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Criteria are specified according to weld type and thickness to ensure structural integrity.90%(21)90% found this document useful (21 votes)34K views2 pagesThe document outlines acceptance criteria for welds according to ASME B31.3. Table 341.3.2A lists 15 criteria (A through M) that define acceptable values or limits for various weld imperfect... The ASME B31 Code for Pressure Piping consists of a number of individually published Sections, each an American National Standard, under the direction of ASME Committee B31, Code for Pressure Piping. ASME B31.3 contains requirements for piping typically found in petroleum refineries; chemical, pharmaceutical, textile, paper, semiconductor, and cryogenic plants; and related processing plants and terminals. It covers materials and components, design, fabrication, assembly, erection, examination, inspection, and testing of piping. Intended for manufacturers, users, constructors, designers, and others concerned with the design, fabrication, assembly, erection, examination, inspection, and testing of piping, plus all potential governing entities. Here in this article, we will learn about the NDE procedures for welds in B31.3. The Code ASME B31.3 applies to piping for all fluids including:(1) raw, intermediate, and finished chemicals;(2) petroleum products;(3) gas, steam, air, and water;(4) fluidized solids;(5) refrigerants; and(6) cryogenic fluids. list of sections under ASME B31 Personnel performing nondestructive examination to the requirements of this Code shall be qualified and certified for the method to be utilized following a procedure as described in BPV Code, Section V, Article 1, T-120(e), or (f). For those documents that directly reference this Article for the qualification of NDE personnel, the qualification shall be in accordance with their employer's written practice which must be in accordance with one of the following documents: SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing; or ANSI/ASNT CP-189, ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel National or international central certification programs, such as the ASNT Central Certification Program (ACCP) or ISO 9712:2012-based programs, may be alternatively used to fulfill the training, experience, and examination requirements of the documents listed in (e) as specified in the employ's written practice. The following terms apply to any type of examination: 100% examination: a complete examination of all of a specified kind of item in a designated lot of piping.random examination: a complete examination of a percentage of a specified kind of item in a designated lot of pipingspot examination: a specified partial examination of each of a specified kind of item in a designated lot of piping, e.g., of part of the length of all shop-fabricated welds in a lot of jacketed pipingrandom spot examination: a specified partial examination of a percentage of a specified kind of item in a designated lot of piping. Note: A designated lot is the quantity of piping to be considered in applying the requirements for examination in ASME B31.3. The quantity or extent of a designated lot should be established by agreement between the contracting parties before the start of work. More than one kind of designated lot may be established for different kinds of piping work. Random or spot examination will not ensure a fabrication product of a prescribed quality level throughout. Items not examined in a lot of piping represented by such examination may contain defects that further examination could disclose. Specifically, if all radiographically disclosable weld defects must be eliminated from a lot of piping, 100% radiographic examination must be specified. Visual examination is the observation of the portion of components, joints, and other piping elements that are or can be exposed to view before, during, or after manufacture, fabrication, assembly, erection, examination, or testing. This examination includes verification of Code and engineering design requirements for materials, components, dimensions, joint preparation, alignment, welding, bonding, brazing, bolting, threading, or other joining method, supports, assembly, and erection. Visual examination shall be performed in accordance with the BPV Code, Section V, Article 9 Magnetic particle examination of welds and of components other than castings shall be performed in accordance with BPV Code, Section V, Article 7. Magnetic particle indications are caused by the attraction of the test media to surface or near-surface discontinuities in the area under test. However, all such indications are not necessarily imperfections, since excessive roughness, magnetic permeability variations, etc., may produce non-relevant indications. Inadvertent accumulation of particles not related to magnetic attraction is classified as a false indication. Indications shall be verified as being relevant, nonrelevant, or false. Additional surface preparation and/or other test methods may be used as needed to verify the relevance of an indication. An indication of an imperfection may be larger than the imperfection that causes it; however, the size of the indication is the basis for acceptance evaluation. Only indications that have any dimension greater than 1.5mm (1⁄16 in.) shall be considered relevant. Liquid penetrant examination of welds and of components other than castings shall be performed in accordance with BPV Code, Section V, Article 6. Liquid penetrant indications are caused by the bleed-out of a visible or fluorescent dye from a surface discontinuity in the area under test. However, all such indications are not necessarily imperfections, since excessive roughness, poor surface preparation, etc., may produce non-relevant indications. Inadvertent evidence of penetrant not related to actual bleed-out is classified as a false indication. Indications shall be verified as being relevant, nonrelevant, or false. Additional surface preparation and/or other test methods may be used as needed to verify the relevance of an indication. An indication of an imperfection may be larger than the imperfection that causes it; however, the size of the indication is the basis for acceptance evaluation. Only indications that have any dimension greater than 1.5mm (1⁄16 in.) shall be considered relevant. Radiography of welds and of components other than castings shall be performed in accordance with BPV Code, Section V, Article 2. (a) 100% Radiography. This applies only to girth and miter groove welds and to fabricated branch connection welds comparable to ASME B31.3 Fig. 328.5.4E, unless otherwise specified in the engineering design. (b) Random Radiography. This applies only to girth and miter groove welds. (c) Spot Radiography. This requires a single exposure radiograph in accordance with ASME B31.3 para. 344.5.1 at a point within a specified extent of welding. For girth, miter, and branch groove welds the minimum requirement is for sizes ≤DN 65 (NPS 21⁄2), a single elliptical exposure encompassing the entire weld circumference for sizes >DN 65, the lesser of 25% of the inside circumference or 152 mm (6 in.)For longitudinal welds the minimum requirement