branch-on-pipe connection. Question: For a first time welder qualification, does layout mean:	The decision as to the method of layout is left to the company.
1104	19th Sep-99	Sec. 6	1104-I-1022-01	Does the production of a singular qualification coupon employing different welding processes approved in Paragraph 12.1 in which part of the weld is deposited by a welder using one process and the remainder by another welder using a second process, tested in accordance with and conforming to the requirements of Paragraph 12.6, satisfy the Standard in qualification of both welders for the duration of the job."	No. Each welder must weld the entire wall thickness when he/she is qualifying. See Paragraph 6.2.1
1104	19th Sep-99	Sec. 5	1104-I-1023-01	Are you required to qualify a full penetration branch connection PQR to weld full penetration weld-o-lets and fillet socket welds. If not what is required.	Yes, both are to be treated as fillet welds.
1104	19th Sep-99	Sec. 5	1104-I-1023-01	Are full penetration weld-o-lets considered fillet welds by API 1104.	Yes.

1104	19th Sep-99	Sec. 5	1104-I-1023-01	When you qualify a full penetration branch connection PQR are you qualified for fillet welds too.	Yes.
1104	19th Sep-99	Para. 9.3.12	1104-I-0822-01	<p>The paragraph 9.3.12 said: excluding incomplete penetration due to high-low and undercutting, any accumulation of imperfections (AI) shall be considered a defect should any of the following conditions exist:</p> <p>a) The aggregate length of indications in any continuous 12 in. (300 mm) length of weld exceeds 2 in. (50 mm).</p> <p>The last means that if I have 12 in. (300 mm) length of weld, imperfections of 2 in (50mm) in that weld length plus, eg 1/2 in. (13 mm) of incomplete penetration due to high-low or undercutting, in this case is not considered defect. Now if I have 12 in. (300 mm) length of weld, imperfections of 2 in (50 mm) in that weld length plus, eg individual incomplete penetration due to high-low indication that exceeds 2 in. (50 mm), because Paragraph 9.3.2 ?.</p>	Paragraph 9.3.12 means that when you add up the length of imperfections in a 12" length of weld, you do not count the undercutting or the incomplete penetration due to high low. These are considered separately in Paragraphs 9.3.2 and 9.3.11.

1104	19th Sep-99	Para. 9.3.9.2	1104-I-1109-01	<p>I read on the API 1104's Code on the Paragraph 9.3.9.2 that an "Individual or scattered porosity (P) shall be considered a defect should any of the following conditions exist":</p> <p>a) The size of an individual pore exceeds 1/8 inch. (3mm) b) The size of an individual pore exceeds 25% of the thinner of the nominal wall thickness joined</p> <p>If I've a welding between two pipe of 5/32 inch (4 mm) and 1/4" (6 mm) of wall thickness' and I found a pore which size is 1/8 inch (3 mm).</p>	This appears to be a statement and not a question.
1104	19th Sep-99	Para. 9.3.9.2	1104-I-1109-01	<p>What's is the criteria for acceptance that situation: a) or b), before?, because if I considered the criteria a) before, the welding is acceptable, but if I considered the criteria b) before, the welding shall be considered a defect.</p>	Par. 9.3.9.2 states "Individual-----a defect should ANY of the following conditions exist." Therefore the weld would be rejected by b.
1104	19th Sep-99	Para. B.4.1.2	1104-I-1130-01	<p>We have a project, where we have to do a longitudinal welds in a split-tee in a in service pipeline, so the situation is if the paragraph b.4.1.2 (API 1104-99) applies in order to do longitudinal weld in the split-tee, besides we want to know if we can weld this longitudinal joint with or without mild steelback-up strip or copper back - up strip and if is necessary to remove this back-up strip.</p>	Appendix B is a recommended practice and therefore is not required by API 1104 (see Par. B.1). If you choose to use it, Par. B.4.1.2 does include split tees. The second sentence of B.4.1.2 states "These joints should be fitted-----." Therefore it is your decision to use or not to use a back-up but please read the precautionary note at the end of the paragraph.
1104	19th Sep-99	Clause 5.6.4.1	1104-I-0218-02	<p>If an undercut (accepted visually as per Page 29, Table4) is observed on a bend specimen, is a thickness reduction permissible to grind that region to make it smooth and scratch free?</p>	No. The third sentence of Paragraph 5.6.4.1 states "The cover and root-bead---- removed flush ----." This does not permit grinding of the parent metal.

1104	19th Sep-99	Clause 5.6.4.1	1104-I-0218-02	If not, should the bend specimen be tested with undercut as it appears?	Yes.
1104	19th Sep-99	Clause 5.6.4.1	1104-I-0218-02	If so tested, should openings in bent specimen resulting from undercut be cause for rejection if they exceed the dimensions specified in Clause 5. 6. 4. 3?	Yes.
1104	19th Sep-99	2.6.2.1	1104-I-0305-02	Is there a tolerance plus/minus to the approximately 1 inch wide?	No.
1104	19th Sep-99	2.6.2.1	1104-I-0305-02	Is it permissible to notch the sides to a dimension less than approximately 1 inch to facilitate the tensile-strength test (so the base material will break in a designated area out of the weld zone) especially in thick base metals and still meet all the requirements for the tensile strength by dividing the maximum load by the smallest cross-sectional area of the specimen?	No.
1104	19th Sep-99	Par. 6.2.2	1104-I-0312-02	<p>Must a welder be qualified for each WPS or is it that being qualified for one WPS allows him to weld in any material type or group?</p> <p>For instance, is a qualified welder for API 5L X65 allowed to weld on API 5L X70, 60, 56, 42, B and so on, or does he need to be qualified for each WPS group?</p>	Please see Par. 6.2.2, which describes the essential variables that require requalification. The type of material is not an essential variable.

1104	19th Sep-99	Table 1	1104-I-0321-02	<p>Table 1 lists filler metals into groups through ASTM/AWS specifications and classification. Does it mean that filler metal classifications not listed can not be considered within those groups?</p> <p>For instance, SFA 5.28 ER 80S-G belongs or not to one group?</p>	If the filler metal is not listed in one of the groups of Table 1 it requires separate qualification. See the note under the table.
1104	19th Sep-99	5.6.4.3	1104-I-0401-02	Does API 1104 prohibit machining/grinding the entire bend specimen to a uniform thickness equal to the minimum thickness available i.e., 6.4 mm in the present case (Please see enclosed sketch)?	Yes. The third sentence of Par. 5.6.4.1 states "The cover and root –bead ----- removed flush-----". This does not permit machining/grinding of the parent metal of the test specimens. If you must use a flange for the qualification weld then you must machine it to the correct thickness prior to welding. However, please note Par. 5.5 where two pipe nipples are required to make a procedure qualification weld.
1104	19th Sep-99	5.6.4.3	1104-I-0401-02	Does API 1104 prohibit machining/grinding the root-bend specimen surface until an acceptable undercut just disappears?	Yes. See the third sentence of Par. 5.6.4.1.
1104	19th Sep-99	Par. 5.3.2.16	1104-I-0626-02	<p>Paragraph 5.4.2.12 states that "A change in the range for speed of travel constitutes an essential variable." and requires that the procedure be requalified if this range is changed.</p> <p>How is the range of travel speed for each pass established?</p>	The Company establishes the range that they feel is appropriate and one way is as you have suggested in B.
1104	19th Sep-99	Par. 5.3.2.16	1104-I-0626-02	Is the speed of travel specified as an essential variable in order to control the heat input (joules per inch)? If so, why are the amperage and voltage ranges (or joules per inch) not listed as essential variables? If not, why is the speed of travel listed as an essential variable?	There are other factors that make speed of travel an essential variable such as penetration, bead profile, ability to weld in various positions etc.

1104	19th Sep-99	5.4.2.2	1104-I-0703-02	<p>Does this mean that a WPB (35,000 psi yield) fitting can be welded to X-52 Grade pipe as long as a qualified procedure for welding X-52 pipe is being used (Please answer assuming all pressure, wall thickness and all other design requirements are met)?</p> <p>Or, does it mean that when welding pipe, which has been double or triple stenciled, such as a double stencil of X-42/X-52, that a procedure qualified to weld X-52 or the higher yield rating must be used.</p> <p>We are trying to understand whether fittings and/or pipe from different groups in section 5.4.2.2 can be welded together utilizing the procedure for the higher yield material of the two or if this statement is trying to cover the procedure by which the pipe mills will stencil pipe to qualify for several grades.</p>	<p>It means that fittings and/or pipe from different groups(as defined in 5.4.2.2) can be welded together, provided that the welding procedure specification to be used has been qualified for welding the higher of the two yield strengths involved in the specific pipeline design, regardless of the number of grades that a specific pipe may have been qualified to by the pipe mill.</p>
1104	18th May-94	Sec. 3	1104-I-0709-02	<p>Section 3. Welder Qualification</p> <p>Is there any duration on the validity of a welder qualification? (eg. a welder conducts a manual welder qualification test in Dec 2001 and conducts production welding using that process/procedure with the same employer until Mar 2002. Will this welder still be qualified to conduct production welding in Sept 2002 provided no other conditions have changed)?</p>	<p>There is no duration on the qualification of a welder. However, a welder may be required to re-qualify if a question arises regarding his competence. See par. 3.8</p>
1104	18th May-94	Sec. 3	1104-I-0709-02	<p>Section 4.2 Alignment</p> <p>This section does not address minimum separation (or location) for longseam welds in seam welded pipe. Is there a recommended minimum (eg. 4" or six times the wall thickness, whichever is least).</p>	<p>API 1104 does not address the separation of longitudinal seams on adjacent pipes.</p>

1104	19th Sep-99	9.3.8.2 & 9.3.8.3	1104-I-0716-02	<p>As a user of API Standard 1104 19th edition Sept. 1999, I would respectfully request a technical interpretation of Part 9 "Acceptance Standards for Nondestructive Testing".</p> <p>In paragraph 9.4.2.c (Magnetic Particle Testing, Acceptance Standards) and 9.5.2.c (Liquid Penetrant Testing, Acceptance Standards) it is stated that "Rounded indications shall be evaluated according to the criteria of 9.3.8.2 and 9.3.8.3, as applicable."</p> <p>This requires you to evaluate all "Rounded" indications to the "Linear" indication acceptance criteria of Slag Inclusions?</p> <p>A "Rounded" indication is where the maximum dimension of the indication is considered its size for evaluation. A "Linear" indication is where the maximum dimension of the indication is considered its length for evaluation. See paragraphs 9.4.1.3 and 9.5.1.3 for the definitions of rounded and linear indications for evaluation.</p> <p>The evaluation of rounded indications would be better suited to and relate more closely the type of imperfection being evaluated if when the evaluation is made it is made to the acceptance criteria of 9.3.9.2 and 9.3.9.3 (Rounded) instead of that contained in 9.3.8.2 and 9.3.8.3 (Linear).</p> <p>How do you make the correct evaluation and interpretation of relevant rounded indications to linear acceptance criteria as required in the current acceptance standards that are referenced?</p> <p>May this reference to 9.3.8.2 and 9.3.8.3 be a typo that requires a correction to 9.3.9.2 and 9.3.9.3 in the next review and revision cycle of the Standard or is the current reference to 9.3.8.2 and 9.3.8.3 correct as written or is this a matter that is already under your consideration?</p>	<p>You are correct. There was a typo in the 19th Edition, dated Sept. 1999. An errata dated Oct. 31, 2001 was issued to correct this and other typos.</p>
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1104	18th May-94	Par. 3.3.1	1104-I-0725-02	Paragraph 3.3.1 of API 1104 18th edition, Multiple Qualification General, states that a welder shall lay out, cut, fit and weld a full-size branch-on-pipe connection. If a welder successfully performs the lay out portion of this test on his first Qualification test, is he required to lay out the branch when he re-qualifies, or is he allowed to use a template or shape cutter to cut out the branch connection.	The first sentence of the third paragraph of 3.3.1 states "For the second test, the welder shall lay out, cut, fit, and weld a full-size branch-on-pipe connection." Since lay out is but one part of the overall test it must be repeated on the retest.
1104	19th Sep-99	Clause 5.3	1104-I-0804-02	<p>1) Under Clause 5.3, API 1104 stated that Diameter Group shall be specified in the Welding Procedure Specification (WPS)</p> <p>2) But, under clause 5.4 (Essential Variables), Diameter group is not included in the essential variables list.</p> <p>3) If we have qualified a WPS with NPS 8 pipe, do we need to re-qualify a WPS for NPS 16 pipe welding (within same material group and wall thickness group)?</p> <p>4) Or we have to only qualify welder instead of re-qualify the WPS to the diameter group above NPS 12?</p>	<p>Regarding your question about requalifying a welding procedure, it need not be requalified because diameter is not an essential variable. However the welding procedure specification must be revised to include the diameters to be welded.</p> <p>For welder qualification, diameter is an essential variable. (See Par.6.2.2.d)</p>
1104	19th Sep-99	App. B	1104-I-0923-02	If a welder can inspect his own welds, should he be required to take a test to prove this, in addition to the welder qual test.	"If a welder---" Inspection personal are not required to "take a test" but they must be qualified as per Par. 8.3.

1104	19th Sep-99	App. B	1104-I-0923-02	<p>Under API-1104 Appendix B, If a procedure was qualified with and without a heating blanket, but the procedure that was chosen was without, are both welders qualified to weld on in-service piping to this procedure? Both test pieces were mechanically tested and passed. This test was given in the 5G position. How does this effect us in the field.</p>	<p>“Under API-1104----“ Yes, both welders would be qualified. Please note in the qualification of in-service welders (Par. B.3), preheat is not an essential variable.</p> <p>Regarding the 5G position, position does not effect you in the field so long as the requirements of Par. 6.2.2f are met.</p>
1104	19th Sep-99	App. B	1104-I-0923-02	<p>The biggest issue is welding on in-service piping using 7018. One side currently uses 6010/7010 SMAW on all in-service gas piping operating at or below 60 psi. Does the code allow this. I do realize that 7018LH is the preferred method, but this would greatly increase our costs.</p>	<p>“The biggest issue---“ API 1104 does not address design i.e. the type of filler metal you must use. However a change in filler metal does effect the qualification of the procedure. (See Par. B.2 which refers you to Section 5. In Section 5 please note Par. 5.4.2.6.)</p>

1104	19th Sep-99	Par. 5.1	1104-I-1015-02	<p>API 1104, Paragraph 5.1 includes the following statement: "BEFORE production welding is started, a detailed procedure specification shall be established and QUALIFIED to demonstrate that welds with suitable mechanical properties (such as strength, ductility and hardness) and soundness can be made by the procedure."</p> <p>In our case, since we are verifying adherence to the requirements of DOT & API 1104 after fabrication, the procedures can't qualified BEFORE welding. However, we have had these same procedures qualified to API 1104 by an independent testing laboratory. Our question is whether you feel that in this instance we've met the intent of API 1104 by performing these weld procedure qualifications after welding?</p>	To be qualified in accordance with API 1104 the welding procedure must be qualified before the start of production welding. See Par. 5.1. Please be advised however that 49 CFR Parts 192 and 195 do not require weld procedures to be qualified in accordance with API Std. 1104.
1104	18th May-94	2.4.2.2	1104-I-1022-02	<p>Since base materials are separated into 3 yield strength categories can category a (equal to or less than 42,000) and category b (greater than 42,000 but less than 65,000) be welded together with a procedure qualified on X46 (46,000) pipe?</p> <p>Specifically this operator is welding together X46 and grade B (35,000) pipe and their procedure was qualified on X46.</p>	Yes, it is permitted to weld materials from separate groups together provided the welding procedure for the higher group is used. See the last sentence of Paragraph 2.3.2.2.
1104	19th Sep-99	5.1	1104-I-1104-02	Does the final Procedure Specification have to state only the values recorded during the qualification test such as volt, amp and travel speed ranges or can the company use the welding rod vendor's recommended range even though the entire range was not experienced during the test?	Your question relates to what needs to be recorded on the Procedure Specification Form i.e. Figure 1. You do not need to record the actual values as Par. 5.3.2.6 and 5.3.2.16 only requires that you record the ranges. However we point out that the actual values of voltage and amperage should be recorded on Figure 2 "Sample Coupon Test Report". The same is true regarding travel speed.

1104	19th Sep-99	5.1	1104-I-1104-02	Can the welding procedure include a different weld rod size for a specific pass even though that rod size was not used for the procedure test? Again, one would use the manufacturer's specified volt and amp range. For example, this inclusion could allow a welder to use a 1/8" rod for a root pass instead of the 3/32" rod used in the procedure test because the test was done with a 6" pipe even though the qualified range extends up to 12" diameter.	Yes, because electrode size is not an essential variable.
1104	19th Sep-99	5.4.2.6	1104-I-0102-03	Can Welding Procedure Specifications which have been established and Qualified in accordance with API Standard 1104 specifying SMAW electrodes Of the E7010-G classification also be considered qualified with SMAW Electrodes of the E7010-P1 classification? Likewise, for E8010-G and E8010-P1?	Yes.
1104	19th Sep-99	App. A	1104-I-0120-03	In Appendix A, Paragraph A.1, it is stated that "Welds subjected to applied axial strain of more than 0.5% are not covered by this appendix." Is there a maximum applied axial strain or stress limit when not using Appendix A, i.e. workmanship criteria? If yes, can you cite the paragraph with this maximum limit?	The standard does not specify a limit for stress or axial strain for welds inspected to the workmanship acceptance criteria given in Section 9. It is up to the company to decide whether such criteria are appropriate for the specific design strain involved.
1104	19th Sep-99	Par. 6.2.1 & 6.2.2	1104-I-0212-03	My first question is Paragraph 6.2.1 does not state a particular pipe diameter or wall thickness for a single qualification test, so if a welder qualification test on a 12.750 in. pipe diameter and a 0.322 in. wall thickness, in the fixed position at the 45 degree angle, what pipe diameters and wall thickness range is this test good for? My assumption is that in Paragraph 6.3.2 the welder qualification test on a 12.750 in pipe diameter qualifies the welder for all diameters and wall thickness ranges, can I assume the welder qualification on a 12.750 in. pipe diameter 0.322 in. wall thickness, in the fixed 45° position, for the single welder qualification, would qualify that welder for all pipe diameters, wall thickness ranges, and all positions?	For single qualification, 6.2.1 and 6.2.2 apply. For your example, under single qualification, the welder would be qualified to do butt welds and lap fillet welds in all positions for the outside diameter group from 2.375 in. through 12.750 in. and the wall thickness group from 0.188 in. through 0.750 in., subject to the other essential variables in 6.2.2. You made an incorrect assumption because 6.3.2 only pertains to multiple qualifications, and is based upon the welder successfully completing both of the tests (a butt weld test and a branch connection weld test) specified in 6.3.1.

1104	19th Sep-99	Par. 6.2.1 & 6.2.2	1104-I-0212-03	<p>My second question is about Paragraph 6.2.2, Part f, which states a welder qualification test in the fixed 45° position, qualifies a welder for butt welds and lap fillet welds in all positions, is this correct?</p>	<p>Correct. A welder qualifying under 6.2.1 (single qualification), with the pipe in the fixed 45° position would be qualified to do butt welds and lap fillet welds in all positions, subject to the other essential variables in 6.2.2. (The bottom two sketches in Figure 10 provide examples of lap fillet welds.)</p>
1104	18th May-94	Par. 1.2.2.9	1104-I-0131-03	<p>My question is in reference to Paragraph 1.2.2.9 "Roll Welding." It reads, Roll welding is welding in which the pipe or assembly is rotated while the weld metal is deposited at or near the top center.</p> <p>My question is what if the welder starts welding on the top of the pipe (welding downhill); he welds one quadrant, STOPS, rolls the pipe where he needs to weld, to the top, and begins welding again; and he does this till he finished welding. Is this considered position welding (Paragraph 1.2.2.8) or rolled welding? I guess the key word is "while the weld metal is deposited" because in reference to Paragraph 2.4.2.4 "Position," a change from rolled to fixed constitutes an essential variable.</p> <p>To sum all this up, if we have a procedure in the fixed position, can we roll the pipe, as long as if we do not roll it while welding, without reestablishing a new procedure?</p>	<p>Yes</p>

1104	19th Sep-99	Section B.4.1.2	1104-I-0227-03	<p>Question 1: When performing a procedure qualification for in-service welding, does it recommend the branch be taken with the sleeve?</p> <p>Question 2: Does API recommend this in-service procedure qualification be incorporated in another already qualified procedure?</p> <p>Question 3: Does the sleeve part of the procedure qualification test also require flowing media?</p> <p>Question 4: Should the sleeve portion of the procedure qualification test have a backing strip?</p> <p>Question 5: Is the use of a backing strip considered an essential variable? (joint design)</p>	<p>Response 1: No. The user has the option to qualify a procedure for either a sleeve or a branch.</p> <p>Response 2: No.</p> <p>Response 3: No. The use of flowing media is recommended for either a sleeve or a branch to simulate the ability of the flowing contents to remove heat from the pipe wall.</p> <p>Response 4: If so required by the welding procedure specification. The use of a backing strip is recommended in Section B.4.1.2.</p> <p>Response 5: No, for the welding procedure (Ref. Section B.4.1.2). Yes, for the welder qualification if a backing strip required by the welding procedure specification is eliminated.</p>
1104	19th Sep-99	B.1	1104-I-0303-03	<p>In B.1, it is stated that "This appendix does not cover pipelines and piping systems that have been fully isolated and decommissioned, or have not been commissioned." At Keyspan, we isolate our lines by shutting 2 valves on either side of the section we will be working on and we take the line out of service and bleed the pressure down below 15 pounds before we weld. The line has no flow and the temperature of the main is usually ambient.</p> <p>Question: Would this be considered "fully isolated and decommissioned?"</p>	No

1104	19th Sep-99	5.4.2.2	1104-I-0310-03	<p>Question 1: Is it necessary for the WPS to have been qualified with materials having 65 ksi yield (the highest in the group B)? Question 2: Is it possible to use a WPS qualified with materials API 5L X60 x API 5L X60?</p>	<p>Response 1: No; however, your assumption is incorrect. Group B does not include material that has a specified minimum yield strength of 65 ksi; such material is covered by Group C. Response 2: Yes; however, it should be noted that it would also be possible to use a WPS that has been qualified with API 5L Grade X56 pipes.</p>
1104	19th Sep-99		1104-I-0313-03	<p>Does the wire ER70S-3 (ASME SFA-5.18) fit in Table 1? Does this welding consumable belong to Group 5 of said table, or should it be considered as unlisted and have a separate qualification for itself according to the note of the table?</p>	<p>Wire ER70S-3 is covered by the note to Table 1, and requires a separate procedure qualification.</p>
1104	19th Sep-99	Appendix A	1104-I-0315-03	<p>Question 1: Can Appendix A be used to determine whether these rejected indications could be accepted?</p> <p>Question 2: If, using a calibrated reliable densitometer, the measured density of a BT image is 2.83 and the measured density of the parent metal image is 2.78, can the ± 0.05 tolerance referenced in ASTM E 1079 be used to make the two measured values equal?</p> <p>Question 3: Does the storage time of radiographed films (for example, Agfa D7 stored for 1 year) have an influence on density variations?</p>	<p>Response 1: Yes. As long as all the requirements in Appendix A are met. (For example, refer to A.2.2.2)</p> <p>Response 2: No. API 1104 doesn't reference ASTM E 1079.</p> <p>Response 3: This is not an appropriate matter for interpretation.</p>
1104	19th Sep-99	Sec. 5.4.2.2	1104-I-0325-03	<p>If we test a welder using 66,000 psi tensile material, is he qualified to weld 60,000 psi and/or 75,000 psi material? Note we are not mixing material; just using different materials in different locations.</p>	<p>Material grade is not an essential variable for the qualification of welders; therefore, a qualified welder may weld any grade, subject to the welder qualification essential variables in Section 6.</p>
1104	18th May-94	Section 3	1104-I-0410-03	<p>If the welder is qualified under ASME Section IX, can he also weld API 1104 procedures assuming that none of the welder essential variables stated in API 1104 are violated?</p>	<p>No. For a welder to be qualified to weld to API 1104 welding procedures, all of the qualification requirements stated in API 1104 for both welding procedures and welders must be met, irrespective of ASME Section IX requirements.</p>

1104	18th May-94	Section 3.5.1	1104-I-0420-03	If a pipe, for example 32 inch OD by 19.05 mm wall thickness, is to be welded by two welders (each half of pipe), can we remove and test half of the test specimens for each welder? That is, total number of specimens completed for pipe and not for each welder (in this example, 6 of 12 specimens per welder).	No. As stated in the title of Table 3, the total numbers of specimens (12 for your example) are required for each welder. If two welders are being qualified, each welding half of the pipe, the location of the specimens shown in Figure 12 are rotated in accordance with Note 1 to that figure, such that 12 specimens are obtained from each welder's half of the pipe, for a total of 24 specimens.
1104	19th Sep-99		1104-I-0509-03	Question 1: If accessible, can we use double side welding for API 1104 Pipeline Welding, ensuring reinforcement requirements are met as per the standard? Question 2: Does API 1104 prohibit root side repairs from inside of the pipeline, if accessible?	Response 1: Yes. Response 2: No.
1104	19th Sep-99		1104-I-0527-03	Question 1: Is there any applicable clause / table in API 1104: 1999 that covers the welding procedure qualification test requirements of full penetration T-butt (branch connection) for new pipe fabrication? {Ref. 8" weldolet (branch) to 28" pipe.} Question 2: What are the types of mechanical tests to comply with, in order to qualify the welding based on API 1104: 1999 requirements? Question 3: Is there any provision for re-test should any of the coupons for mechanical test failed?	Response 1: Yes. Sec. 5.3.2.4 refers to joint design, and a sketch of the full penetration weld is to be shown in the procedure. All procedure test requirements are noted in Sec. 5.8 – Testing of Welded Joints – Fillet Welds. The joint design described is a combination of a bevel and fillet welds. Response 2: Sections 5.7 and 5.8 refer to the test requirements. Response 3: No
1104	19th Sep-99	Section 9.3.5.b	1104-I-0604-03	Am I reading this wrong; what is the correct meaning of 9.3.5 b and c?	As stated in 9.3.5, IFD shall be considered a defect should any of the conditions exist. (a, b & c must each be considered separately.)

1104	19th Sep-99	Section 9.3.8.2	1104-I-0606-3	Background: 9.3.8.2 states "For pipe with an outside diameter greater than or equal to 2.375 in. (60.3 mm), slag inclusions shall be considered a defect should any of the following conditions exist:" Item f states "More than 4 ISI indications with the maximum width of 1/8 in. (3 mm) are present in any continuous 12-in. (300 mm) length of weld." Question: Is this to say that more than 4 ISI indications, each having less than the maximum width of 1/8" are acceptable, provided they do not exceed the maximum length?	Yes – Provided the other requirements of 9.3.8.2 are met.
1104	18th May-94	Section 9.6	1104-I-0717-03	Can 9.6 be interpreted where as far as the welding process is not changed, the welding equipment is qualified by making an acceptable weld using the qualified welding procedure and there should be no requirement on requalifying the procedure because of the difference in model number of the welding machine used during weld procedure qualification being different from the one used during production?	9.6 require that each welding unit be qualified. Therefore, each welding unit must be qualified separately, even though they may be identical. Note 9.6 states weld testing can be either destructive or nondestructive.

1104	19th Sep-99		1104-I-0723-03	<p>Question 1a: Whether an established welding procedure for X56 to X56 pipe can be used to support a butt weld for X46 to X46 pipe, if there are no other essential variable changes.</p> <p>Question 1b: Whether an established welding procedure for X56 to X56 pipe can be used to support a butt weld for X56 to Grade B pipe, if there are no other essential variable changes.</p> <p>Question 1c: Whether an established welding procedure for X56 to Grade B pipe can be used to support a butt weld for X46 to Grade B pipe, if there are no other essential variable changes.</p> <p>Question 2a: Whether it is permissible to weld different pipe diameters in the butt weld test (14"), and the branch connection test (20").</p> <p>Question 2b: Whether it is permissible to weld with different filler metal groupings and weld progression in the butt weld test and the branch connection test (e.g. Group 1 or 2, downhill progression in the butt weld and Group 1 and 3 uphill progression in the branch connection.)</p>	<p>Responses: 1a: Yes;</p> <p>1b: Yes;</p> <p>1c: Yes;</p> <p>2a: Yes;</p> <p>2b: Yes. The scope of the multiple welder qualification is defined in Sec. 3.3.2 in the 18th Edition and 6.3.2 in the 19th Edition.</p>
1104	19th Sep-99		1104-I-0223-04	<p>Is the weld for attaching sock-o-lets, weld-o-lets and thread-o-lets to a header a fillet weld or should these welds be considered branch welds and the welder only be qualified by an overhead branch test?</p>	<p>API considers the sock-o-let, weld-o-let and thread-o-let welds to a header branch welds and the welder must be qualified with a branch test.</p>

1104	19th Sep-99		1104-I-0608-04	Does a welding procedure qualified for branch connection also qualify for welding full-encirclement sleeves?	Yes, but only if the longitudinal welds on the sleeve are fillet welds, and not full penetration, V-groove welds. For in-service procedure qualification, Appendix B refers to Section 5, (See Section B.2). Section 5.4.2.3 states a major change in joint design constitutes an essential variable. A change from a branch connection to a full penetration, V-groove weld is considered a major change in joint design, and thus requires a new procedure to be qualified.
1104	19th Sep-99	Sec. 6.2.2 f	1104-I-072204	<p>Question 1. Your first question deals with the definition of a lap weld fillet, as noted in Sec. 6.2.2.f.</p> <p>Question 2. Your next question to deals with the welding procedure essential variable, "time between passes", as noted in Sec. 5.4.2.8, and whether that time may be "one hundred years", if desired.</p>	<p>Response 1. Welding terms in this Standard are defined in AWS A3.0, as noted in Sec. 3.1 – General.</p> <p>Response 2. The requirement for time between weld beads is contained in Sec. 5.3.2.10, and requires the time between beads to be designated. There is no specific time required by the Standard, but as noted in Sec. 5.4.2.8, an increase in the maximum time between the completion of the root bead and the start of the second bead constitutes an essential variable.</p>
1104	19th Sep-99		1104-I-0723-04	<p>Ref. the following list of pipe materials, (grades, wall thickness & diameter) Grd. X70 to Grd. X70, wall thickness .188" to .750", 2" thru 42"</p> <p>Grd. X70 to Grd. X52, wall thickness .188" to .750", 2" thru 42"</p> <p>Grd. X70 to Grd. X42, wall thickness .188" to .750", 2" thru 42"</p> <p>Grd. X52 to Grd. X52, wall thickness .188" to .750", 2" thru 42"</p> <p>Grd. X52 to Grd. X42, wall thickness .188" to .750", 2" thru 42"</p> <p>Grd. X42 to Grd. X42, wall thickness .188" to .750", 2" thru 42"</p> <p>Question 1. Your first question to deals with the minimum number of configurations of butt weld procedures required when welding on all pipe grades, diameters, and wall thicknesses shown above. Question 2. What is the true meaning of the first paragraph of Section 5.4.2.2?</p>	<p>Response 1. Three (3) procedures; X42 – X42, X52 – X52 & X70 – X70, are required. Response 2. When welding pipe of different base materials, the procedure for the higher strength base material group shall be used for the qualification of welding procedure</p>

1104	19th Sep-99		1104-I-0810-04	If a welder performs a welder qualification test using an E6010+ on the root pass and an E7018 on all remaining weld passes, is the welder qualified to weld on a full low hydrogen weld w/ all passes being of the E7018 group?	No. Refer to Sec. 6.2.1 and Sec. 6.2.2, which state, changes in essential variables described in 6.2.2.c, require requalification of the welder.
1104	19th Sep-99	Section 6.7	1104-I-1008-04	My question is on Section 6.7(retesting). If a company chooses to allow a second attempt at a test when a welder failed a test (due to poor skills / technique and NOT due to unavoidable conditions), is there an obligation to provide additional training prior to the second welding test? Also, is there anything in 1104 that prohibits a company from offering a re-test?	Proof of subsequent welder training is required as noted in 6.7. API 1104 does not prohibit a company from offering a re-test.
1104	19th Sep-99		1104-I-1026-04	Are "wrap-around" and "roller" jigs permissible within API 1104?	Yes
1104	19th Sep-99	Appendix B	1104-1108-04	What Sections of Appendix B apply to the testing and coupon locations for a welder qualification sleeve test? Table 3?	No, Table 3 applies only to butt weld test specimens for welder qualification. For in-service welder qualification, Appendix B refers to Section 6.2, Single Qualification. Fillet weld test sample acceptance criteria are contained in Sections 6.4 and 6.5. Sample location information for fillet weld testing is referenced in Section 6.5.6 and Figure 10.