is 152 mm (6 in.) of weld length. Ultrasonic examination of welds shall be performed in accordance with BPV Code, Section V, Article 4, except that the alternative specified in (a) and (b) below is permitted for basic calibration blocks specified in BPV Code, Section V, Article 4 T-434.2.1 and T-434.3. (a) When the basic calibration blocks have not received heat treatment in accordance with BPV Code, Section V, Article 4 T-434.1.5, transfer methods shall be used to correlate the responses from the basic calibration block and the component. Transfer is accomplished by noting the difference between responses received from the same reference reflector in the basic calibration block and in the component and correcting for the difference. (b) The reference reflector may be a V-notch (which must subsequently be removed), an angle beam search unit acting as a reflector, or any other reflector that will aid in accomplishing the transfer. (c) When the transfer method is chosen as an alternative, it shall be used, at the minimum (1) for sizes ≤DN50 (NPS 2), once in each 10 welded joints examined (2) for sizes >DN 50 and ≤DN 450 (NPS 18), once in each 1.5 m (5 ft) of welding examined (3) for sizes >DN 450, once for each welded joint examined (d) Each type of material and each size and wall thickness shall be considered separately in applying the transfer method. In addition, the transfer method shall be used at least twice on each type of weld joint. (e) The reference level for monitoring discontinuities shall be modified to reflect the transfer correction when the transfer method is used. Weld quality is essential in industries where process piping transports chemicals, gases, and liquids. The ASME B31.3 standard for process piping sets stringent guidelines to ensure safe and reliable welds. One key component of this standard is the weld acceptance criteria, which provides specific parameters for acceptable weld quality. By following these criteria, industries can avoid costly repairs, ensure operational safety, and maintain regulatory compliance.Introduction to ASME B31.3What is ASME B31.3?ASME B31.3, titled "Process Piping," is a globally recognized standard for designing and inspecting piping systems in various industrial applications. These standards are established by the American Society of Mechanical Engineers (ASME) and address materials, welding, inspection, and testing requirements to ensure piping systems perform safely under specified conditions.Weld Acceptance Criteria ASME B31.3 Process PipingThe weld acceptance criteria in ASME B31.3 define the permissible level of imperfections in welds. Meeting these criteria is vital for the structural integrity and longevity of piping systems, as any flaws or defects can compromise safety, especially under high pressure, temperature, or corrosive conditions. This ensures the process piping can handle the stresses of industrial operations without failure.Weld acceptance criteria are based on quality standards established through thorough inspections. ASME B31.3 outlines different inspection levels based on the piping's service category and the potential hazards involved. Each level demands specific quality and reliability standards to suit the application's risk profile, ensuring safety and efficiency in every piping system.Role of Table 341.3.2A in Weld AcceptanceTable 341.3.2A, titled "Acceptance Criteria for Welds," is an essential reference in ASME B31.3. It provides specific criteria for evaluating welds, detailing acceptable types and extents of defects for various inspection methods, including visual and radiographic inspections. This table is indispensable for quality assurance professionals and inspectors, as it directly informs the inspection process.Table 341.3.2A OverviewExplanation of Acceptance Standards for Visual and Radiographic InspectionsTable 341.3.2A categorizes acceptable weld imperfections and their permissible limits based on inspection methods like visual or radiographic inspection. For instance, visual inspection standards will set allowances for surface imperfections like undercuts or craters, while radiographic inspection focuses on internal flaws like porosity or slag inclusions.Common Defects and Allowable Limits According to Table 341.3.2ATable covers a range of defects, from surface irregularities to internal inclusions. For example:Porosity: Minor porosity is allowed within specific size and frequency limits.Undercuts: Allowed under certain depths, usually specified in millimeters.Incomplete Fusion: Not acceptable in most cases, as it weakens weld integrity. Understanding these specifics helps ensure that weld quality aligns with the necessary safety standards.Surface defects are visible imperfections that can be identified during visual inspection. Table 341.3.2A specifies allowable limits for these, ensuring minor defects do not compromise weld integrity.Cracks, Porosity, and UndercutsCracks are typically not acceptable in any location, as they are likely to propagate under stress.Porosity is generally permissible up to certain levels, provided it does not impact the weld's structural integrity.Undercuts must be within allowable limits for depth and length, as excessive undercutting can lead to weak welds.Subsurface DefectsSubsurface defects, found within the weld metal or heat-affected zone, are typically identified through radiographic or ultrasonic testing.Slag Inclusions, Incomplete Fusion, and OverlapSlag Inclusions are allowed within specific size constraints and frequency. These are trapped particles that can compromise weld strength.Incomplete Fusion is unacceptable as it indicates that parts of the weld have not fully bonded.Overlap can be tolerated within limits, as it may not always impair weld strength, depending on the service category.Inspection Methods for Welds in Process PipingVisual InspectionVisual inspection is the most basic form of weld evaluation. Inspectors assess surface quality, checking for visible defects like cracks or excessive spatter. Although simple, this method is crucial for identifying obvious issues before more complex testing.Radiographic and Ultrasonic TestingRadiographic and ultrasonic testing methods detect internal flaws that are invisible to the naked eye. Radiography uses X-rays to reveal internal irregularities, while ultrasonic testing uses sound waves to detect subsurface defects, offering a non-destructive way to inspect weld quality.Magnetic Particle and Liquid Penetrant TestingMagnetic particle testing is used to detect surface and near-surface discontinuities in ferromagnetic materials, while liquid penetrant testing is versatile and can be applied to non-ferromagnetic materials as well, helping inspectors identify cracks and porosity on the surface.Normal Fluid Service piping usually has moderate requirements for weld acceptance. Minor imperfections, such as limited porosity or surface undercuts, may be allowed provided they don't affect the piping's overall reliability.Category D, Category M, and High-Pressure PipingCategory D requires moderate quality standards due to its use with non-hazardous fluids.Category M demands stringent inspection standards due to its service in toxic or