1104	19th Sep-99		1104-I-1115-04	<p>Question 1. Welding contractor has stated that he can qualify two welders on one coupon, each welding one side. They are not using different processes. My contention is one welder, one coupon; correct?</p> <p>Question 2. Section 5.4.2 (19th Ed) does not list welding amperage as an essential variable. What parameters are applicable for amperage values outside of the WPS/PQR limits? Is re-qualification required?</p>	<p>Response 1. Two welders can be qualified on a single pipe nipple as long as the total number of test specimens is taken for each welder in accordance w/ 6.1 and Table 3.</p> <p>Response 2. API 1104 does not list amperage values or parameters for the WPS. Re-qualification is required only if the essential variables are changed, as referenced in 5.4.1.</p>
1104	18th May-94	Sec. 3.5.4	1104-I-1206-04	<p>In reference to Nick-breaks Section 3.5.4, 18th Edition; If the nick breaks in the base metal, not the weld, does it pass or do you need to make additional specimens and nick it further to assure it will break in the weld are? (The situation arises because of 2 different thicknesses of pipe. One (1) side is thicker, and we have fracture in the base material.</p>	<p>The nick-break must break in the weld metal for the evaluation of the weld.</p>
175	19th Sep-99		1104-I-1214-04	<p>Question 1. What is the outcome if the contractor actually DELETES PWHT? According to the above clause, the Contractor is permitted to delete PWHT without affecting the Procedure or API 1104 essential variables.</p> <p>Question 2A: What is the defined thickness group - there isn't one referenced?</p> <p>Question 2B: Is it API 1104 intention, to permit wall thickness groups to be contractually agreed between Contractor and Client for weld procedure groupings?</p> <p>Question 2C: Is it API 1104 intent to permit the Client to specify the wall thickness groups for weld procedure groupings prior to award of contract?</p>	<p>Response 1: In accordance w/ 5.4.2.14, any change to the values of PWHT constitutes an essential variable and would require re-qualification.</p> <p>Response 2A: There are no defined wall thickness groups referenced for the procedure specification in 5.4.2.5, however, the ranges of diameters and wall thicknesses must be identified in the specification, as noted in 5.3.2.3.</p> <p>Response 2B: API 1104 does not address contractual issues. See answer for 2.A.</p> <p>Response 2C: API 1104 does not address contractual issues. See answer for 2.A.</p>

1104	19th Sep-99	Sec. 5.4.2.5	1104-I-0103-5	<p>Question 1: The section on essential variables for welding procedures section 5.4.2.5 states a change in grouping from one group to another is an essential variable however this section does not give a group. Can you clarify which group is applicable or can these be specified by the writer of the WPS because the grouping referenced in 5.3.2.3 relates to Section 6.2.2 d and e and these are only suggested groupings and not mandatory. There is no diameter shown in essential variables so is the diameter also to be stated in other words would a procedure qualified on 10" be applicable for 40' provided all other stated essential variables were adhered to?</p> <p>Question 2: Welding operator and equipment Qualification for Automatic Welding Section 12.7 has no essential variables specified and the essential variables in 12.5 are applicable for welding procedures and not welder qualifications. If this is correct what essential variables are applicable</p>	<p>Response 1: Yes. The wall thickness range must be identified in the WPS, as required in 5.3.2.3. Any change from that range constitutes an essential variable. Response 2: There are no essential variables for welding operators. Welding operators must be qualified in accordance w/ 12.6.</p>
1104	19th Sep-99	Sec. 6.6	1104-0103-5 2nd Inquiry	<p>I have a question related to Welder Qualifications section 6.6 Radiography-Butt Welds only. "At the company's option, the qualification butt may be examined by radiography in lieu of the tests specified in 6.5". As we only use AUT we are not set up for radiography so my question is can API clarify that AUT may be utilized instead of the stated radiography for welder quals. I know this may not be the route to go through but if you could forward this to the appropriate person or give me the name of who I should send such queries to I would appreciate it as we are being put in a position we have to carry out radiography as is stated in API 1104 on welder quals. There are also more clarifications I would like to get in writing from API.</p>	<p>No. API 1104 Section 6.6.1 does not allow for the substitution of AUT for RT</p>

1104	19th Sep-99	Section 5	1104-I-0104-5	<p>1. Sec. 5.3.2.3: Is it correct to assume the diameter range of 2-3/8" and larger, as currently outlined in the contractor's procedures, is acceptable? Sec. 5.3.2.5:</p> <p>2. When a procedure has been established for a SMAW weld, and the electrode size has been recorded for .188" WT pipe, is it acceptable to change the electrode size to weld a .625" WT pipe without qualifying a new procedure?</p> <p>3. Sec. 5.3.2.6: Is there an acceptable voltage & amperage range/percentage that can be used outside the range recorded in the qualified procedure?</p>	<p>1. Yes.</p> <p>2. Yes. Electrode size is not an essential variable, and, therefore, a change in electrode size, alone, would not constitute a requirement for qualifying a new procedure. As specified in Sec. 5.4.1, changes other than essential variables may be made in the procedure without re-qualification, provided the procedure specification is revised to show the changes.</p> <p>3. No. Voltage and amperage are not essential variables for the welding procedure; however, the ranges of electrical characteristic must be identified in the welding procedure, and can not be used outside the ranges listed in the procedure.</p>
1104	19th Sep-99	Section B3.2	1104-0112-05	<p>When qualifying a welder on the in-service sleeve groove weld, there is no Type and Number of Specimens table for welder qualification only a table (B-1) for procedures qualification. Section B.3.2 Testing of Weld refers to requirements of 6.4 and 6.5. If Table 3 is used, what diameter of pipe should be used for number of specimens and type of test, i.e. root bent, nick, break, or face bend? Or was the diagram of the sleeve weld in Figure B-3 meant to indicate one coupon each of the root bend, face, bend, tensile, and nick break were required?</p> <p>It is my interpretation that the fillet welds on the end of the sleeve are nick break tested according to the diagram on Figure 10 and Figure 11. We would nick break test 4 coupons from each end. Is this correct?</p>	<p>This is an oversight in the 19th Edition. It has been addressed in the 20th Edition</p>
1104	19th Sep-99	B-2	1104-I-0118-05	<p>If a test piece welded as indicated in figure B-2 is used for in-service welders qualification test, only the circular welds are submitted to testing (YES/NO)? If the answer is NO, then which is the testing to be performed to the longitudinal butt welds (with backing) according to clause B.3.2-> clause 6.5?</p>	<p>This is an oversight in the 19th Edition. It has been addressed in the 20th Edition</p>

1104	19th Sep-99		1104-I-1012-05	When qualifying welders, must a company measure and record the welder speed of travel?	No. Speed of travel is not an essential variable for the qualification of welders; therefore, measuring and recording speed of travel during the welder qualification process is not required. Welders, however, must follow qualified procedures in which the range for speed of travel is specified for each weld pass, therefore, companies may elect to measure and/or record the speed of travel during welder qualification.
1104	19th Sep-99	Sec 9.3.3, 9.3.3	1104-I-1019-05	<p>Question 1: Sec. 9.3.3: Your first question deals with inadequate cross penetration and why there is no specific mention of aggregate length of ICP in welds less than 300 mm in length.</p> <p>Question 2: Sec. 9.3.5: Your second question deals with incomplete fusion due to cold lap and why there is no specific mention of aggregate length of IFD in welds less than 300 mm in length.</p> <p>Question 3: Sec. 9.3.12: Your third question deals with the accumulation of imperfections and why one defect criterion is over 16% of the weld length (exceeds 2" in continuous 12" of weld length), and the other criterion listed is greater than 8% of the weld length.</p>	<p>Response 1: The criteria for ICP for weld lengths less than 12" in length is necessary, since ICP only occurs with a two-sided weld configuration; i.e. ID and OD welding.</p> <p>Response 2: The requirement in Section 9.3.5c applies to welds of any length.</p> <p>Response 3: All listed criterion applies to the accumulation of imperfections, and both apply to all weld sizes.</p>

1104	19th Sep-99		1104-I-1220-5	<p>Comment: The suggestion was made to add a SAW filler metal classification for SAW welding; namely: A5.23, used for low alloy double joint welding</p>	<p>Response: As verbally noted to the individual who suggested the addition of this particular filler metal classification during the annual meeting of the API-AGA Joint Committee on Oil and Gas Pipeline Field Welding Practices on January 20, 2006, the 20th edition of the Standard, as published, does not exclude the use of A5.23. As noted in 4.2.2.1.i, filler metals that do not conform to the specifications listed in the standard may be used, provided the welding procedures involving their use are qualified. The Subcommittee will consider adding the A5.23, provided it is also addressed in Table 1- Filler Metal Groups, of the Standard.</p>
1104	19th Sep-99	Para 8.4.1	1104-I-0123-06	<p>Question 1: Paragraph 8.4.1 - Procedures states "Nondestructive testing personnel shall be certified to Level I, II or III in accordance with the recommendations of American Society for Nondestructive testing, Recommendation Practice No. SNT-TC-1A, ACCP or any other recognized national certification Program that shall be acceptable to the company for the test method used. Only Level II or III Personnel shall interpret test results". I would like an interpretation as to the minimum qualification and/or experience necessary for the Individual who the "COMPANY" will employ to verify the NDE results submitted by the Level II or III?</p> <p>Question 2: Can this individual also be used to enforce API 1104 - section 9.2?</p>	<p>Response 1: The 19th Edition of API Std. 1104 Section 8.4 does not specify the minimum qualifications or experience level of user company personnel; however, we refer you to Section 8.3 for guidance. It also it should be noted that company personnel may be subject to regulatory or user company requirements.</p> <p>Response 2: The 19th Edition of API Standard 1104 does not address the qualifications of the individual(s) authorized by the Company as their representative(s).</p>

1104	19th Sep-99		1104-I-0522-06	<p>Question 1: My question is whether or not temporary welds performed for purposes of holding steel plate end plates on the end of pipeline components being hydrotested in a shop must be welded in accord with API standard 1104 if the permanent welds in the same spool are being welded in accord with API 1104. Please assume that the purpose of the hydrotest is to pressure-test two circumferential permanent butt welds made to hold an anode connector into a pipeline. Two temporary caps consisting of 15 inch diameter 2 inch thick plate were welded on the free ends of the pipeline segments permanently welded to the anode connector. The entire spool piece being hydrotested tested consists of the anode connector and its two permanent welds, but also includes the welds being used to hold the temporary end caps on the open ends. Put another way, the hydrotest not only tests the two permanent welds used to connect the anode connector to the pipeline spool but also tests the two temporary welds used to hold the two end plates on the ends of the spool. Must those temporary welds also be made to the standards of API 1104?</p> <p>Question 2: If API 1104 does not contain the appropriate standard for making these temporary welds, what API standard does include the appropriate requirements for a temporary weld done for purposes of allowing a hydrotest to be made of components required to be hydrotested?</p>	<p>Response 1: If the temporary welds are removed, they are not governed by the standards of API 1104, unless specified by the user company.</p> <p>Response 2: The use of API 1104 or another pipe welding standard may be used by the user company to make these temporary welds for hydrostatic testing pipeline components.</p>
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1104	20th Oct-05		1104-I-0522-06	<p>Question 1: A welding procedure is qualified as per API 1104 with a combination of processes (example root and hotpass with manual GTAW process and filler and cap passes with manual SMAW). Can we engage two welders (one for GTAW process and other welder for SMAW) on a single test weld coupon for welder qualification to qualify these welders for the respective processes?</p> <p>Question 2: A welding procedure is qualified as per API 1104 with a combination of processes (example root and hotpass with manual GTAW process and filler and cap passes with manual SMAW). If we intend to engage two welders for different processes, is it mandatory that these welders must independently weld separate test weld coupons with combination of GTAW and SMAW as per the PQR to qualify the welders?</p>	<p>Response 1: The 20th Edition API Standard 1104 Section 6.2 requires each welder to complete (weld) the entire wall thickness when qualifying.</p> <p>Response 2: The 20th Edition of API Standard 1104 Section 6.2.2(a) (2) allows 2 alternatives for qualifying welders to weld with a combination of processes. A welder may complete the entire weld in accordance with the PQR or the welder may qualify by making separate and complete welds utilizing each of the separate processes involved in the PQR.</p>
1104	20th Oct-05		1104-I-0123-06	<p>One of our subcontractors has run a weld procedure on a 45°axis 6G, does this allow them to use the same procedure to weld in the 5G position?</p>	<p>Yes</p>
1104	20th Oct-05	Section 11.4.7.3	1104-I-0124-06	<p>Question 1: In the sentence of the item 11.4.7.3, the recommended practice (should) of additional 4 dB for evaluation was made considering AUT systems using conventional probes (wide beam)?</p> <p>Question 2: The more precise AUT systems designed according to the ASTM 1961 standard, (zonal discrimination with focused search units) had been considered to do the recommendation of +4 dB for evaluation?</p>	<p>Response 1: Section 11.4.7.3 was written without regard to beam width.</p> <p>Response 2: Adding 4dB has the same effect on both focused and non-focused beams.</p>

1104	19th Sep-99	Section 6.6.2	1104-I-0418-06	<p>Question 1: In reference to API 1104 19th edition The requirement of RT in lieu of mechanicals, Sect 6.6.2. I refer you to pg. 54 within the Appendix of API. Sect A4 where it states "For automatic welding, the welding unit and each operator shall be qualified in accordance with 12.6" Section 12.6 then refers you back to 6.4 thru 6.7 but it needs to be pointed out that 12.6 refers to "non destructive methods" where as 6.6 only calls for RT. Pluralization would imply that alternate NDT methods are acceptable. Also Section 8.2 states that" Nondestructive testing may consist of radiographic inspection or method specified by company..." once again offering multiple NDT methods are available to the Company, although this section is for production welding inspection. Funny how Section 12.2 allows for multiple NDT methods to be used for Automatic welding procedure qualification!</p> <p>My question pertains to the substitution of alternate NDE methods, specifically Automated UT in lieu of RT as required for Welder Qualification program to a qualified welding procedure. Please note that our project will be using AUT as the primary NDE method for production weld inspection.</p> <p>Question 2: Assuming that AUT is allowable in lieu of RT, is it possible to run Welder Qualification such that a welder may be qualified and be restricted to Root, Fill and/or Cap passes. We are in a production environment utilizing 8 welding stations. Our welders are currently being qualified by completing an entire sample. What is being put forward is should the welder complete a full sample and it is determined that the root region was found to be rejectable (by AUT) can the welder still be partially qualified to the Fill and Cap passes or must he re-test completely. Is partial welder qualification possible by completing only the weld passes the welder will required to deposit in a production environment?</p>	<p>Response 1: Automated UT cannot be substituted for RT in Welder Qualification.</p> <p>Response 2: There is no provision for partial qualification.</p>
1104	20th Oct-05	Clause 10.2	1104-I-0530-06	<p>Is it the requirement of the standard that only the welder(s) who perform welding of test joint for a repair welding procedure, in accordance with clause 10.2, be allowed to perform repair welding on job?</p>	No.

1104	20th Oct-05		1104-I-0605-06	Question 1: In which conditions is necessary or recommended to realize impact tests with notches in V for Charpy's tests? Question 2: In the procedure requirement of welding separation, it's necessary to qualify again a new procedure of welding or the original qualify is applicable (apply)?	Response 1: API 1104 does not address the requirements for Charpy's. Response 2: We are unable to understand your question
1104	19th Sep-99	Section 11.4.7.2	1104-I-0713-06	Is it the intent of the API standard that only those ultrasonic indications that exceed the evaluation level given in 11.4.7.2 be considered as a possible defect?	Response: Yes, please note that all procedures are to be qualified prior to use.
1104	20th Oct-05	Sec. 6.2.	1104-I-0514-07	If a welder makes a test weld in the 6G position (inclined from the horizontal plane at an angle of not more than 45 degrees), on pipe with a diameter of 12.750", wall thickness of .375" thick. Is this welder qualified to weld on 24" diameter pipe? If so why and if not why.	Response: Section 6.2.2(d) lists the essential diameter groups for single qualification. A single qualification test on 12.750" pipe qualifies the welder from 2.375" to 12.750" diameter pipe. 24" diameter pipe is in a separate group than 12.750" diameter pipe and so will require a different single qualification test.

1104	19th Sep-99		1104-I-0121-09	<p>Question 1: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from two different pipe manufacturers designated as manufacturers A and B, with no other changes in essential variables, is preparing and destructively testing a set of two test joints described as A B, the set including a test joint with high heat input (HHI) and a test joint with low heat input (LHI), sufficient to meet the requirements of the standard and allow for welding of all possible pipe manufacturer combinations?</p> <p>Question 2: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from two different pipe manufacturers designated as manufacturers A and B, with no other changes in essential variables, is preparing and destructively testing three sets of test joints, described as A A, A B, or B B with each of the three sets including a test joint with high heat input (HHI) and a test joint with low heat input (LHI), specifically required by the standard to allow for welding of all pipe manufacturer combinations?</p> <p>Question 3: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from three different pipe manufacturers designated as manufacturers A, B, and C, with no other changes in essential variables, is preparing and destructively testing two sets of test joints described as A B and C C, with each set including a test joint with high heat input (HHI) and a test joint with low heat input (LHI), sufficient to meet the requirements of the standard and allow for welding of all possible pipe manufacturer combinations?</p> <p>Question 4: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from four different pipe manufacturers designated as manufacturers A, B, C, and D, with no other changes in essential variables, is preparing and destructively testing two sets of test joints described as A B and C D, with each set including a test joint with high heat input (HHI) and a test joint with low heat input (LHI), sufficient to meet the requirements of the standard and allow for welding of all pipe manufacturer combinations?</p>	<p>Response 1: Yes.</p> <p>Response 2: No.</p> <p>Response 3: Yes.</p> <p>Response 4: Yes.</p>
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1104	19th Sep-99		1104-I-0122-09	<p>Question 1: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from a single pipe manufacturer designated as manufacturers A, that procured plate to the same specification from two plate manufacturers, designated as 1 and 2 so that each pipe could be classified as either A1 or A2, with no other changes in essential variables, is preparing and destructively testing one set of test joints described as A1 A2, the set including a test joint with high heat input (HHI) and a test joint with low heat input (LHI), sufficient to meet the requirements of the standard and allow for welding of all plate manufacturer combinations?</p> <p>Question 2: For qualification of welding procedure specifications (WPS) according to API Std 1104 19th Edition Appendix A for use of a mechanized welding system to produce 5G joints in a pipeline segment from API Spec 5L line pipe supplied from a single pipe manufacturer designated as manufacturers A that procured plate</p>	<p>Response 1: Yes.</p> <p>Response 2: No.</p>
1104	20th Oct-05	Appendix A	1104-0210-09	<p>Question 1: Can the value parameter F_b be zero?</p>	<p>No.</p>
1104	20th Oct-05	7.2	1104-I-0619-09	<p>Section 7.2 states that the alignment of abutting ends shall minimize the offset between surfaces. For pipe ends of the same nominal thickness, the offset shall not exceed 3 mm. Larger variations are permissible provided the variation is caused by variations of the pipe end dimensions.</p> <p>Question: Does this mean that if you have more than 1.5 mm offset on one side of the pipe you will have more than 1.5 mm on the other side thus exceeding the 3 mm?</p> <p>[Note: Others consider the 3 mm in any single location which could lead to High-Low well in excess of 3 mm.]</p>	<p>Response: No.</p> <p>The requirement of not more than 3mm of offset (High-Low) is applicable to a single location and is not to be interpreted as cumulative around the circumference of the pipe or weld.</p>

1104	20th Oct-05	5.3.2.3	1104-I-0812-09	<p>Question 1: Since API 1104 only suggests and does not state that the categories above shall be used, is it acceptable to combine category 2 and 3 into a single category (2.375 and larger), especially since diameter is not an essential variable?</p> <p>Question 2: When installing a split sleeve fitting using an in-service procedure, please confirm that a 6010 filler material is acceptable on the root pass of the longitudinal joint since this is not being welded directly to the carrier pipe.</p>	<p>Response 1: Yes. Since diameter is not an essential variable for welding procedure qualification, the welding procedure can be written to cover any diameter range regardless of the diameter used for the qualification test.</p> <p>Response 2: The 1104 committee cannot comment on the suitability of specific filler metals such as 6010. However, note that in the specific case mentioned, where the root pass of the longitudinal joint is not being welded directly to the carrier pipe, this weld is not considered to be an in-service weld.</p>
1104	19th Sep-99	5.3.2.9	1104-I-1125-09	<p>Question: In accordance with API 1104 Section 5.3.2.9, the specification must designate the welding direction. If the WPS designates both uphill and downhill for the welding direction, does API 1104 allow each half of the WPS qualification weld to be welded in a different direction?</p>	<p>Response: No. Explanation: A procedure can be written to include either direction or both directions. The issue is how to qualify the welding procedure. API 1104, Section 5.4.2.9 makes the direction of travel, uphill or downhill, for vertical welding an essential variable. API 1104, Section 5.5 states "To weld the test joint for butt welds, two pipe nipples shall be joined, following all of the details of the procedure specification." Section 5.7 uses similar wording for qualifying fillet weld procedures. There is no provision to qualify a welding procedure with only half of the pipe.</p> <p>A test weld with each half welded in a different uphill-downhill direction will only qualify for production welds with that same uphill-downhill combination of welding. To be able to make complete welds in the uphill direction and complete welds in the downhill direction will require two qualification welds.</p>

1104	19th Sep-99		1104-I-0304-05	<p>If a city municipality has welders qualified to API standard 1104 19th edition that are permanent employees how often, if ever, are the welders required to requalify after successfully passing a qualification test? I am unable to find a paragraph or comment that answers my question on the requirement to requalify after successfully passing a qualification test.</p>	<p>Response: The subject of time limits for the qualification of welders to AP Std. 1104 has always been left to the codes and user companies, and is, therefore, not addressed in the Standard.</p>
1104	19th Sep-99		1104-I-0222-10	<p>Background: If a welder passes a combination (dual) process GTAW (root) / SMAW (remaining layers) open-butt groove qualification test using a qualified welding procedure:</p> <p>Question 1: Does the welder obtain qualification to weld each process individually (using single process GTAW or SMAW welding procedures having matching essential variable to the test taken)?</p> <p>Question 2: If the answer to Question 1 is yes; how is the welder's nominal pipe wall thickness qualification range determined for each process?</p> <p>Question 3: If the answer to Question 1 is yes, based on the combination test, would the welder be qualified for welding open-butt groove welds using only the SMAW process?</p>	<p>Response 1: No - the welder is only qualified for that specific combination of processes; the welder is not qualified for the individual processes separately.</p> <p>Response 2: Not Applicable</p> <p>Response 3: Not Applicable</p>
1104	20th Oct-05	B.3	1104-0928-10	<p>Background: A welder has completed and passed the testing requirements of section 6.3 for a butt and a branch weld on a pipe with an outside diameter of 12.750". The next test required is for in-service welding as per Appendix B.</p> <p>Question: Is it the intent of Section B.3 that the above described welder perform a test on 12.750" diameter pipe to be qualified to weld in-service on all diameters and all thickness?</p>	<p>Response: Section B.3 provides for three qualification paths:</p> <ol style="list-style-type: none"> 1. Appendix B test on less than 12.750" OD – qualifies for in-service welding on the tested size and smaller 2. Appendix B test on greater than or equal to 12.750" OD – qualifies for in-service welding on all sizes 3. Section 6.3 multiple qualification and any size Appendix B test - qualifies for in-service welding on sizes qualified for under Section 6.3.

1104	20th Oct-05	6.4	1104-0912-11	<p>Background: Welders completed the 1st and 2nd bead on a 12.750" Horizontal fixed weld. The weld was cleaned up inside and out for review. Undercutting was found on the inside of the weld adjacent to the bead. The welder was informed that his services would not be needed on the project; and he was shown the defect using 6.4 of API 1104 20th Edition. The QC/QA disagreed claiming that chart 4 must be used to measure the under cutting. It was counter argued that chart 4 is for production radiography; and that the undercutting is addressed in 6.4 with the statement that there shall be full penetration and complete fusion.</p> <p>Question: Is the latter argument correct?</p>	<p>Response: Only undercutting criteria of a weld adjacent to the bead on the outside of the pipe is specifically addressed in API 1104, Section 6.4 for qualification of welders. The weld shall meet the visual examination requirements of undercutting depth and length. Section 6.4 is silent on the evaluation of undercutting adjacent to the bead on the inside of the pipe. Therefore, it is implied that the weld shall be free from cracks, inadequate penetration and burn-through, and that judgment would be visually applied as to whether the weld (outside or inside the pipe) demonstrates a neat workman-like appearance.</p>
1104	20th Oct-05	5	1104-I-1101-13	<p>Background: A customer insists that you must have separate welding procedures for fillet welds in addition to your butt weld procedures with a double bevel joint design. I contend that the section is clear and that as my heat input will not change and that it is still a butt weld that an extra procedure is not necessary.</p> <p>Question: Does the code require a separate set of fillet weld procedures to cover</p>	<p>Response: Yes. Separate procedure qualifications are required for fillet welds for each material grouping.</p>
1104	20th Oct-05	11.1.3	1104-I-1102-13	<p>Question 1: Which part of the IQI wire pack shall be within 1 in. of the end of the film length to be interpreted and at the center of the film?</p> <p>Question 2: Is the specified wire in the pack to be within 1 in. of the end and at center?</p>	<p>Response to All Questions (1 through 5): This subject is not addressed in API 1104, 20th Edition and therefore API cannot comment on these issues</p>

1104	20th Oct-05	5.4.2.8	1104-I-1103-13	<p>Background: We have another concern related to API 1104. Section 5.4.2.8, Time Between Passes, establishes the following: "<i>An increase in the maximum time between completion of the root bead and the start of the second bead constitutes an essential variable</i>". We know that this essential variable is established for procedure qualification, but we believe that it has a serious implication in welder qualifications. Right now, we need to know if we have to consider it as an essential variable for welder qualifications.</p> <p>Question 1: There are welders who have the ability to weld faster than others, so, If we have qualified a welding procedure using a 6 in OD pipe and the time between passes was 6 minutes, this procedure can be used to weld a 12 in OD pipe where time between passes should be higher?</p> <p>Question 2: The procedure must be requalified?</p> <p>Question 3: If a welder was qualified through the procedure qualification (6 in OD pipe), How do we know that he's able to weld a 12 in OD pipe?</p>	<p>Response 1: Yes, provided an increase in the <u>maximum</u> time between <u>completion</u> of the root bead and the <u>start</u> of the second bead does not occur. Welder speed is not applicable.</p> <p>Response 2: No, provided the time between the root bead completion and start of the second bead is not exceeded, the procedure does not have to be re-qualified.</p> <p>Response 3: This falls outside the scope of interpretation and therefore API cannot comment on these issues.</p>
1104	20th Oct-05	5.6.1.1	1104-I-1104-13	<p>Background: API 1104 20th states in paragraph 5.6.3.1 that the specimen shall be notched with a hacksaw.</p> <p>Question 1: Is it the intent of the Code that no other means of notching are allowed (e.g., wafer disk notch)?</p>	<p>Response 1: Yes.</p> <p>Response 2: Yes. However, since the width of the specimen and depth of the notching is approximate, a 3/4 inch fracture can be achieved.</p>

1104	20th Oct-05	7.8.2	1104-I-1105-13	<p>Background: There is an NDE specification that reads "If the SCR (pipe) are reeled, then procedure welds and welder qualifications will be judged to both of API 1104 Section 0 and the alternative acceptance criteria." The alternative acceptance criteria read that "<i>for reel installation on SCR critical weld pipe surface flaws, 0.0-1.0 mm height and a max 15 mm in length are acceptable.</i>" I understand that specifications overrule the standard API 1104 code (as long as standards are met) and this spec limits the depth and length. People superior to me both on this job and in experience are telling me that API 1104 Section 7.8.2 refers to all surface flaws (including IC) as well as filler beads and cap passes. Therefore they interpret the standard API 1104 as not allowing for any IC. I see nothing in the API 1104 section 9.3.6 (that talks about IC) that refers me back to section 7.8.2. Section 9.3.6 plainly tells me that any length of IC is acceptable depending on the density of the RT image vs. thinnest adjacent parent material. I interpret section 7.8.2 as explaining the criteria of filler and finish (cap) beads only concerning the height or depth above or below the OD of the pipe.</p> <p>Question 1: Can or does section 7.8.2 "At no point shall the crown surface fall below the outside surface of the pipe nor should it be raised above the parent metal by more than 1/16" (1.6mm)." apply to or cab be applied to the root pass and IC?</p> <p>Question 2: Does section 7.8.2 overrule section 9.3.6 of the API 1104 that allows for IC depending on its density vs. adjacent parent material?</p>	<p>Response 1: No, Section 7.8.2 is applicable to filler and finish (OD Cap) beads only.</p> <p>Response 2: No.</p>
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1104	20th Oct-05		1104-I-1106-13	<p>Question 1: Is it acceptable to deposit alignment tack root bead segments with the pipe ends in the lineup clamps and then move the pipe to complete the alignment/root opening spacing of the abutting ends?</p> <p>Question 2: If a root bead alignment tack has been deposited with the pipe in the lineup clamps and the pipe has been moved to complete the alignment, is it necessary to remove the alignment tack prior to completing the remaining root bead?</p> <p>Question 3: Can this alignment tack be ground, examined visually, and then be incorporated into the finished weld?</p> <p>Question 4: Is it acceptable to move the pipe, not roll, after starting to deposit the root bead in the fixed position before the root bead is completed?</p> <p>Question 5: is it acceptable to deposit hot pass and additional pass segments over the completed root bead segments to strengthen the root bead in restrained fitups before completing the entire root bead and prior to removing the lineup clamps? This is defined as block sequence by AWS.</p>	<p>Response to All Questions (1 through 5): This subject is not addressed in API 1104, 20th Edition and therefore API cannot comment on these issues.</p>
1104	20th Oct-05	11.4.4	1104-I-1107-13	<p>Background: My client asked me to make demonstrations for a manual UT procedure for each thickness of the same pipe material; and the thickness difference is about 1.6mm.</p> <p>Question: What is the thickness range for demonstration in a UT procedure in comparison to the range of ASME V?</p>	<p>Response: This is not a subject addressed in API 1104. Wall thickness variation requirements for UT demonstrations are not explicitly defined in API 1104. But instead Section 11.4.4 a) provides guidance on variables which may impact ultrasonic inspection.</p>

1104	20th Oct-05		1104-I-1108-13	<p>Background: While performing a nick break test on specimens, silvery, shiny areas of the weld metal are seen. I have heard all sorts of explanations as to what this is. I am told it is nickel deposits by some, and others are calling it slag.</p> <p>Question: Just what is this? Is it considered rejectable?</p>	<p>Response: This is not a request for interpretation. This subject is not addressed in API 1104, 20th Edition and therefore API cannot comment on this issue.</p>
1104	20th Oct-05	6.2.2e	1104-I-1109-13	<p>Background: We have numerous procedures that were developed using different limits on wall thicknesses that those listed in 1104, Section 6.2.2e. For example we have procedures for welding pipe $\geq 2\frac{3}{8}$" to $\leq 12\frac{3}{4}$" with tensile grades $\leq 42,000$ PSI, each have a thickness range of ≥ 0.188" to <0.250"; ≥ 0.250" to <0.344"; ≥ 0.500".</p>	<p>Response: No. A change from one wall thickness group to another constitutes an essential variable. A change in an essential variable requires requalification.</p>
1104	20th Oct-05	6	1104-I-1110-13	<p>Background: The only place that the 1104 code mentions the word "fitting" is under the multi-qualification section. This can be interpreted two ways. The gas company that we are doing work for is requesting that my welders be multiple qualified to weld a 90 to the end of a piece of pipe. They say that the 90 is a fitting and that is why it falls under the multi-qualification section.</p> <p>Question: If a welder is single qualified on 12" .250wt @ 45 degrees from horizontal plain in a fixed position, is he qualified to weld on all fitting, caps, etc. as long as it is an open butt weld?</p>	<p>Response: Yes, within the limits of the welder's qualified essential variables.</p>
1104	21st Sep-13	6	1104-I-1111-13	<p>Background: Page 27 for Welder Qualification 4.5" to 12.75" diameter shows 8 locations for tests. Page 30, Table 3 shows only 6 tests required for this diameter. All previous editions at least since 1980 have only 6 tests required.</p> <p>Question: Is this an intended change?</p>	<p>Response: No. The table is correct. API will issue an erratum to reflect Table 3 accurately in Figure 12.</p>