hazardous applications.High-Pressure Piping follows the strictest criteria, where even minor defects can be critical. These pipes often undergo more rigorous testing, such as ultrasonic inspection.Compliance and Quality Control in Process PipingEnsuring Compliance with ASME B31.3 StandardsCompliance is achieved through regular inspections, adherence to Table 341.3.2A, and proper documentation. By implementing ASME B31.3 criteria, companies minimize risks and ensure safe piping installations.Role of Quality Control TeamsQuality control teams are critical, overseeing inspections and maintaining compliance. They ensure that all welds meet ASME B31.3 standards, ultimately preventing issues that could lead to operational hazards.What is the primary focus of ASME B31.3?The ASME B31.3 standard primarily focuses on the safety, design, materials, fabrication, and inspection requirements for process piping, ensuring reliable and secure industrial piping systems.How does Table 341.3.2A impact weld quality?Table 341.3.2A provides clear acceptance criteria for welds, defining allowable limits for various weld defects to ensure that they meet structural and safety standards.What are some common inspection methods in weld acceptance?Common inspection methods include visual inspection, radiographic testing, ultrasonic testing, magnetic particle testing, and liquid penetrant testing. Each technique is suited to identifying different types of weld defects.Why is weld acceptance different for various service categories?Service categories determine the level of risk involved in piping use. High-risk applications, such as toxic or high-pressure systems, require stricter weld acceptance criteria to ensure safety and reliability.How can one ensure compliance with weld acceptance criteria?Compliance can be ensured through regular inspections, following the criteria outlined in Table 341.3.2A, and conducting periodic audits. Proper documentation and quality control practices are also essential in maintaining ASME B31.3 standards.ConclusionIn the high-stakes world of process piping, meeting ASME B31.3 weld acceptance criteria is essential for maintaining safe and reliable systems. By understanding the specific standards laid out in Table 341.3.2A and applying various inspection techniques, industries can ensure that their welds are up to code and capable of withstanding operational demands. Proper adherence to these standards reduces the risk of catastrophic failures, safeguards employees and the environment, and supports consistent operational efficiency. Weld inspection and acceptance criteria are not only about following rules but about upholding the integrity and longevity of crucial piping systems. Assuming you means B31.3, the code actually requires 5% NDT minimum for normal fluid service, which may be radiographic testing or ultrasonic testing. Be aware that for some materials (stainless steel in particular), normal ultrasonic is not kosher due to the dampening of the waves. For these metals, radiographic or phase-array testing are required (unless you have specific "standards" built for that pipe size, thickness, etc, which is typically more expensive for smaller projects than x-ray or phase array). The code only requires a minimum of 5%. It is up to the owner to specify any additional requirements for normal fluid service. There are other requirements in B31.3 (see table 323.2.2 for requirements for avoiding low temperature toughness tests) for cryogenic fluids. I suggest you fully read and understand the relevant sections before you make any determination on the QA/QC of the piping system. If the owner has specified liquid nitrogen as Normal Fluid Service, then 5% as per Code requirements is what it is, yes. Make sure to have a defined co-understanding of what shall be understood to be a designated lot. Huub - You never get what you expect, you only get what you inspect. In ASME B 31.3 "Normal service" is actually everything not covered by either Cat D (non toxic, inert 5 or 10,000 psi High purity - usually reserved for medical and food stuffs High temp - not valid How to determine this - READ THE CODE (I do assume you have a copy of the latest (2018). If not get your employer to buy one - you will find it very useful. Remember - More details = better answers Also: If you get a response it's polite to respond to it. @LI will liquid nitrogen not be below -29 deg C and could a big spill not asphyxiate someone? Steve Jones Corrosion Management Consultant All answers are personal opinions only and are in no way connected with any employer. Cat D is more than -29. Lethal service means a few drops will kill you. Hope I never work with stiff like that. 95% I would reckon is normal service. Remember - More details = better answers Also: If you get a response it's polite to respond to it. Technically lethal service isn't defined under B31.3. If the owner considers something as Cat M, it becomes Cat M. If the owner e.g. considers liquid nitrogen as such, then that is cat M, regardless if a few drops could kill you, or not. Huub - You never get what you expect, you only get what you inspect. It might not "define it", but gives you good guidance. Nitrogen is 79% of what we breathe all day every day so whilst I am aware of its asphyxiating properties I don't think it really comes into the Cat M / lethal service category. IMHO. (b) Category M Fluid Service: a fluid service in which both of the following apply: (1) [highlight #FCE94F]the fluid is so highly toxic that a single exposure to a very small quantity of the fluid,[/highlight] caused by leakage, can produce serious irreversible harm to persons on breathing or bodily contact, even when prompt restorative measures are taken (2) after consideration of piping design, experience, service conditions, and location, the owner determines that the requirements for Normal Fluid Service do not sufficiently provide the leak tightness required to protect personnel from exposure Remember - More details = better answers Also: If you get a response it's polite to respond to it. I agree with LI, it's just that engineers should be aware of this, I think. Ive seen engineers call a fluid or medium cat M, which isn't technically correct. We've had an occasion where something, that we thought of as not being very lethal, was considered cat M fluid service by the owner, and procured by them through us that way. This wasn't something explained easily, let alone the cost impact it had on the project. Huub - You never get what you expect, you only get what you inspect. I think maybe someone doesn't realise that in the snip above, BOTH a and b need to apply. It's called "Reading the Code" and sadly many people don't even have a copy of it never mind read it.... Remember - More details = better answers Also: If you get a response it's polite to respond to it. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 16:57 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). 1. It must be linear indication 2. The indication level must be above reference level 3. Comply with Rejectable length. First of all, where does it state in ASME B31.3 that an indication has to be linear to be rejected? If you have Lack of Fusion or a crack or Lack of Penetration, it is rejected anyway, regardless of length. If you don't reject it, you're not doing your job. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 17:03 In Reply to Ed T. at 16:57 Jul-12-2012 . The Acceptance criteria you quoted is for slag incusions. LOP, LOF ad cracks are all rejectable. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 18:51 In Reply to Ed T. at 17:03 Jul-12-2012 . Sanjay You are correct. The other replys may be misking the code for B31.1 or posibly the RT acceptance in B31.1. In any case 341.3.2 (acceptance criteria) states Ut acceptance will be 344.6.2. Normal fluid service states Ut will be 344.6 as does Server cyclic and Category M. So as long as it is metal pipe in a pressure class below 2500#, the UT acceptance criteria for B31.3 is as you stated, 344.6.2. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 19:03 In Reply to Bill at 18:51 Jul-12-2012 . Bill, I am not mistaken. B31.3 does not permit Inomplete Fusion, cracks or Incompete Penetration. Nobody mentioned B31.1. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 19:24 In Reply to Ed T. at 19:03 Jul-12-2012 . Ed T. Just words, please state your referance. I stated mine, 341.3.4 (Acceptance criteria), 341.4.3 (b)(1) (normal fluid service), 341.4.3(b) (severe cyclic), M344 (Category M),as did Sanjay in the original question, read it for your self. My real hope is that Sanjay is working to an approved procedure that state exactly what his acceptance criteria is. Re: ASME B31.3 ACCEPTANCE CRITERIA12 Jul 2012, 20:20 In Reply to Bill at 19:24 Jul-12-2012 . Well he didn't say if it was normal, sever cyclic or Cat M. That makes a big difference. I'm looking at the same refernce as you. Re: ASME B31.3 ACCEPTANCE CRITERIA13 Jul 2012, 07:27 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). Does B31.3 allow UT examination with material 5,5mm thick? (RT I would have thought), also, Sanjay can you really determine a lack of fusion defect in 4mm length indication? Re: ASME B31.3 ACCEPTANCE CRITERIA13 Jul 2012, 08:29 In Reply to Jon Wallis at 07:27 Jul-13-2012 . Dear All, In a first place my reference point is 341.3.3. My understanding of below statement is I need refer to 344.6.2 for ultrasonic examination for welds and elsewhere in the code. The 344.6.2 only mention about linear type indication is unacceptable and how about indication like porosity. When I refer to my Level 3, his answer is I need to refer table 341.3.2 normal and category M fluid service and the examination method should be RT. According to him we are doing UT in lieu of RT and that's the reason we need to refer RT column. When refer to table 341.3.2-RT normal and category fluid service it is reject. This gave us confusion and we are just following whatever stated in the procedure. Dear ED, Please refer my first mail and I copy and paste ASME B31.3 acceptance criteria stated that a linear-type discontinuity is unacceptable if the amplitude of the indication exceeds the reference level and its length exceeds. If according to 344.6.2 the indication is acceptable and if refer to Table 341.3.2 its reject. Please correct me if I am wrong. Dear Bill, What you said is true. I am working to an approved procedure that state exactly what his acceptance criteria is. Dear Jon, As per my understanding, there is no thickness limitation given by ASME B31.3 for UT examination. If you refer to 344.6.2 it's stated that 6mm length linear indication unacceptable for below 19mm thickness. Appreciated if you could provide me section at ASME B31.3 for thickness limitation for UT. In a first place we perform phased array on the pipe and crosscheck with UT for our reference. After we post-processing our C-Scan view we found that the length is almost 4mm. Sanjay Nath Re: ASME B31.3 ACCEPTANCE CRITERIA13 Jul 2012, 09:30 In Reply to Sanjay Nath at 08:29 Jul-13-2012 . I admit that my version of B31.3 is from 2002 and maybe a later revision says different, but isn't UT method is according to ASME V? If this is the case, isn't the minimum thickness 8mm? Apologies Sanjay if I am out of date with ASME / B31.3. What I meant with my other comment was not to doubt the measured length but to question the interpretation of LOF in an indication 4mm long. In other words, how do you know it's LOF and not a wormhole for instance? Re: ASME B31.3 ACCEPTANCE CRITERIA13 Jul 2012, 11:15 In Reply to Jon Wallis at 09:30 Jul-13-2012 . Dear Jon, We are using Omniscan MX2 which come with overlay (Bevel Configuration drawing) and able to pick up the inidication at full skip distance at one side only. Is it possible for you to let me know which part of ASME SEC V stated minimum thickness for UT is 8mm ? Maybe i can go thorugh ASME SEC V and it can be a good reference for me too. Appreciated your kind help. Sanjay Re: ASME B31.3 ACCEPTANCE CRITERIA18 Jul 2012, 07:53 In Reply to Sanjay at 11:15 Jul-13-2012 . Dear All, Kindly advice me and i still havent get any answers for my questions. Sanjay Nath Re: ASME B31.3 ACCEPTANCE CRITERIA18 Jul 2012, 12:36 In Reply to Sanjay Nath at 07:53 Jul-18-2012 . I already told you.f it's Incomplete Fusion, Incomplete Penetration or a crack in accordance with B31.3, it is unacceptable regardless of length. Re: ASME B31.3 ACCEPTANCE CRITERIA17 Jan 2013, 03:14 In Reply to Sanjay Nath at 07:53 Jul-18-2012 . Table 341.3.2 of B31.3 (2010) gives the acceptance criteria for VI, RT, MT & PT With regard to where UT is applied in lieu of RT, Table 341.3.2 note (a) states "Weld imperfections are evaluated by one or more of the types of examination methods given, as specified in paras 341.4.1 etc." The "one or more" includes UT. This seems to imply that for Linear indications that 344.6.2 is the acceptance criteria and that for all other indications that Table 341.3.2 applies. Re: ASME B31.3 ACCEPTANCE CRITERIA26 Jan 2013, 10:50 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). what is acceptance criteria for overlap as per asme b31.3 Re: ASME B31.3 ACCEPTANCE CRITERIA28 Jan 2013, 21:59 In Reply to azmath at 10:50 Jan-26-2013 . It is section 341.3.2 Re: ASME B31.3 ACCEPTANCE CRITERIA29 Jan 2013, 07:15 In Reply to michael cunningham at 21:59 Jan-28-2013 . At the risk of opening a very large can of worms, Sanjay is quoting the correct part of B31.3, (344.6.2) quoting from 341 is trying to enforce a RT acceptance on a UT acceptance! so Sanjay the real answer is exactly as the code says, any linear indication regardless of its type is rejectable if it exceeds the length parameter for thickness range if it exceeds the reference amplitude. Extract from B31.3 2010 below 344.6.2 Acceptance Criteria. A linear-type discontinuity is unacceptable if the amplitude of the indication exceeds the reference level and its length exceeds (a) 6 mm (1⁄4 in.) for Tw ≤ 19 mm (3⁄4 in.) (b) Tw/3 for 19 mm < Tw ≤ 57 mm (21⁄4 in.) (c) 19 mm for Tw > 57 mm Please note, I personaaly believe that this is a poor acceptace method as there is no consideration for discontinuity type. I mean how many cracks have you left in lately! Collin Re: ASME B31.3 ACCEPTANCE CRITERIA14 May 2013, 08:22 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). Dear sanjay, Can you tell me the acc criteria for RT