1104	20th Oct-05	Appendix A	1104-I-1212-13	<p>Question 1: Is the intent of the Fracture Mechanics Subcommittee that qualifying individual pipeline welds for the alternative acceptance limits after a defect under Section 9 is detected requires preparation of a test joint representative of the production welds that is tested in accordance with all the requirements of A.3.2 Mechanical Testing?</p>	<p>Reply to All Questions (1 through 12): Appendix A is not intended to be used in a post construction basis. Therefore API is unable to address the 12 individual questions based on the information provided.</p>
			<p>Question 5: Is the expectation of the Fracture Mechanics Subcommittee that qualifying individual pipeline welds for the alternative acceptance limits after a defect under Section 9 is detected requires that each of the Essential Variables described in A.3.1 General a. through q. be representative of the variables employed for production welding?</p>		
			<p>Question 9: Would the Fracture Mechanics Subcommittee agree that the practices that are employed for qualifying individual pipeline welds for the alternative acceptance limits after a defect under Section 9 is detected could influence industry-wide expectations for applying Appendix A testing and analysis prior to production welding?</p>		
1104	20th Oct-05	11.1.6.1a	1104-I-0402-14	<p>Background: For DWE/SWV procedures requiring multiple exposures, where multiple pieces of film are used per exposure, we use at least two IQIs per exposure. One IQI is placed within 1" of one end of the film length to be interpreted and one IQI is placed at the center of the exposure.</p> <p>Question: Is this IQI placement a correct interpretation of the intent of API 1104 20th Edition, specifically 11.1.6.1 paragraph A?</p>	Response: Yes

1104	21st Sep-13	11.1.5	1104-I-0403-14	<p>Background: Section 11.1.5 has a new note that says: "For purposes of IQI selection,..... When the DWE/SWV technique is used, the thickness of the weld means twice the specified wall thickness plus the weld reinforcement (internal plus external combined)." That note appears to be an error as it not a standard practice and will drastically reduce the required sensitivity levels of radiographs. Normally, for DWE/SWV technique IQI selection, the weld is defined as the single wall thickness plus the weld reinforcement (internal plus external combined).</p> <p>Question: Can you please confirm that this is not an error as it will effect radiographic procedure?</p>	<p>Response: Yes. The note is in error. The note is being replace with the following: NOTE For purposes of IQI selection, when the SWE/SWV or DWE/SWV technique is used, the thickness of the weld means specified wall thickness plus the weld reinforcement (internal plus external combined). When the "elliptical" DWE/DWV technique is used, the thickness of the weld means twice the specified wall thickness plus the single weld reinforcement (internal plus external combined). When the "superimposed" DWE/DWV technique is used, the thickness of the weld means twice the specified wall thickness plus twice the weld reinforcement (internal plus external combined).</p>
1104	20th Oct-05	6.3	1104-I-0601-14	<p>Background: A welder working for ABC contractor has completed and passed the testing requirements of section 6.3 for a butt and branch using a welding procedure approved and accepted by Company "A". The welder has complete the project successfullly after several months and is still in the employ of ABC Contractor. ABC Contractor then submits the same qualified welding procedure to Company "B" along with the welders original welder qualification records and a continuity report with no change to any essential variable.</p> <p>Question 1: Is it the intent of the standard that the welder continuity to be qualified to this welding procedure if no questions arise about his/her competence?</p> <p>Question 2: Is there a set amount of time that can elapse between the welder welding in this process that would render him disqualified?</p>	<p>Response 1: Yes, provided that the qualification is conducted in the presence of a representative acceptable to the company.</p> <p>Response 2: No, API 1104 leaves this to the discretion of the company.</p>

1104	20th Oct-05	pipe diameter	1104-I-0602-14	<p>Background: Per API 1140, 5.4.2.2,c, "...each grade shall receive a separate qualification test;" My interpretation is that WPHY 65 is a separate "grade" and would therefore require an additional qualification, but just want to confirm the intent of the Code.</p> <p>Question: Does this include different grades with the same SMYS? Example, does a qualification on API 5L X65 to API 5L X65 also qualify welding X65 to WPHY 65?</p>	Response: Yes, but also see note under 5.4.2.2.
1104	20th Oct-05	9.7.2	1104-I-0603-14	<p>Background: There are differences in acceptance for undercutting in RT to VT acceptance.</p> <p>Question 1: Can we accept any depth of internal under cutting in RT if length is within acceptance?</p> <p>Question 2: If so, then table in Visual acceptance is valid?</p> <p>Question 3: If not, can we find depth acceptance in RT for internal under cutting?</p> <p>Question 4: If we see in RT Internal cutting do, we have to perform UT to confirm the depth (if VT is not possible internally)?</p>	<p>Response 1: Yes, provided the method of inspection is radiographic testing only.</p> <p>Response 2: Per paragraph 9.7.2, when both mechanical testing and radiographic testing measurements are available, the mechanical measurements govern.</p> <p>Response 3: See response to Question 1.</p> <p>Response 4: No</p>
1104	20th Oct-05	5	1104-I-0604-14	Question: Does the WPS you use have to show the same material grade as what you are qualifying on a multi-qualification?	Response: Yes, provided the material used for the welder qualification is the same as the welding procedure specification.
1104	20th Oct-05	11.4	1104-I-0605-14	Question: Can I use ToFD as automated UT with Pulse Echo for surface coverage?	Response: Yes, provided the procedure is qualified to the requirement of paragraphs 11.4.2 and 11.4.4.

1104	20th Oct-05	5.3	1104-I-0623-14	<p>Question: Can a welding Procedure Specification (Section 5.3) contain several groupings of single essential variable on the same procedure specification as long as the applicable procedure qualifications (Section 5.1) were successfully completed? For example, can the Position (Section 5.4.2.4) of roll and fixed and/or the Base Material as listed in Section 5.4.2.2 bullets a. and b. be listed on the same procedure specification such as Figure 5.1?</p>	<p>Response: Yes, if the welding procedure specification is supported by specific procedure qualification records having all essential variable or combination of essential variable requirements properly addressed.</p>
1104	20th Oct-05	5.4.2.2	1104-I-0624-14	<p>Background: My concern is in 1104 5.4.2.2 (20th ed) where it states WPS shall be qualified to the highest grade material. My question about multi-stamped pipe deals directly to welding procedures and API 1104.</p> <p>Question 1: If you have, for example, B/x42/x52 triple stamped pipe that you are going to install into an x42 system, do you have to use the pipe as the highest stamped grade (x52)?</p> <p>Question 2: Do you have to weld it with an x52 WPS?</p> <p>Question 3: Or can you use the pipe as either B or x42 or x52 and weld according to intended application (i.e. using as x42 weld with a WPS for x42)?</p>	<p>Response 1: Use of specific pipe is a design issue that falls outside the scope of 1104.</p> <p>Response 2: NO, the WPS to be used must have been qualified for the grade of pipe being installed.</p> <p>Response 3: YES. However, please see NOTE under 5.4.2.2.</p>

1104	21st Sep-13	10	1104-I-0625-14	<p>Background: I know that if we qualify a full thickness repair it qualifies both internal and external partial thickness repairs which only makes sense given the fact that you are removing all of the weld down to and including a portion of the root bead. It is our intention to qualify in the overhead position for both procedure and welder and also include CVN testing as well as it was performed for the production procedure's as well.</p> <p>Question 1: Does a full thickness repair also qualify a partial thickness fusion line repair and a cover pass repair at the fusion line if the full thickness repair included those areas as well?</p> <p>Question 2: Would this groove weld procedure also be able to be utilized on a fillet weld repair given it was performed on the same material grade or grade range?</p>	<p>Response 1: No, a through thickness repair does not qualify a cover pass repair at the fusion line. However, yes, a through thickness repair does qualify a partial penetration repair.</p> <p>Response 2: No, the essential variables from 5.4.2 apply to repair procedures. Major change in joint design is an essential variable. A change from a butt to a fillet weld is a major change in joint design.</p>
1104	20th Oct-05	6.2.2 & Table 3	1104-I-0401-15	<p>Background: For welder qualification with a coupon of OD 4.5 ", Table 3, shows, for a defined thickness, 4 test specimens are required, while for a coupon of OD 6", 6 test specimens are required, which would suggest that the qualification with coupon 4.5 "does not cover the same requirements as the qualification on the 6" coupon, therefore welder qualified on a 4.5" OD coupon, does not qualify for a OD greater than 4.5".</p> <p>Question: Will a welder qualification successfully completed on a OD 4.5" coupon, qualify from OD 2.375" trough 12.75" OD ?</p>	<p>Response: Yes</p>

1104	20th Oct-05	A.1 & A.7	1104-I-0402-15	<p>Background: For the following example: 42 inch diameter API 5L X70 Pipe, with 20 mm nominal wall thickness; The original weld is made by the GMAW process using a WPS with meets Appendix A in 1104. Automated ultrasonic examination reveals a root pass defect which exceeds the established criteria determined by engineering critical analysis. The continuous circumferential length of the defect requiring repair is 75% of the 42 inch diameter API 5L x70 pipe, or approximately 100 inches of defective weld. Repairs can ONLY be made from the OD. The entire 100 inches of initial defective weld metal is completely removed and weld repair is made with a WPS different than that used for the original weld. The repair WPS is not required to meet Appendix A, regardless of repair length and depth.</p> <p>Question: When using a WPS for a weld repair which is different than the WPS used to make the original girth weld which meets Appendix A, is there a maximum length and depth of repair weld beyond which the repair WPS must meet Appendix A?</p>	Response: Appendix A does not address this issue.
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1104	20th Oct-05	A.4	1104-I-0403-15	<p>Background: If the welder qualification range for a test coupon 56" Diameter and 0.88" Wall Thickness with a process of M-GMAW – Welding Machine Type is PWT-DWS.02 welding machine (pwtsrl.com) in accordance with API 1104-20th edition. As per Appendix A, A.4 Qualification of Welders, welders shall be qualified in accordance to Section 6. For Mechanized Welding, each operator shall be qualified in accordance to 12.6. So, the range for the Welders should be as per 12.6.1 e.</p> <p>Question 1: Welding Operator shall qualify on the heaviest wall thickness (Please clarify this phrase) does this mean that welder's qualification range will be as deposited weld metal up to 0.88" (22.35mm) if he welded the whole thickness?</p> <p>Question 2: Or the thickness range will be as per section 6 (More than 0.75" (19.5mm))?</p>	<p>Response 1: Yes, if the question pertains to a welding operator and the thickness quoted pertains to nominal pipe thickness (not as-deposited weld metal thickness).</p> <p>Response 2: Yes, if the question pertains to a welder single qualification.</p>
1104	21st Sep-13	10.4.3	1104-I-0404-15	<p>Background: Section 10.4.3 references welder qualification limit and refers to a test described in 10.4.3.</p> <p>Question: Should the test references be 10.4.1, not 10.4.3?</p>	<p>Response: Yes, an erratum will be issued.</p>

1104	21st Sep-13	10.4	1104-I-0405-15	<p>Background: For the qualification of welders to repair the item 10.4 provides that these must be qualified using a completed weld to make a repair weld following all the details of the repair procedure. The repair weld shall be deposited in the fixed position on a segment of a full-circumference test weld for each repair type to be qualified in the location(s) specified by the company, by performing destructive testing requirements in 6.5 are for qualification of a repair welder, except that test specimens shall be cut from the joint at each individual repair area location for each type of repair.</p> <p>Question: Due to the high cost involved in qualifying a welder by destructive testing, is this case applied the provisions of item 6.6.1, "At the company's option, the qualification butt weld may be examined by radiography or automatic ultrasonic testing using a qualified NDT procedure in lieu of the tests specified in 6.5" ?</p>	<p>Response: No. Repair welders must be qualified by destructive testing. The provision for qualifying welders by nondestructive testing in 6.6.1 does not apply to repair welder qualification.</p>
1104	21st Sep-13	6.2.2	1104-I-0406-15	<p>Background: In item 6.2.2 for single qualification welders, specifies the following condition for the essential variable of the filler metal "A change of filler metal classification from Group 1 or 2 to any other group or from any Group 3 through 9 to Group 1 or 2 (see Table 1)".</p> <p>Question 1: As interpretation of this section can we say that if I have a welder with a classified in group 1 electrode, is qualified to complete welding with electrodes which are in Group 2 and vice versa?</p> <p>Question 2: If the welder does the qualification under a procedure having electrodes of Group 1 and Group 2. This welder can complete welds in Group 1 and Group 2?</p>	<p>Response 1: Yes.</p> <p>Response 2: Yes.</p>
1104	20th Oct-05	Appendix B	1104-I-0407-15	<p>Background: In accordance with Appendix B, Table B2 only refers you to Longitudinal Seam Welds for Number of Specimens.</p> <p>Question: Is it required to perform nick breaks on fillet welds for welder qualification?</p>	<p>Response: Appendix B is a recommended practice and therefore is not required by API 1104 (see Par. B.1). However, if you elect to use this appendix, the recommendations for in-service welder qualification are described in B.3, which references nick-break testing for fillet welds in 6.2.</p>

1104	21st Sep-13	6.2.3c	1104-I-0408-15	<p>Background: The 21st Edition changed the language requiring welder requalification when a change of filler metal from Group 1 or 2 to any group. etc. versus the 20th Edition which was specific to changes to/from Group 3 filler metals.</p> <p>Question: Am I correct that the 21st Edition language means that a change from Group 1 to Group 2 (i.e. any other group) filler metal constitutes welder requalification?</p>	<p>Response: No. A change from Group 1 to Group 2, or vice versa, does not constitute an essential variable.</p>
1104	21st Sep-13	7.8.2	1104-I-0409-15	<p>Background: For position welding, the number of filler and finish beads shall allow the completed weld a substantially uniform cross section around the entire circumference of the pipe. At no point shall the crown surface fall below the outside surface of the pipe, nor should it be raised above the parent metal by more than 1/16 in. (1.6 mm).</p>	<p>Response: No. Section 7.8.2 is applicable to filler and finish beads on the outside surface of the pipe only.</p>
1104	21st Sep-13	9.3.9.2	1104-I-1113-15	<p>I would like some clarification on section 9.3.9.2 lines A. and B. I have some colleague's that is telling me that the 25% of wall thickness is only used if you are joining two different thicknesses of material. I think that is not true If I have some 1/8" wall joining to another 1/8" wall material and if I have an 1/8" diameter porosity thin there will not be any weld metal covering the porosity.</p> <p>Question: Does the 1/8" fall in place after the wall thickness reaches 1/2"?</p>	<p>Response: Your question was sent to the 1104 Committee / NDE Subcommittee for review and redress. The NDE subcommittee, as a result of this review, has proposed a technical change to the document that would address your question. However a technical change proposal to the document requires approval by ballot before it can be released. We expect to ballot and issue this revision by early 2016 as part of Addendum 2 to API 1104, 21st Edition.</p>