UT MPT & LPT In ASME standard . pls send me on my email id swapnil Re: ASME B31.3 ACCEPTANCE CRITERIA04 Sep 2013, 18:58 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). Interesting discussion, however no consensus of agreement. I am currently having this discussion on applying PAUT on B31.3 NFS piping. Impossible for me to believe that the intent of the Code is to allow 6mm Cracks and Lack of Fusion to remain in place, where RT rejects them. Re: ASME B31.3 ACCEPTANCE CRITERIA05 Sep 2013, 17:38 In Reply to Steven Doc at 18:58 Sep-04-2013 . It's not interesting; it's hysterical on one hand and tragic on the other. Even when references are provided nonsensical conjecture continues to litter the landscape. As to what you do or don't find possible to believe, and I mean this I the most academic of ways, it does not matter because that IS what's written. Should you struggle with that statement you need only look to the rest of ASME for acceptance criteria's that care not what a defects is, rather reject based on size. There are no less than 5 (ref: cc181, cc2235, cc189, Sec 8 div 2, Sec 8 div 3). Now what is interesting is that B31.3 UT criteria fits neither the fracture mechanics nor workmanship definitions given in Art 4, rather sits somewhere in-between. However one could postulate that the amplitude requirement is the 'height' corollary and that would seem to make sense, if not fitting the definition of FM exactly. Or maybe I'm just having a stroke, and I'm the one that's tragic. You be the judge. Re: ASME B31.3 ACCEPTANCE CRITERIA06 Sep 2013, 22:43 In Reply to bill at 17:38 Sep-05-2013 . "It's not interesting; it's hysterical on one hand and tragic on the other. Even when references are provided nonsensical conjecture continues to litter the landscape." "Or maybe I'm just having a stroke, and I'm the one that's tragic. You be the judge." These phrases border on the offensive and have no place in a technical discussion. Re: ASME B31.3 ACCEPTANCE CRITERIA07 Sep 2013, 13:47 In Reply to bill at 17:38 Sep-05-2013 . Bill, I think you are on the right track. The comments expressing "concern" that cracks and LoF are allowed seem to be missing a few points. Most importantly is the OPTION to use an alternative acceptance criteria as described in CC181-2. This option is based on a Tier 2 acceptance criterion (i.e. assumes a worst case fracture toughness for all the approved materials in ASME). It also assumes that all flaws are cracks (i.e. have very small tip radii). It is a reasonable approach for thicker dimensions but tends to over estimate on thin wall (probably why the change from Code Case 181-1 to Code Case 181-2). As for the flaw characterisation issue, this has always been a problem for NDT. In a recent study (PANI3) it was interesting to see that less than 50% of the characterisations were correct and these characterisations were all made by "qualified" PCN Level 2 UT operators. The people whining about the code permitting specific flaws are perhaps unaware of the intent of the workmanship acceptance criteria. It is to identify process problems...it is NOT intended to assure fitness for purpose! When a fitness for purpose approach is used it really does not matter what type of flaw it is, it is treated as equivalent to a crack and even cracks can be "tolerated" if the service conditions to not exceed the stated safety margins. Re: ASME B31.3 ACCEPTANCE CRITERIA09 Sep 2013, 14:56 In Reply to Ed Ginzel at 13:47 Sep-07-2013 . Ed Forum members expressing their opinion on technical matters is not "whining" in my opinion. I hope this is an isolated aberration on your part. Whats your view on acceptance for transverse flaws as required by ASME V Article 4 para T-472 Distance Amplitude Technique, T-472.1.3. Reflectors transverse to the weld. Does the >6mm, >100% DAC before rejection apply to these as well? Re: ASME B31.3 ACCEPTANCE CRITERIA10 Sep 2013, 03:12 In Reply to Nigel Armstrong at 14:56 Sep-09-2013 . Nigel, this thread goes back a long way (July 2012) but the situation seems to have gone off the tracks in January of 2013 when, after correctly identifying the details of acceptance criteria in Parqa. 344.6.2, the comment was made that inferred cracks were allowed. This from the misinterpretation of a "linear-type" indication. The response seemed to suggest that a crack was no to be interpreted as a linear-type indication. Much later in the year a comment was posted (Sept 2013) "Impossible for me to believe that the intent of the Code is to allow 6mm Cracks and Lack of Fusion to remain in place, where RT rejects them"...this also made no connection to the details of the Code paragraph quoted. Then a new post moves on to the use of "hysterical", "tragic" and "having a stroke" and the examples of fracture-mechanics-based acceptance criteria from ASME were quoted. Using an old thread to raise unrelated issues and then inserting incorrect statements (opinions) with disparaging and simply incorrect remarks about code requirements is, in my humble opinion, whining. As for "acceptance for transverse flaws as required by ASME V Article 4 para T-472 Distance Amplitude Technique, T-472.1.3" I think you need to be more specific. ASME V does not have acceptance criteria, it merely describes how the inspection is carried out. Flaws that are detected having a transverse nature can be of several types. There are provisions in the "referencing Code Sections" as to how to deal with these. My concern for the reliability of operator characterisation still remains. Re: ASME B31.3 ACCEPTANCE CRITERIA11 Sep 2013, 17:11 In Reply to Ed Ginzel at 03:12 Sep-10-2013 . "ASME V does not have acceptance criteria" - yes I realise that Ed, viz last sentence And I am surprised by how far you veer far off your usual high standard of impartiality and sanguinity with your following comment: "Using an old thread to raise unrelated issues and then inserting incorrect statements (opinions) with disparaging and simply incorrect remarks about code requirements is, in my humble opinion, whining."the thread heading is ASME B31.3 Acceptance Criteria. The thread heading is ASME B31.3 Acceptance Criteria. Never mind - we all have off days! Re: ASME B31.3 ACCEPTANCE CRITERIA13 Sep 2013, 00:39 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). hi Sanjay in my opinion, i work whit this criterial aroun 4 years ago, and for me is clear, the diference between UT and RT criterial is based on POD of each technique, so if you catch a lack of fusion whit RT is because you don´t catch around 2 o3 more. but if you used UT you have aroud 80% to catch all lack of fusions. so if you ask me if i accepted this indication, i allways say yes and im sure that if you want to make a correlation whit RT you didn´s see anything. the criterial are different beacuas tha techniques have diferent way to catch the indicacions. Luis Montoya Re: ASME B31.3 ACCEPTANCE CRITERIA13 Sep 2013, 16:30 In Reply to Luis Montoya at 00:39 Sep-13-2013 . Luis The method of imaging the defect may change how the defect is perceived, but it will not change the defect itself. If modern imaging equipment and software cannot provide us with sufficient information to match the capabilities of radiographic