1104	20th Oct-05	Section 6	1104-I-1114-15	<p>Question 1: An individual has taken and passed the multi-qualification on 12" diameter pipe with Group 1 (6010) & 2 (7010) filler. Are they then qualified to be able to weld in a rolled position with group 1 & 2 filler without further qualification required?</p> <p>Question 2: An individual is not a multi-qualified welder has passed a single qualification on 12" diameter in the 6G position with group 1 (6010) & 2 (7010) filler. Are they then qualified to be able to weld in a rolled position with group 1 & 2 filler without further qualification required?</p> <p>Question 3: For both questions 1 and 2 above, what if the roll procedure utilized a group 1 (6010) root and hot pass and a group 3 (7018) cap?</p> <p>Question 4: If the individual in question 1 also passed an in-service test with group 3 (7018) would they be qualified to use the procedure from Question 3?</p>	<p>Response 1: Yes</p> <p>Response 2: Yes</p> <p>Response 3: No, the welder is not qualified for Group 3 by qualifying using Group 1 or 2 (see API 1104, Section 6.2.2.c).</p> <p>Response 4: No, it is assumed that the joint design for the in-service test is not a butt weld.</p> <p>Please note that the references to the specific electrodes have been ignored and that only groupings are considered for these replies. It is assumed that the joint configuration in Questions 1 and 2 is a butt weld.</p>
1104	20th Oct-05	7.8.2 & 7.9.2	1104-I-1115-15	<p>Background: API 1104, Section 7.8.2 and Section 7.9.2 state that the crown surface shall not fall below the outside surface of the pipe and should not be raised above the parent material by more than 1/16".</p> <p>Question 1: Can a procedure which currently states the crown surface be at a minimum of 1/32" above the parent material and not more than 1/16" above the parent material be revised to allow the crown surface to be flush with the parent material but not more than 1/8" above the parent material without requalifying the procedure?</p> <p>Question 2: Was the statement that the crown surface should not be raised above the parent material by more than 1/16" meant to limit the heigh operator may have on their WPS?</p> <p>Question 3: Section 7.2 states the maximum offset allowed is 1/8", but the "should" statement in 7.8.2 states 1/16". Does API recommend a procedure to measure the crown surfaces when alignment exceeds the 1/16"?</p>	<p>Response 1: Yes, see API 1104, Section 3.2.18.</p> <p>Response 2: No</p> <p>Response 3: API is unable to provide recommendations for use of a specific procedure or practice. Seeking input from a source outside of the API may be required to address this question.</p>

1104	21st Sep-13	Section 5	1104-I-1116-15	<p>Background: A WPS was qualified as per API Standard 1104 requirements. The joint design as stated in the WPS is a combined J-Groove Butt.</p> <p>Question: Is it acceptable to use a joint design (Configuration) term combined J-Groove Butt as per the requirements of API 1104?</p>	<p>Response: Yes, provided that the requirements in API 1104, Sections 5.3.2.4 and 5.4.2.3 are satisfied.</p>
1104	21st Sep-13	Section 7	1104-I-1117-15	<p>Background: We want to use lineup clamp for root bead weld.</p> <p>Question: Can we use a bridge tack in the butt joint after removal of the clamp; is it possible?</p>	<p>Response: Bridge tacks are not addressed in API 1104. See API 1104, Section 7.3.</p>

1104	21st Sep-13	6.2	1104-I-1118-15	<p>Background: In API 1104, Section 6.2 single qualification for butt welding pipe OD less than 2.375" and wall thickness less than 0.188" are essential variables which would require a welding procedure of its own to qualify a welder to do so. On the other hand, in API 1104, Section 6.3 multiple qualification states taking two test, first is butt weld of OD at least 6.625" and wall thickness at least 0.250" which would qualify the procedure for (ALL) butt welds from 12.750" OD and less also (ALL) wall thickness up to 0.750" and the second is branch of the same size OD 6.625" and wall thickness at least 0.250" which would qualify the procedure from 12.750" OD and wall thickness 0.750" and less.</p> <p>Question 1: Is there any terminology in the API 1104 standards that tells us that a separate test is required to qualify a procedure to weld on pipes less than 2.375" OD and wall thickness less than 0.188" for a multiple qualification?</p> <p>Reasoning, they are the same test, butt and branch why would the 1.1/2" butt weld NOT be required in the multiple qualification?</p> <p>Question 2: If so where is it, (what section)?</p> <p>Question 3: Are we covered to weld a butt weld on a 3/4" steel service line?</p> <p>Question 4: Are we covered to weld a 3/4" socket fitting on a service line?</p>	<p>Response 1: No, see API 1104, Section 6.3.2.</p> <p>Response 2: Not applicable, see Reply 1.</p> <p>Response 3 & 4: Questions 3 & 4 cannot be answered given that insufficient information was provided.</p>
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1104	21st Sep-13	N/A	1104-I-1119-15	<p>Background: There is no interpretation or definition in API 1104 on what is a "hot pass" and its limitations. A hot pass is a pipeline terminology for the subsequent welding pass after the root pass is completed. This hot pass is used to burn off any impurities from the root pass. This is usually considered a singular pass and not should be used for buildup in a weld joint. My interpretation is that what a fill weld application is used for.</p> <p>Question: Is a hot pass limited to one pass or can it be used multiple times in the buildup in a weld joint?</p>	<p>Response: "Hot pass" is a term not used in the API 1104 Standard and therefore API has no basis on which to formulate a reply.</p>
1104	20th Oct-05	9.3.4	1104-I-1120-15	<p>Background: Radiographic film displays an indication along the toe of where the root should be if the root was present, the indication appears to look like a very faint slag line however once the weld is cut out you can visually see that the root has not fully penetrated the ID of the pipe. The edge of the bevel has been broken down and not undercutting is present but the weld metal deposited does not fuse directly into the base material at this point. The point of fusion where the toe of the root directly merges into the base metal is above the ID surface of the pipe.</p> <p>Question: API 1104, Section 9.3.4 refers you to Figure 16. Is it the intent of API 1104 to apply acceptance criteria of Section 9.3.4 when the root does not fuse directly into the ID portion of the base material (i.e. breaking down the bevel but leaving a void between the ID surface of the base material and the deposited weld metal)?</p>	<p>Response: Yes</p>

1104	20th Oct-05 & 2	5.3.2.10	1104-I-1121-15	<p>Background: Between passes, API 1104 states “the maximum time between the completion of the root bead and the start of the second bead, as well as the maximum time between the completion of the second bead and the start of the other beads, shall be designated.”</p> <p>National’s understanding of the intent of API 1104, Section 5.3.2.10 is to define on the WPS, the maximum allowable time between the completion of the root bead and start of the hot pass (second pass) – which is an essential variable, as well as the maximum time between the completion of the hot pass (second pass) and start of the first filler pass (third pass). National interprets the word “beads” in this section to mean the grouping of all remaining welding passes after the second pass and therefore understands that, if the WPS specifies the maximum time between the completion of the hot pass (second pass) and start of the first filler pass, the requirement to specify the “time between the completion of the second bead and the start of the other beads” as described in API 1104, Section 5.3.2.10 is specified.</p> <p>Or alternately, should the requirement of API 1104, Section 5.3.2.10 be interpreted to mean the “maximum time between completion of second bead and third pass, second bead and fourth pass, and so on and so forth to second bead and final pass”? It is National’s understanding that API 1104 does not require the WPS to defined the time between each of the remaining passes as described in the sentence above.</p> <p>Question: National is requesting API to provide a concise “yes” or “no” response confirming that National’s above explanation of the intent of API 1104, Section 5.3.2.10 accurately described the purpose and objective of this section. If National’s understanding is inaccurate or incomplete and/or does not meet the intent of API 1104, Section 5.3.2.10, National requests an explanation in order that we comprehensively understand the requirements?</p>	<p>Response: Yes, the intent of API 1104, Section 5.3.2.10 is to identify the maximum time between the 1st pass and 2nd pass and the maximum time between the 2nd pass and 3rd pass.</p>
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1104	21st Sep-13	Section 5	1104-I-1122-15	<p>Background: I have 2 difference pipes consisting of 1) Diameter 12" , 17.44 mm Wall thickness , Grade API 5L X52, and 2) Diameter 12", 21.43 mm Grade API 5L B From the above, I have to weld unequal wall thickness and SMYS.</p> <p>Question:</p> <ol style="list-style-type: none"> 1. Could I use PQR which pipe Diameter 12", 17.44 mm Grade API 5L X52 for production weld? 2. Could I use PQR which pipe Diameter 12", 20 mm Grade API 5L X52 for production weld? 3. Could I use PQR which pipe Diameter 12", 9.5 mm Grade API 5L X52 for production weld? 4. Could I use PQR (Unequal wall thickness) which pipe Diameter 12", 9.5 mm Grade API 5L X52 welding with Diameter 12", 20 mm Grade API 5L X52 for production weld? 5. Could I use PQR (Unequal wall thickness and SMYS) which pipe Diameter 12", 9.5 mm Grade API 5L X52 welding with Diameter 12", 20 mm Grade API 5L B for production weld? 6. Could I use PQR (Unequal wall thickness and SMYS) which pipe Diameter 12", 9.5 mm Grade API 5L B welding with Diameter 12", 20 mm Grade API 5L X52 for production weld? 	<p>Response: Yes, any one of the 6 PQRs could support a WPS that could be written to cover the wall thickness and material combination listed in the background. However, please reference API 1104, Section 5.4.2.2 Note 1.</p> <p>Note that API presumes the questions "Could I use..." is applied to the material combination listed in the background.</p>
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1104	20th Oct-05	Section 6	1104-I-1123-15	<p>Background: API 1104 states (on page 19) that piping shall be welded by qualified welders using qualified procedures and in accordance with the procedure specification. Base material is an essential variable in qualifying a procedure and it seems that if a welder is going to do production welding on X65 pipe that testing on X42 pipe would not be using the same procedure that would be used in production welding. This has been a debate for some time among pipeline inspection and construction professionals. Your clarification would be greatly appreciated and help to resolve the interpretation differences by having clarification come from the originator of the API 1104 that we all use in welding of pipeline. and related facilities.</p> <p>Question: If a WPS is established to join X65 pipe to X65 pipe can a welder qualify to weld on X65 pipe by performing a qualification test on X42 pipe?</p>	Response: Yes
1104	21st Sep-13	10.4.2	1104-I-1124-15	<p>Background: In API 1104, Section 10.4.2 (Testing of Repairs), for a repair welder qualification test weld, the repair weld shall meet the visual examination requirements of API 1104, Sections 6.4 and 10.3.7.2. The destructive testing requirements in API 1104, Section 6.5 are for qualification of a repair welder, except that test specimens shall be cut from the joint at each individual repair area location for each type of repair. The total number of specimens and the test to which each shall be submitted are shown in Table 7.</p> <p>A) In Table 7, It is not required. B) In Section 6.5 (Destructive Testing), It is not required. C) In Section 10.3.7.2 (Macrosection/Hardness Tests), It is required.</p> <p>Question: Is the test specimen preparation for macrosection necessary to repair welder qualification?</p>	Response: No, API 1104, Section 10.4.2 should not reference Section 10.3.7.2. An erratum shall be issued to correct this error.

1104	20th Oct-05	Section 11	1104-I-1125-15	<p>Background: Placement of image quality indicators (IQI) .</p> <p>Question 1: Would only one IQI be required on a 2" weld repair using DWE/SWV procedure?</p> <p>Question 2: Would only two IQI's be utilized on a single weld repair for 12" weld using a DWE/SWV procedure?</p>	<p>Response 1: Yes</p> <p>Response 2: No</p>
1104	21st Sep-13	Section 6	1104-I-1126-16	<p>Question 1: Per the API 1104 code, a welder passed a butt and branch test on 12" or larger pipe with cellulose root and hot pass; and fill and cap with low hydrogen. Since he ran a butt and branch with low hydrogen as the filler metal, is he qualified to weld a fillet weld completely? Yes or No</p> <p>Question 2: A current person is trying to say they must run the root and hot pass in the fillet weld with cellulose because the welder took a butt and branch root and hot pass was with cellulose? Yes or No</p> <p>Question 3: In my interpretation a fillet weld has backing so it is a fillet weld and the welder ran the filler passes on the butt & branch with low hydrogen so he can weld any fillet weld with low hydrogen? Yes or No</p> <p>Question 4: If it was a butt weld then he would have to run cellulose for root & hot pass then fill and cap with low hydrogen? Yes or No</p> <p>Question 5: For a welder to be qualified to run an open root on a "BRANCH" connection with low hydrogen would a 2" schedule 160XXH butt weld test welded completely with low hydrogen per the ASME code qualify the welder to run a branch connection? Yes or No</p> <p>Question 6: Am I correct to say to be qualified to weld any "Branch" connection completely with low hydrogen the welder would have to qualify by passing a 12" branch with low hydrogen electrodes for the complete weld? Yes or No</p>	<p>Response 1: Yes</p> <p>Response 2: No, the interpretation of the "current person" is incorrect.</p> <p>Response 3: Yes</p> <p>Response 4: Yes</p> <p>Response 5: API does not address ASME Code requirements.</p> <p>Response 6: No, a multiple qualification (butt and branch) using only Group 3 electrode is required. Additionally, essential variables for welder qualification would still apply.</p> <p>Note: API presumed that the original butt and branch WPS was qualified with cellulosic electrodes used for the 1st and 2nd passes, and low hydrogen electrodes used for remaining passes.</p>

1104	21st Sep-13	Section 5	1104-I-1127-15	<p>Question: It is allowed to use of a Standard Welding Procedure Specification (SWPS) of AWS under the requirements of API 1104?</p>	Response: No
1104	21st Sep-13	6.2.1	1104-I-1128-15	<p>Background: For single qualification of a welder contractors are questioning the fact that we are requiring the welder to complete a "Butt Weld" on 20 inch O.D. pipe for production welding on 20" .300 W.T. piping. The contractor has opted not to take the 12.750 "Butt and Branch" for multiple qualification which would allow the welders to then weld all diameters. The contractors are opting to single qualify so I instructed them that if they are wanting to single qualify that each welder will have to complete a 20" "Butt weld" and have it destructively tested per API 1104 which states that for 20" .300 W.T. 12 specimens shall be taken and shall be taken from locations "Equally spaced around the pipe". The contractor is stating that the welder should be able to "Brother-In-Law" the 20" pipe on the test. Which in my opinion is incorrect due to the fact of the welder not making a complete weld around the entire circumference of the pipe and that would prohibit the removal of the correct amount of test specimens " Spaced equally around the pipe" on each welder. We would only be able to remove the specimens on each welder on half of the pipe so in my opinion the welder would not be qualified per API 1104 to weld on 20" O.D pipe.</p> <p>Question: I have told the contractors that I have not seen anything in API 1104, Section 6 (Qualification of Welders) that says the welders allowed to "brother-in-law" a qualification test. Is this interpretation of Section 6 of API 1104 correct?</p>	Response: No, see API 1104, Section 6.2.1 "...segments of pipe nipples."; testing as defined in API 1104, Figure 12, including Note 1 apply.