film then it has made no real advances and the equipment manufacturers are misleading us. I don't believe this to be true. Now we have digital UT Phased Array systems with advanced imaging software offering numerous views and we still say the method is incapable of categorising a defect 6mm or less length! I'm sure that PA equipment manufacturers make different claims. Modern PA imaging systems (and TOFD) in the hands of well-trained and experienced personnel are quite capable of detecting, positioning, sizing and categorising accurately defects 6mm and less. To resort to selecting one phrase from the Code (which is perhaps based on the perceived capabilities of a good technician operating a manual UT system) whilst neglecting what is unambiguously stated previously is a calumny. Re: ASME B31.3 ACCEPTANCE CRITERIA13 Sep 2013, 23:21 In Reply to Nigel Armstrong at 16:30 Sep-13-2013 . Hello Nigel I believe there was a problem with my English, as it seems my comment was misunderstood and I actually agree with your position that "The method of imaging the defect may change how the defect is perceived, but it will not change the defect itself". Let me attempt to explain myself better. I have been working with PA+TOFD inspection for the last 4 years, using the criteria stated in ASME B31.3. Every UT inspector has to live with the very inconvenient and inaccurate comparison to RT. For me and my coworkers it is clear that it is much more difficult to detect a 6mm-LoF with RT. Whenever we have had to validate a UT system against RT results, we have always seen that PA+TOFD detects many more indications than those shown in the radiography film. If the acceptance criteria used for PA UT were the same as the one used for RT, the rejection rate would be too high. I hope I have clarified my point of view a little. I maintain that due to the manner in which the information is acquired the criteria should not be the same for UT and RT; at least until people without a lot of NDT knowledge understand that UT has greater visualization and sensibility capabilities than those of RT. It is always very interesting to participate in these forums, there is always something to learn from the experience of others. I apologize again for my English in the previous post. Luis Montoya and patricia Salas Re: ASME B31.3 ACCEPTANCE CRITERIA15 Sep 2013, 14:56 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). [zoom] ASME B31.3 Acceptancedear sanjay ASME B31.3-2010 clearly describe general acceptance criteria Table K341.3.2 and for High pressure Piping in Table K341.3.2 LOF are categorized in Class A & extent of imperfection= zero Re: ASME B31.3 ACCEPTANCE CRITERIA15 Sep 2013, 15:07 In Reply to Sanjay Nath at 09:06 Jul-11-2012 (Opening). [zoom] for information Re: ASME B31.3 ACCEPTANCE CRITERIA15 Sep 2013, 19:17 In Reply to ali yousefi at 14:56 Sep-15-2013 . Table 431.3.2 is not applicable if UT method is used, this is a common error / misconception. My question is with the UT acceptance... as per 344.6.2, if a LINEAR indication is unacceptable if greater than reference or longer than 6mm - all fine and dandy... but what about volumetric defects? or (the unlikely event of) thru wall defects 5mm long? Re: ASME B31.3 ACCEPTANCE CRITERIA16 Sep 2013, 13:00 In Reply to Robert Howland at 19:17 Sep-15-2013 . [zoom] [zoom] Robert Ultrasonic method was added in version 2010 Table K341.3.2 344.6 paragraphs describe UT and some of acceptance. But the acceptance criteria for each separate section referred to 341.3.2. Re: ASME B31.3 ACCEPTANCE CRITERIA16 Sep 2013, 17:03 In Reply to ali yousefi at 13:00 Sep-16-2013 . I was not referencing sever cyclic, or elevated temperature conditions... under normal service, Para 344.6.2 applies, but makes no reference to volumetric defects only "linear". Not big big deal, business as usual. Re: ASME B31.3 ACCEPTANCE CRITERIA16 Sep 2013, 23:41 In Reply to ali yousefi at 13:00 Sep-16-2013 . Incorrect. First your not reading from the latest edition. Second you fail to read the complete paragraphs you quote which do in fact give further requirements. If you did you would see your mistake (see 341.4.3 (b) and 341.4.4 (b) for the volumetric examination requirements of severe cyclic and elevated temp respectively. You will see they both send you to 344.6 for UT). Lastly I'm lost as to why you would post reference to "K" which is high pressure piping, and incomplete I might add (this thread is about welds), then repost a reply to Robert Howland with incomplete and outdated quotes of elevated temp and sever cyclic. May I respectfully suggested you continue reading the paragraphs you quoted. So let's try this one more time. Excluding non metallic and high purity chapters there are 6 basic categories of piping in B31.3. All of them except 2 requires 344.6 for the volumetric examination of welds. The 2 that don't are Cat D and high pressure. High pressure (above 2500lb class) requires section 8 div 3, and Cat D has no volumetric requirement at all. In other words if you are inspecting a weld to b31.3 for any service sans cat D and high pressure than 344.6.2 is the acceptance period. Table 341.3.2 only apply for NDT other than UT. If you look at the table you will see under "methods" UT in NOT listed. When reading the UT acceptance criteria you will see that it states that the indication must be greater than reference amplitude and be greater in length than what's listed based on the thickness of the weld. Both of these criteria's must be satisfied. This criteria applies for all defects detected by UT irrespective of what is, including traverse defects. Lastly the term " linear type discontinuity" is how the paragraph starts. This statement seams to cause confusion to some. It does not mean planar (i.e. 2 dimensional as in LOF). It only means to happen in a line. Slag is volumetric but often can happen in a line, hence the common term Slag line. LOP is volumetric but can happen in a line. You get the point I'm sure. Just remember linear does not mean 2 dimensional vs 3 dimensional defects and the criteria applies to all defect types the same. References: Normal service- 341.4.1 (b) Category D-341.4.2 Severe cyclic - 341.4.3 (b) Elevated temp - 341.4.4 (b) (1) Category M - M341.4 (b) (1) High pressure - K341.4.2 and K344.6.3 Definition of planar and linear - NDT lexicon Re: ASME B31.3 ACCEPTANCE CRITERIA17 Sep 2013, 01:51 In Reply to bill at 23:41 Sep-16-2013 . Indeed... i think we all agree the code needs some updates. After all, as its currently written, you could technically drill a 5mm Dia hole through the weld, and its still acceptable to UT. Re: ASME B31.3 ACCEPTANCE CRITERIA17 Sep 2013, 15:34 In Reply to bill at 23:41 Sep-16-2013 . [zoom] [zoom] First: linear type indication is not planar defect. Refer to definition: Indication, linear: in magnetic particle, liquid penetrant, or similar examination, a closed surface area marking or denoting a discontinuity requiring evaluation, whose longest dimension is at least three times the width of the indication. Second: in 341.3 Examination Requirements have 3 factors for minimum Requirements 1: a & b ("a" clearly referred to 341.3.2 without exception) 2: 344.6.2 (344.6.2 is part of minimum requirement) 3: elsew

with you about welders knowing if tests will be carried and changing behaviour. A welder said to me after a failed test, "why didn't tell me you were going to test it" CobusvanJ, Most likely you are using a MSS-SP-97 8" x 1" XS branch fitting to weld to the NPS8 80 sch pipe. Now the weld on the run pipe with this fitting is always a butt weld regardless of the outlet connection, that can be butt weld, socket weld or threaded. The outlet connection will most likely be a socket weld for the service condition stated (usually they keep SW upto 1-1/2" size for ease of welding for small bore pipes). If that is the case, both the butt-weld and the SW can be RTed. ASME B31.3 don't specify which weld to NDT and which not. It is usually, the AI who will do that job. In-process examination is allowed by the AI under specific circumstances. Ganga D. Deka, P. Eng Canada KevinNZ (Mechanical)13 Feb 18 19:56 We use B31.1 for piping and this code allows service leak test with just VT. This frustrates the inspections who are expecting 10% RT and hydro tests. Clients who know what they want add extra inspection and testing to the contract specifications. Note 10% NDT inspection misses 90% of the defects. Kevin, B31.1 is not only a different code than B31.3, but also has a different requirements for radiographic examination and even a different acceptance criteria. In B31.1 piping 100% RT required at higher temperatures and pressures. Simply adding 5% or 10% RT for low temperature and low pressure B31.1 piping without additional agreement on how to deal with "defective welds" (which didn't pass B31.1 acceptance criteria) and welders who made those welds may cause unintended consequences. See below a link to an article about random radiography: For info, B31.3 allows service tests on Category D Fluids, the simplest of all fluids. Examples are utility water and air lines in a plant where there is no risk if we find few leaks during the test. Ganga D. Deka, P. Eng Canada I agree with Curtis's comments. If the client decides they want additional volumetric NDT (which is well within their right) for low pressure or low temperature applications do they provide a separate acceptance criteria ? If not, the B31.1 acceptance criteria for volumetric NDT is based on high temp and/or high pressure so would not be applicable to low temp and/or low pressure.(could therefore make significant cost implications for somebody) I also find it hard to understand this comment " This frustrates the inspections who are expecting 10% RT and hydro tests" Who is it you are actually frustrating ? Regards, Shane Re: ASME B 31.3 Acceptance criteria21 Jul 2015, 14:16 In Reply to Mathew at 11:31 Jul-21-2015 (Opening). My take is 38/150 mm x 100. If the weld length is only 35 mm, then the acceptance criteria should be the percentage of 38/150 Re: ASME B 31.3 Acceptance criteria21 Jul 2015, 18:57 In Reply to Mathew at 11:31 Jul-21-2015 (Opening). Not for me, this is a very small weld length, you should hire a good welder and reject this joint. Regards Re: ASME B 31.3 Acceptance criteria22 Jul 2015, 08:35 In Reply to Mathew at 11:31 Jul-21-2015 (Opening). Mathew. ASME B31.3 / Edit. 2014, Table 341.3.2 accepts: incompleta penetration of length 38 mm (1.5 in.) in any 150 mm (6 in.) weld length or 25% of total weld length, whichever is less. Then and your casé (Weld length 35 mm) you should accept up to 8,75 mm of incompleta penetration Re: ASME B 31.3 Acceptance criteria22 Jul 2015, 13:01 In Reply to Diego at 08:35 Jul-22-2015 . Totally agree with Diego Re: ASME B 31.3 Acceptance criteria22 Jul 2015, 13:19 In Reply to Diego at 08:35 Jul-22-2015 . But where in the code says 25% of the weld length? Re: ASME B 31.3 Acceptance criteria22 Jul 2015, 18:07 In Reply to Mathew at 13:19 Jul-22-2015 . Mathew. See you "Criterion Value Notes for Table 341.3.2", column "Acceptable Value Limits" for symbols "B" and "C" Re: ASME B 31.3 Acceptance criteria04 May 2022, 03:09 In Reply to Diego at 08:35 Jul-22-2015 . What does that weld length means? Circumference of weld or? The area of interest in film? Re: ASME B 31.3 Acceptance criteria04 May 2022, 07:55 In Reply to Kartik at 03:09 May-04-2022 . Конечно речь идёт о всей длине шва. Re: ASME B 31.3 Acceptance criteria16 May 2022, 03:05 In Reply to Kartik at 03:09 May-04-2022 . If the film shows a minimum of 150 mm of weld then it is a maximum of 38 mm in that 150 mm section of weld. If you have small bore piping the circumference may be less than 150 mm so the maximum allowed is 25% of that circumference SponsoredHamamatsu offers a full line of high-precision X-ray sources and detectors for X-ray inspection of... electronic components and industrial products; as well as for a wide range of applications, such as automotive inspection, aerospace / space, 3D metal printing and industrial CT. We also offer low energy X-ray sources to meet needs in food processing and packaging.➤Hamamatsu Photonics Europe GmBHProduct SpotlightRepresenting the seventh generation of the IRIS system, the IRIS 9000 Plus has nearly 200 years of c...ombined field inspection experience incorporated in its design. This experience combined with a strong commitment to quality and a history of innovation has made Iris Inspection Services® the undisputed leader in IRIS technology.➤Iris Inspection Services, Inc.An Intrinsically Safe Ex gauge, designed for taking reliable thickness measurements in all hazardo...us gas Zones (0, 1 & 2), coal mines and combustible dust Zones (21, 22). The Cygnus 1 Ex Ultrasonic Thickness Gauge is a rugged, handheld, intrinsically safe instrument designed for taking reliable thickness measurements in Zone 0 Explosive Atmospheres – making it ideal for use in fuel depots, road and vessel tankers, mines, chemical plants, oil and gas, refineries, pipelines, hazardous storage tanks and other hazardous environments. This intrinsically Safe UTG is also certified for safe use in combustible dust Zones (21, 22), such as flour mills, sugar plants, and wood manufacturing.➤Replacing film where rigid panels are not enough. Specifically designed for pipe- weld inspection, ...this cutting-edge technology is optimized for large pipe welds and sector imaging, providing unparalleled versatility in industrial applications. The sensor’s thin and flexible body redefines DR inspection possibilities, allowing it toadapt seamlessly to various pipes.➤The module addresses the general understanding of mechanical phenomena to be considered in NDT. Th...is mainly includes the physics of waves in general, sound and vibration based on mechanical waves in the terms of vibration modes, guided waves and acoustic bulk waves as well as the determination of stresses and strains, fatigue and fracture in materials and components.