1104	20th Oct-05	Section 5	1104-I-1129-15	<p>Background: According to API 1104, 20th edition of standard, but unfortunately result of all the tests were accepted expect nick break test (1 to 4 specimens failed). The contractor repeated procedure qualification tests with 4 different electrode brands and 7 different welder groups. Tensile and bend test results were acceptable. According to specification of the project impact and hardness tests were mandatory and their results were acceptable: average of Charpy V-notch energy was more than 45J/cm2 (100 to 240 J/cm2) and hardness values were less than 275 HV10 (180 to 210 HV10).</p> <p>. Question 1: According to satisfactory results of radiography, tensile, bend, hardness and impact tests, is that possible not to consider nick break test for qualification of welding procedure?</p> <p>Question 2: According to satisfactory results of radiography, tensile, bend, Hardness and impact tests, if some of the nick break specimens fail, is that possible each failed specimen be replaced by one nick break specimen?</p>	<p>Response 1: No, Nick Break tests are required.</p> <p>Response 2: No, only one failure is allowed to be retested.</p>
1104	21st Sep-13	6.2.1 & 6.2.2	1104-I-1130-15	<p>Background: API 1104, Section 6.2.1 states: "For qualification to a single weld procedure specification, a welder shall make a test weld using a qualified procedure..."</p> <p>. Question 1: Is a welder qualified to weld using any welding procedure specification that has the same essential variables listed in API 1104, Section 6.2.2 as the welding procedure used for welder qualification?</p> <p>Questions 2: Is it the intent of API 1104, Section 6.2 to limit the welder to be qualified for a single welding procedure specification that was used for welder qualification?</p>	<p>Response 1: Yes</p> <p>Response 2: No</p>

1104	20th Oct-05	Annex B	1104-I-1131-15	<p>Background: A welder is qualified under Appendix "B", with an electrode group 3 (fillet weld) (E-7018), he said welder qualified for that purpose.</p> <p>Question: Can the same welder weld a fillet weld (no use of API 1104, Appendix "B"), using the same WPS Appendix "B", keeping all essential variables in accordance with paragraph API 1104, Section 6.2, including the electrode group 3 (E-7018).</p>	<p>Response: No, the welder may not use an API 1104, Appendix B WPS to complete a new construction weld.</p>
1104	21st Sep-13	Figure 10	1104-I-1132-15	<p>Question: Is it correct to assume that when qualifying a repair procedure, for repair of fillet welds, that the procedure can be qualified by destructively testing a total of (4) side bends?</p>	<p>Response: No, side bends are not part of the fillet weld qualification testing matrix, see API 1104, Figure 10.</p> <p>Note: Qualification of a Fillet Weld Repair Procedure is currently not addressed by API 1104, Section 10. The subcommittee will consider including this in a future revision of API 1104.</p>
1104	21st Sep-13	6.6	1104-I-1133-15	<p>Background: I understand automatic ultrasonic testing is the technique able to record in 100% the weld inspected.</p> <p>Question 1: Is this correct?</p> <p>Question 2: Can I use semi-automatic scanner for this application or only automatic scanner shall be apply?</p>	<p>Response 1: The question is unclear. API can only address questions that pertain directly to the requirements with the document.</p> <p>Response 2: No, API 1104, Section 6.6.1 refers to automatic ultrasonic testing.</p>
1104	20th Oct-05	11.4.7.1	1104-I-1134-15	<p>Background: API 1104 (20th Ed), Section 11.4.7.1 states that, "Manual compression wave testing of parent material shall be performed with the second back wall echo from the reference standard adjusted to at least 80% full screen height".</p> <p>Question: Is it the intent to utilize the response from the bottom of the N10 notch in the reference standard?</p>	<p>Response: No</p>

1104	21st Sep-13	5.4.2	1104-I-1135-15	<p>Background: Concerning API 1104, Section 5.4.2, "The compatibility of the base material and the filler metal should be considered from the standpoint of mechanical properties".</p> <p>Question 1: Can we say this is a good engineering practice?</p> <p>Question 2: Is acceptable for conformance to API 1104, to adopt one filler metal E6010 classification in the root pass of a butt joints in API 5L X70-PSL 2 piping class (base metal)?</p> <p>Question 3: If the answer is positive, kindly request, who has the authority to accept this use?</p> <p>Question 4: Is it required some specific quality control procedure for the weld made with this filler metal (E6010)?</p>	<p>Response 1: Please see Special Notes in the 1104 Standard. "Users of this Standard should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein."</p> <p>Response 2: API 1104 does not specify what filler metal to use for a particular welding procedure.</p> <p>Response 3: Not applicable, see reply 2.</p> <p>Response 4: Any combination of consumables can be used provided requirements detailed in this Standard are satisfied.</p>
1104	21st Sep-13	10.4.2	1104-I-1136-15	<p>Background: API 1104, 21st edition states in Section 10.4.2 that the repair weld shall meet the visual examination requirements of Sections 6.4 and 10.3.7.2.</p> <p>Question: Does this mean that we have to extract at least one specimen for macrosection regardless that Table 7 in which the macrosection is not requested?</p>	<p>Response: No, API 1104, Section 10.4.2 should not reference Section 10.3.7.2. An erratum shall be issued to correct this error.</p>
1104	20th Oct-05	9.3.9.2c	1104-I-0222-16	<p>Background: My question is in regards to the sizing and spacing in the Figures 19 and 20. They show porosity of various sizes and spacing, with the larger pores with some distance between them.</p> <p>Question: Is it correct to interpret that the spacing of the larger acceptable sized pores, be spaced such that the distance is similar to the figure?</p>	<p>Response: Yes. Per API 1104, Section 9.3.9.2.c, the porosity spacing must conform to Figure 19 or 20.</p>

1104	21st Sep-13	6.2.3 & 10.4.1	1104-I-0223-16	<p>Background: API 1104, Section 6.3.2 lists the essential variables for the welder who has qualified in compliance with part 6.3, Multiple Qualification. API 1104, Section 6.3.2 lists specifically three essential variables for a welder who has qualified by the multiple qualification process. Basically, if the welder qualifies performing the 12-3/4" OD butt weld and the full size 12-3/4" branch on run weld successfully, they are qualified unlimited within the limits of the listed essential variables.</p> <p>Question: Does the statement in API 1104, Section 10.4.1 add an essential variable to API 1104, Section 6.3.2?</p>	<p>Response: Yes, just as the essential variables in API 1104, Section 12 and API 1104, Annex A are not referred to in API 1104, Section 5, these requirements in API 1104 Section 10 do not need to be referred to in API 1104, Section 6. However, the reverse is not true.</p>
1104	21st Sep-13	5.4.2.13	1104-I-0224-16	<p>Background: API 1104, Section 5.4.2.13 says, "A decrease in the specified minimum preheat temperature constitutes an essential variable".</p> <p>Question: It is the beginning of the first pass which corresponds to the minimum preheating temperature specified?</p>	<p>Response: Yes, it is also the temperature prior to the start of each pass.</p> <p>NOTE: Please refer to AWS A3.0 for the definition of "preheat".</p>
1104	20th Oct-05	12	1104-I-0225-16	<p>Background: A mechanized procedure qualification record (PQR) was developed to the requirements of API 1104, Section 12, prior to production welding. Subsequently, a welding procedure specification (WPS) was authored and issued for production. Soon thereafter, a second WPS was requested which intended to use the same PQR as the first WPS.</p>	<p>Response: Yes</p>
1104	21st Sep-13	10.2.3c & 10.4.1	1104-I-0226-16	<p>Background: API 1104, Section 10.4.1 in the second sub-paragraph requires that a welder performing a repair on a weld using a qualified repair procedure "...shall be qualified using the applicable qualified repair procedure."</p> <p>Question: In accordance with API 1104, Section 10.2.3, c), if a company does not require repair procedures for defects other than cracks and if neither a) nor b) are applicable, is a repair procedure required?</p>	<p>Response: No</p>

1104	21st Sep-13	11.1.6.1 a)	1104-I-0620-16	<p>Background: Section 11.1.6.1 a) third sentence, has added the words "or multiple films" to the section which would infer that when performing a SWE/SWV (panoramic exposure) in a single exposure using multiple overlapping films, two IQI would have to be placed on each film length over 5". One IQI center and one IQI within one inch of the end of the area of interest. This would require an inordinate amount of IQIs placed around the circumference of large diameter pipe which in no way would prove greater sensitivity than placing four IQI evenly spaced around the circumference of the pipe as stated in sentence one of 11.1.6.1 a), or by placing one IQI center of each overlapping film.</p> <p>Question: Is this in error or is this the intent of the code?</p>	<p>Response: No. The standard, as worded currently, requires two IQIs on each film length greater than 5 inches.</p> <p>NOTE The 1104 NDT Subcommittee is currently evaluating Sections 9 and 11 for the upcoming 22nd Edition of the document. This subject is to be discussed at the next meeting.</p>
1104	21st Sep-13	5.3.2.3	1104-I-0621-16	<p>Background: 5.3.2.3 Diameters and Wall Thicknesses - The ranges of specified outside diameters (ODs) and specified wall thicknesses over which the procedure is applicable shall be identified. Examples of suggested groupings are shown in 6.2.2 d) and 6.2.2 e). A PQR was qualified on 40" OD (diameter pipe), hence the qualification range of diameter is supposed to be specified OD greater than 12.750 in. (323.9 mm). But A WPS was received as qualified for all the diameter where the Procedure has been qualified on 40" API pipe.</p> <p>Question: Is the outside diameter an essential variable?</p>	<p>Response: No. However, the range of specified outside diameters over which the procedure is applicable must be identified (in reference to section 5.3.2.3).</p> <p>NOTE Please see Section 5.1, last sentence.</p>
1104	21st Sep-13	5.4.2.2	1104-I-0622-16	<p>Question: Is it allowed to weld the different mechanical properties of material (P1 (API X65) to P11 (ASTM A859)) without requalifying the Procedure if the PQR is qualified with single mechanical properties of material only (API X65 to API X 65)?</p>	<p>Response: No. ASTM A859, "Standard Specification for Age-Hardening Alloy Steel Forgings for Pressure Vessel Components" is not within the scope as defined in Section 1, which states this standard only applies to carbon and low alloy steels.</p>
1104	21st Sep-13	6.2.1	1104-I-0623-16	<p>Background: Procedure A was written and qualified with X-52 pipe. The welder, when tested and qualified to procedure A, tested on X-65 pipe. Per 1104, base material is not an essential variable when qualifying a welder, only when qualifying a procedure.</p> <p>Question: If the pipeline consists of only X-52 pipe, is the welder qualified to weld</p>	<p>Response: No. API 1104, Section 6.2.1 says "...a welder shall make a test weld using a qualified procedure...". A procedure qualified on X52 is not qualified for welding X65.</p>

1104	21st Sep-13	5.4	1104-I-0624-16	<p>Background: Pipe diameter limitation for WPS - with reference to Section 5.4, no pipe diameter limitation specified for WPS however as per Section 6.2.2.d) a number of 3 groups of pipe diameters are defined.</p> <p>Question 1: Is the diameter limitation applicable for welding procedure qualification?</p> <p>Question 2: Is the diameter limitation applicable for repair welding procedure qualification?</p>	<p>Response 1: No.</p> <p>Response 2: No. However, the range of specified outside diameters over which the procedure is applicable and must be identified (in reference Section 5.3.2.3). NOTE Please see API 1104, Please see section 5.1, last sentence.</p>
1104	21st Sep-13		1104-I-0625-16	<p>Background: Base material P11C Procedure qualification test coupon is API 5L Gr. X65 pipe to same pipe, qualification done as per API 1104, base metal Specification and grade in WPS is "API-5L-Grade X65 through ASTM A 859 Gr. A Cl.2, WPHY X65", company representative rejected WPS due to dissimilar material like Pipe -API-5L-Grade X65 is P 1 where as Flange grade-ASTM A 859 Gr. A Cl.2 is P11C .</p> <p>Question: Can we weld Group "C" materials with same group, where impact test requirements are not required do we have refer P no's also?</p>	<p>Response: API is unable to provide a response because ASTM A859, "Standard Specification for Age-Hardening Alloy Steel Forgings for Pressure Vessel Components" is not within the scope of API 1104 (see Section 1) which states this standard only applies to carbon and low alloy steels.</p>
1104	21st Sep-13	5.4.2.2	1104-I-0626-16	<p>Background: As per clause No: 5.4.2.2, A change in base material constitutes an essential variable. We have qualified PQR with X52 (group "b") materials.</p> <p>Question: Whether this PQR will support other materials (not X52) falls under the same group "b to b" ?</p>	<p>Response: No. API 1104, Section 5.3.2.2 allows materials to be grouped provided that the qualification test is made on the material with the highest SMYS in the group. The highest SMYS in the group that includes X52 (i.e., what is referred to in the inquiry as "Group B") is X60.</p>
1104	20th Oct-05	Appendix B	1104-I-0627-16	<p>Background: We are involved from time to time with pipeline maintenance and want to assure our procedures and work practices comply with the applicable code(s) in this case API-1104, 20th Edition, Appendix B.</p> <p>Question: My question is does Appendix B in API-1104 have any diameter requirements or groupings for procedure or welder qualifications?</p>	<p>Response: Yes. API 1104, Annex B.1 states "The requirements for fillet welds in the main body of API Std 1104 should be applied to in-service welds that contact the carrier pipe, except for the alternative/ additional requirements specified in this appendix." See API 1104, Section 5 for procedure qualification and API 1104, Section 6 for welder qualification.</p>

1104	21st Sep-13	10.2.3a	1104-I-0628-16	<p>Background: API 1104, 10.2.3a states that “Defects other than cracks in the root, filler, and beads may be repaired with prior company authorization. A qualified repair procedure shall be required whenever a repair is made by welding...” As I understood the interpretation of above is that “If a repair occurred in Root, Filling passes, cover passes, Qualified repair Procedure is mandatory (as identified in 10.3 clause) if we are going to proceed for a repair weld by any welding process.</p> <p>Question 1: If we qualified GTAW + SMAW process using consumables ER70S2 +E7018-1H4R, after welding found repair on original weld by NDE, do we have to have a Qualified Repair procedure (with proven destructive tests, clause 10.3.2)?</p> <p>Question 2: Can we re-use the same WPS which used in Original welding with same filler materials? (This WPS is not qualified for repairs by tests).</p>	<p>Response 1: No. A qualified repair procedure is only required when the defect to be repaired is a crack, or when any of the items in API 1104, Section 10.2.3 occur.</p> <p>Response 2: Yes. If the WPS is in conformance with API 1104,</p>
1104	21st Sep-13	5.4.2.6	1104-I-0301-17	<p>Background: A welding procedure qualified as per API 1104 with SMAW process, bevel fillet weld (branch connection), root pass with cellulosic electrodes (Table 1 Group 1) and low hydrogen electrodes (Table 1 Group 3, eg E7018-1) used for the remaining passes.</p> <p>Question: Can the above qualified welding procedure be used to support a new WPS for production welds under SMAW process for non-bevel lap fillet weld, using exclusively low hydrogen electrodes (Table 1 Group 3 e.g., E7018-1) for root and remaining passes without changes of other essential variables?</p>	<p>Response: Yes.</p>

1104	21st Sep-13	Annex B	1104-I-0302-17	<p>Background: Specification requires testing samples to be extracted as per table B.1 & figure B.3 for procedure qualification. My interpretation is that samples extraction as per figure B.3 can only be used for procedure qualification using single welder i.e. if both upper and lower sleeve have been welded by same welder and both longitudinal seams have been welded by same welder. If we take samples as suggested by figure then both welders must be used in combination always. If these joints are welded by each welder, then each joint must be tested separately and fully as procedure qualification. Further specification does not call for welder qualification of branch and sleeve welds in appendix B.</p> <p>Question: Considering a weld procedure qualification, out of 2 sleeves as per joint configuration requirement of spec, if one sleeve is welded by one, Should I do a total of 4 Nick Breaks, 4 Bends and 4 Macro tests? Or I should do 8 Nick Breaks, 4 Bends and 8 Macro tests? If I do 4 Nick Breaks, 4 Bends and 4 Macro tests only from locations as specified, are both welders qualified along with procedure? If yes, can be they be used in combination with other welders or they must always be used in same combination.</p>	<p>Response: Question is not sufficiently clear for the Committee to reply. You have not clearly defined which part of your question pertains to procedure qualification and which part pertains to welder qualification.</p>
1104	21st Sep-13	10.3.3	1104-I-0303-17	<p>Background: A welding repair procedure ("A") is qualified (SMAW process) according to API 1104, paragraph 10.3.3 - full thickness, with a successful outcome. Note: The pipe materials are the same in all cases, and repairs were carried out in approved welds, according to API 1104, paragraph 5.5.</p> <p>Question 1: It is correct to apply the repair procedure ("A") in a weld made with a combination of processes (SMAW / FCAW) without qualification according to API 1104, paragraph 10.3.3 - full thickness?</p> <p>Question 2: It is correct to apply the repair procedure ("A") in a weld made with a combination of processes (SMAW / FCAW) with qualification in accordance with API 1104, paragraph 10.3.3 - full thickness (since it originally had a successful outcome)?</p>	<p>Response 1: Yes</p> <p>Response 1: Yes</p>

1104	21st Sep-13	10.5.3.1	1104-I-0304-17	<p>Background: A welding method ("A") is qualified according to API 1104, paragraph: 10.5.3.1. SMAW process was used in all the pass (the first pass upward progression and subsequent progression downward, with satisfactory return results).</p> <p>Question: If I qualify a welding procedure according to API 1104, paragraph 5.4.2, welding was done with the SMAW process (first and second pass with filler material group 2), (down) and the rest with FCAW filler material group 9) process (downward). His result was satisfactory The repair was carried out with the procedure ("A"), mentioned above. His result was satisfactory. Is this correct?</p>	Response: The question does not provide sufficient detail to provide a yes or no response.
1104	21st Sep-13	5.4.2.5	1104-I-0305-17	<p>Background: Our company is currently planning to perform butt welding on two (2) NPS 30 API 5L X70 line pipe with different thickness. One of the line pipe thicknesses is 7.56 mm, and the other is 22.1 mm. WPS have been qualified using base metal of NPS 30 API 5L X70, with wall thickness of 10.88 mm. The 22.1 mm pipe will be chamfered to 7.56 mm before the welding. Paragraph 6.2.2 (e) stated that wall thickness of 22.1 mm and 7.56 mm are on the different groups.</p> <p>Question: Can we use the qualified WPS for NPS 30 API 5L X70 with wall thickness of 10.88 mm pipe to perform butt weld on NPS 30 API 5L X70 (with wall thickness of 22.1 mm) with NPS 30 API 5L X70 (with wall thickness of 7.56 mm)?</p>	Response: Yes.
1104	21st Sep-13	Table 3	1104-I-0306-17	<p>Background: In accordance with API 1104 - 2013 ADDENDUM 2014, table 3 type and number of butt weld specimens per welder of Welder Qualification test and Figure 12 shows the location of specimens.</p> <p>Question: Can we use a single coupon for two welders (12-3-6 'O' clock and 12-9-6 'O' clock)? Or a single welder to complete 360° complete circumference? In that case. if two welders, then can you specify the required quantity of specimens?</p>	Response: Yes, provided the testing requirements (number and location) for each welder are satisfied.

1104	21st Sep-13	8.3	1104-I-0307-17	<p>Background: We are discussing about “the welding inspection personnel qualification process of a pipeline construction project, welded according to the API 1104:2013 requirements”. In order words: welding inspector responsible to perform the visual welding inspection.</p> <p>Question: In this situation is correctly to say that, in order to define the enough qualification requirement of one welding inspector, that will work in a project build according to the API requirement, we need to follow the requirement of item 8.3 of API 1104: 2013?</p>	Response: Yes.
1104	21st Sep-13	3.1.7 & 5.3.2.8	1104-I-0308-17	<p>Question: Can I weld a pipe fixed horizontal position and go by turning and continue welding in fixed position according to 3.1.17 and 5.3.2.8, although the WPS was described in a fixed position without rotating, keeping all other variables acceptable?</p>	Response: Yes.
1104	21st Sep-13	5.4.2.4 & 5.4.2.9	1104-I-0309-17	<p>Background: API 1104, 5.4.2.4 (Position) "A change in position from roll to fixed, or vice versa, constitutes an essential variable". API 1104, 5.4.2.9 (Direction of Welding) "A change in the direction of welding from vertical downhill to vertical uphill, or vice versa, constitutes an essential variable". We have a WPS qualified to weld a pipe with a fixed horizontal axis, vertical upward progression, the other variables being equal, also a qualified welder for this purpose.</p> <p>Question: If we want to make a weld with the same WPS and same welder but in a fixed vertical axis pipe welding in a horizontal position, do we need to qualify a new WPS and welder mentioned for this new situation?</p>	Response: No for the WPS Yes for the Welder.

1104	21st Sep-13	10.2.3	1104-I-0310-17	<p>Background: Butt welds were made using a WPS and PQR satisfying the requirements of Section 5.</p> <p>Question 1: Is it correct to assume that the same procedure used for the original weld can be used to make the repair weld?</p> <p>Question 2: In my opinion, I think the answer is "NO" since based on Table 5, the Macro/Hardness Test (Charpy Impact Test) is not a qualification requirement. Do you agree?</p>	<p>Response 1: Yes, the original welding procedure may be used to repair so long as the requirements of 10.2.3 are satisfied.</p> <p>Response 2: No, the WPS used to make the original weld does not need to be tested in accordance with Table 5.</p>
1104	21st Sep-13	10.4.3a & 10.2.3	1104-I-0311-17	<p>Question 1: Is it allowed by this code to use WPS 1st repair (full thickness) to qualify a welder for 2nd repair (partial thickness), since we only want to see the welder's soundness during qualification and refer to clause 10.4.3 (a) which only mentions the type of repair and does not mention whether it is 1st repair or 2nd repair?</p>	<p>Response 1: Yes, the welder qualification does not depend on the first or second repair.</p>
1104	21st Sep-13	9.3.8.2e	1104-I-0312-17	<p>Background: API 1104, section 9.3.8.2(E) states that if the maximum width of an ISI indication exceeds 1/8" then it is not acceptable. Should it say "an individual ISI indication shall not exceed 1/8", instead of "width of an ISI indication"? If you have an individual indication then it would not be considered aggregate therefore you should not be allowed 1/2" for an individual indication that is not greater than a 1/8" in width. For an indication that is 1/8" in width once it is greater than 3/8" in length it would be considered elongated therefore it would then be unacceptable for being greater than 1/16" in width. Should an ISI indication be measured as a rounded indication, whereas 1/8" would be the maximum dimension of an individual ISI indication?</p> <p>Question 2: Should the criteria in section 9.3.8.2 (E) state that "The size of an individual ISI indication exceeds 1/8" (3mm)"?</p>	<p>Response 1: No</p> <p>Response 2: No</p>

1104	21st Sep-13		1104-I-0313-17	<p>Background: I have a question about weld continuity for API weld tests, specifically SMAW 6010 all the way out downward progression on pipe in the 6g position. I see the same welders from utility companies and the city re-certifying every 6 months to the same procedure and qualification. I have been told by a CWI that it is a requirement of the API to recertify no matter how often you weld to that code, which it just simply expires at 6 month intervals. Therefore you must take a practical assessment and weld another coupon.</p> <p>Question 1: Is it the same as other weld standards where within 6 months you can perform a weld to the procedure and qualification and remain certified in that process?</p> <p>Question 2: Is re-certifying every 6 months to the same procedure an API code requirement or is it at the employer's discretion?</p> <p>Question 3: Can we use continuity to remain certified past 6 months?</p>	<p>Response 1: No</p> <p>Response 2: No</p> <p>Response 3: Continuity is not specifically addressed by this Standard.</p>
1104	21st Sep-13	5.4.2.8	1104-I-0314-17	<p>Background: In API 1104, Time between the passes is an essential variable.</p> <p>Question 1: If the time exceeds the maximum limit, is the weld to be cut-out?</p> <p>Question 2: If the time exceeds the maximum limit, can one heat the pipe to certain (preheat) temperature and continue the second pass?</p>	<p>Response 1: This weld would be in violation of 5.4.2.8. The disposition of such welds is not addressed by this Standard.</p> <p>Response 2: No</p>

1104	21st Sep-13	6.2.2	1104-I-0315-17	<p>Background: Section-6.2 (single qualification) a welder who has successfully completed the qualification test described in 6.2.1 shall be qualified within the limits of the essential variables described below. If any of the following essential variables are changed, the welder shall be requalified using an applicable qualified procedure.</p> <p>d) A change from one specified OD group to another.</p> <p>e) A change from one specified wall thickness group to another.</p> <p>A welder was qualified on a 46" dia pipe (greater than 12.750" dia) of wall thickness 0.833" (21.15 mm) i.e. greater than 0.750 inch. The welder has deposited a weld metal thickness of 4.8mm, 19.1mm and more than 19.1 mm i.e. 21.15 mm.</p> <p>Question 1: Can the welder weld any thickness (Since he has covered the highest possible thickness covered in the standard) above 12.750 inch dia pipe or not?</p> <p>Question 2: Or he can weld only 19.1mm wall thickness and above?</p>	<p>Response 1: No</p> <p>Response 2: No, only above 19.1 mm thickness.</p>
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1104	20th Oct-05	Appendix A	1104-I-0316-17	<p>Background: A pipeline construction project requires the use of internal counterboring in order to facilitate the use of automatic GMAW to produce girth welds between two different nominal wall thicknesses of pipe. The heavier wall thickness pipes will be delivered with a pipe end condition having an internal counterbore. The pipe ends of the heavier-wall pipes will match the pipe ends of the lighter-wall pipes in both outside diameter and wall thickness. It is the intent of the project team to quality welding procedures between the heavier-wall pipes with counterbore and the lighter-wall pipes and use Appendix A for the automatic GMAW girth welds. Both heavier-wall and lighter-wall pipes are of the same API 5L grade.</p> <p>Question: Section A.1 of API 1104 Appendix A states “The use of this appendix is restricted to the following conditions – circumferential welds between pipes of equal nominal wall thickness.” Assuming a weld procedure qualification and all applicable mechanical tests are completed per API 1104 20th Edition requirements, is it acceptable to apply Appendix A of API 1104 for the girth welds between the 1.125” WT pipes (internally counterbored to 0.833”WT) and the 0.833” WT pipes?</p>	Response: Yes
1104	20th Oct-05 & 2	Section 10	1104-I-1115-17	<p>Background: For a 48" x 24.1 mm API 5LX70 pipe to Induction bend, there is a qualified welding procedure, (SMAW root to cap); qualified on pipe to Induction bend (X70). After RT, a defect was revealed requiring a full penetration repair. Also, there is qualified repair welding procedure, (GTAW root, HP, fill 1, 2 & 3 - SMAW (fill & cap)).</p> <p>Question: In accordance with the 20th and 21st editions of the standard, does the repair procedure (GTAW + SMAW) qualify a full penetration repair to the original weld (SMAW)?</p>	<p>Response: For API 1104 (20th Edition), Yes, provided the requirements of Section 10.2 have been met.</p> <p>For API 1104 (21st Edition), Yes, provided a full thickness repair welding procedure was properly qualified per Section 10.3.</p>

1104	20th Oct-05	7.3.1.1	1104-I-1116-17	<p>Background: In regard to API 1104, 20th edition Section 7.3.1.1 the penetrometer placement "shall be within 1 inch of the end of the film or image length to be interpreted".</p> <p>Question: Does that mean the wire pack plastic or the actual wire?</p>	<p>Response: There is no API 1104, 20th Edition, Section 7.3.1.1. Section 7.3 in that document does not reference placement of IQI. Therefore, your question cannot be answered.</p>
1104	21st Sep-13	5.1	1104-I-1117-17	<p>Background: In Section 5.1, Procedure Qualification- "Before production welding is started, a detailed welding procedure specification shall be established and qualified to demonstrate that welds with suitable mechanical properties (such as strength, ductility, and hardness) and soundness can be made by the procedure. The quality of the welds shall be determined by destructive testing."</p> <p>Question: Is it correct to use a PQR issued following a previous edition of API 1104 to support a new WPS based on the 21st edition?</p>	<p>Response: This topic is not explicitly addressed in API 1104.</p> <p>NOTE: A PQR must conform to the requirements for the WPS based on the applicable 1104 edition,</p>
1104	21st Sep-13	6.1	1104-I-1118-17	<p>Question: Per API 1104, Section 6.1, does a welder have to perform the entire weld by himself or can the welder perform a weld on half of a pipe for 12" and over (from 0 to 6 o'clock and then test).</p>	<p>Response: Yes, one welder can perform ½ of a circumferential weld as long as the test requirements are satisfied in accordance with API 1104, 21st Edition, Section 6.</p>
1104	21st Sep-13	9.3	1104-I-1119-17	<p>Background: Many CWI Inspectors tell me that the 1104 standard on Porosity is 1/8" and larger is considered a defect. And the 25% rule applies only when two different wall thickness are joined its 25% of the thinnest one.</p> <p>Question 1: Is 1/8" and larger considered a defect?</p> <p>Question 2: Does the 25% rule apply only when two different wall thickness are joined?</p>	<p>Response 1: No, In accordance with API 1104, 21st Edition, Section 9.3.9.2a. an individual pore must exceed 1/8" to be considered a defect.</p> <p>Response 2: No, In accordance with API 1104, 21st Edition, Section 9.3.9.2b the thinner of the two wall thicknesses applies even when both wall thicknesses are the same.</p> <p>NOTE: If the wall thicknesses are the same size, then both are considered equally thin..</p>

1104	20th Oct-05	12.6	1104-I-1120-17	<p>Background: A project requires the welding operator to qualify on the heaviest wall thickness to be used during production. The applicable Code of Construction in this example requires this wall thickness to receive post weld heat treatment. The welding operator is required to qualify by producing an acceptable weld using the qualified welding procedure.</p> <p>Question: Section 12.6 requires each welding operator be qualified producing an acceptable weld using a qualified welding procedure. If the welding procedure has been qualified with Post Weld Heat Treatment (PWHT), will the welding operator's test specimen be subject to PWHT before meeting the requirements of 6.4 through 6.7?</p>	Response: Yes.
1104	21st Sep-13	6.3 & 6.3	1104-I-1121-17	<p>Background: We are making mainline welds with all downhill procedures. The repair procedure is with low-high filler metal..</p> <p>Question 1: Does the welder have to be qualified single or multiple qualifications with our low-high procedure</p> <p>Question 2: Is it ok for him or her to be qualified with the downhill cellulose procure prior to testing to fix repairs?</p>	<p>Response 1: No, the welder does not need to use the low-hydrogen (Group 3) welding procedure. The welder may use any welding procedure to qualify per API 1104 (21st Edition), Sections 6.2 or 6.3, prior to repair welder qualification testing per API 1104 (21st Edition), Section 10.4.</p> <p>Response 2: Yes.</p>
1104	21st Sep-13	3.1.3	1104-I-1122-17	<p>Background: Paragraph 3.1.3 the definition of Branch Weld was modified to read "Completed groove AND/or fillet weld joining a set-on or set-in branch fitting to a run pipe." In paragraph 5.8.1 figure 10 is referenced as joint designs as the joint designs for fillet welds. One of the designs in figure 10 is a branch connection. .</p> <p>Question: Is it the intent of the code to have branch welds qualified using both a groove weld specimen AND a fillet weld specimen to meet the AND portion of the new definition or can a branch connection be qualified using a single fillet weld specimen as outlined in paragraph 5.8.1 and figure 10?</p>	Response: There is not enough detail to effectively respond to this question.

1104	21st Sep-13	11.4.5	1104-I-1123-17	<p>Question: When NDT PAUT Inspections are being performed on new connector forgings to new 5L Line pipe welds, does the PAUT calibration reference standard have to be of the same pipe OD grade and thickness?</p>	<p>Response: Yes, the AUT calibration reference standard requirement, that is cited in API 1104, Section 11.4.5, is to match the pipe OD grade and thickness.</p> <p>NOTE: API 1104, 21st Edition does not recognize the acronym PAUT.</p>
1104	21st Sep-13	B.2.3.1.1	1104-I-0306-18	<p>Question: If the thermal conditions remain same as per PQR, can one use the pipe with higher CE values in PQR? For example, existing pipe in facility has CE as 0.38. The pipe used during PQR has CE as 0.30. If thermal conditions are simulated during PQR, can I use pipe with CE as 0.30 for PQR and use the qualified procedure to weld the pipe with CE as 0.38 or shall I have to procure pipe with CE as 0.38 or more?</p>	<p>Response: No. Refer specifically to API 1104, Section B.2.3.1.1, "A procedure may be used for higher carbon equivalent materials than the material used for production qualification provided that the thermal conditions are less severe than the procedure qualification conditions and no increase in the risk of hydrogen cracking results."</p>
1104	21st Sep-13	10.4.1/10.4.3	1104-I-0307-18	<p>Background 1: 10.4.1. states that the welder shall be qualified according to the requirement of 6.2 or 6.3 in addition to the requirement of section 10. Question 1: 10.4.3. does not indicate limits for the grouping of OD. Does this mean that the grouping of 6.2.2.(d) apply also for repair welder qualification as per 10.4?</p> <p>Background 2: 10.4.3.(b) states that a change in filler metal group (see table 1) constitutes an essential variable and the welder shall be requalified. Question 2: Does this mean that a welder qualified with group 1 filler metal (E6010 or E7010) is not qualified for welding with group 2 filler metal (E8010 or E9010)?</p> <p>Question 3: Is it possible to apply requirements of 6.2.2.(c).?</p>	<p>Response 1. Yes.</p> <p>Response 2. Yes. Refer to 10.4.3(b) where a change in filler metal group is an essential variable.</p> <p>Response 3. No</p>

	21st Sep-13	5.4.2.5	1104-I-0308-18	<p>Background: With respect to WPSs we have the qualified thicknesses grouped in accordance with section 6.2.2 e as suggested in 5.4.2.5. For simplicity I'll call the first group A, the second B, and the third C. We have PQRs to support fillet welds on materials thickness B to thickness B as well as fillet welds on thickness C to thickness C.</p> <p>Question: Are these PQRs sufficient to weld thickness B to thickness C fillet welds?</p>	<p>Response: Yes. A new WPS with the newly defined thickness range supported by either of the two existing PQRs could be written.</p>
	21st Sep-13		1104-I-0309-18	<p>Background: A customer says one cannot reject a HAZ crack in radiography since it is not stated in the API 1104 Standard.</p> <p>Question: Are HAZ cracks acceptable if found with NDE?</p>	<p>Response: No. Section 3.1 refers to AWS A3.0 for definitions. Refer to AWS A3.0 definition of "weld crack" which includes the HAZ.</p>