➤NDT Master Programme (M.Sc.) Re: Asme b31.1 acceptance criteria for undercut for radiography24 Apr 2013, 04:15 In Reply to Gorge at 03:58 Apr-24-2013 (Opening). Sorry it should read, would internal or external undercut Be classified as elongated indication? only allowed 6mm for thickness up to 3/4"? Also, if undercut is present but not very dark but greater than 6 mm Would this be a repair since it greater than 6mm? Thank you Re: Asme b31.1 acceptance criteria for undercut for radiography24 Apr 2013, 15:41 In Reply to Gorge at 04:15 Apr-24-2013 . Hello Gorge, I do believe external undercutting would typically be addressed by visual inspection criteria. Internal undercutting at the root would be considered an "elongated" indication unless specifically addressed otherwise. Re: Asme b31.1 acceptance criteria for undercut for radiography25 Apr 2013, 07:47 In Reply to Gorge at 04:15 Apr-24-2013 . This is a very valid question. More people should give their opinion on this question. Re: Asme b31.1 acceptance criteria for undercut for radiography26 Apr 2013, 06:05 In Reply to rishikesh at 07:47 Apr-25-2013 . Yes I think it is a good question would like to hear some more feedback If possible. Thanks for input Re: Asme b31.1 acceptance criteria for undercut for radiography26 Apr 2013, 08:51 In Reply to George at 06:05 Apr-26-2013 . I personally think its a judgment call. It usually falls under a visual acceptance criteria. I think they are referring to other indications such as slag and elongated porosity. Those are considered volumetric indications and not planar like Cracks and IF. With the exception of API-1104, most codes reject undercut strictly on depth and not length. You can have undercut 360 degrees as long as its depth doesn't exceed the acceptance criteria. Re: Asme b31.1 acceptance criteria for undercut for radiography26 Apr 2013, 10:23 In Reply to Ed T. at 08:51 Apr-26-2013 . "I personally think its a judgment call. It usually falls under a visual acceptance criteria." The welds are offered for RT after visual examination, but still if some surface indications like under cuts are appearing on the radiographic image then can we simply ignore them keeping in mind that these indications must have been accepted in visual? Re: Asme b31.1 acceptance criteria for undercut for radiography26 Apr 2013, 13:36 In Reply to Gorge at 04:15 Apr-24-2013 . Okay, first of all visual exam is only applicable with the ID of the pipe is accessable... Unless you use a fiberscope. But any quality program worth its salt has visual exam performed prior to any NDE especialy X-Ray. You don't want to pay for X-Ray twice over something simple like external undercut. If the undercut is missed by the visual inspector, you can take two routs... 1) Ask that the visual be redone and that the undercut is measured with a pic gauge to see if the depth is an issue. 2) Reject it as a liniar indicaiton on the radiograph regardless, if the density difference is significant enough to cause doubt on the radiograph you have to call it a rejectable liniar indication. ASME B31.1: 136.4.5 (A.1) "Any type of crack or zone of incomplete fusion or penetration" 136.4.5 (A.2) "Any other type of elongated indication which has a lengh greater than:" There is a debate weather undercut is classified as incomplete fusion or penetration or if its an elongated indiation. HOWEVER eather way you classify it... Its still rejectable. Pick one and stick to your guns. I presume you don't want to sign off on a weld with excessive internal under cut... Re: Asme b31.1 acceptance criteria for undercut for radiography27 Apr 2013, 16:38 In Reply to WiJay C. Heinemann at 13:36 Apr-26-2013 . Making judgments on the density difference of radiographs to accept or reject undercut is subjective and not good practice. The density difference with x-ray will be greater than with gamma, how would you allow for this? Most codes accept or reject welds based on depth of undercut as required by the visual criteria. European norms generally reject on depth and whether there is no sharp change of section. It is usually not possible to make a visual examination on the ID of pipe welds and the radiograph may be the only way of 'seeing' inside the pipe. These points should all be covered in the procedure. Re: Asme b31.1 acceptance criteria for undercut for radiography27 Apr 2013, 20:42 In Reply to Jon Wallis at 16:38 Apr-27-2013 . Asme b31.1 does not specify undercut, and only address 1mm deep for visual. In the radiographic acceptance criteria it says any other elongated indication, this being said undercut Is elongated and technically would be govern under this clause. It is the internal undercut we're my main concern was at which could not be visual tested. My interpretation is you could not be allowed more than 6 mm for pipe up to 3/4. " thick in accordance to this code. Re: Asme b31.1 acceptance criteria for undercut for radiography28 Apr 2013, 17:55 In Reply to George at 20:42 Apr-27-2013 . JON, Do you know what density is? Re: Asme b31.1 acceptance criteria for undercut for radiography18 Feb 2014, 04:24 In Reply to WiJay Heinemann at 17:55 Apr-28-2013 . The ASME interpretations do talk about undercut and there are several questions that ask if undercut can be considered anything else - ie Incomplete penetration, Incomplete Fusion, etc. - The common answer is that Undercut is only classified as Undercut and is non-relevant by other NDT methods unless it exceeds the visual undercut depth criteria. I would take this to mean that calling it an elongated indication doesn't meet the intent of the code. It still seems grey to me as you cannot always determine the validity of an internal undercut call from a 2d Xray image or the external depth even when using an undercut shim. I would like to see it specifically addressed by the code committees for sizing or accepting undercut that cannot or have not been determined visually. Re: Asme b31.1 acceptance criteria for undercut for radiography18 Feb 2014, 20:05 In Reply to Adam Stasuk at 04:24 Feb-18-2014 . Adam I think you need to revisit Sec. V & VIII, in regards to the detection and acceptance of undercutting. Visual inspection is the bare minimum NDT method to be applied to a weld made under the ASME codes, if this is all that is required, and the weld(s) in question meet the Visual requirements it could be considered acceptable. If the same weld is to be subject to other NDT methods, it shall meet the requirements related to the other method(s). No where have I read that you can ignore an elongated indication if you classify it as undercut. You can not apply the acceptance requirements for one method to the examination of another method. ASME table A-110 shows undercut as a volumetric imperfection detectable by RT under all or most conditions. Re: Asme b31.1 acceptance criteria for undercut for radiography20 Feb 2014, 01:40 In Reply to Brian Belanger at 20:05 Feb-18-2014 . Hi Brian, I am not arguing detection of undercut by RT, if that is what you are reffering to by ASME V A-110, but rather the evaluation or acceptability when it is detected by RT. ASME VIII is pretty clear on a conflict between RT and Visual for undercut See UW-35 and Yes, Visual measurement supercedes the RT. B31.3 also does not include undercut in with the elongated indication ratings as they are two seperate items for evaluation by RT according to ASME. B31.3 also requires a depth measurement for undercut found by RT whereas for an elongated indication it has a maximum length for T before determining acceptability so ASME does not consider them one in the same for that code. ASME does not usually mix terms for defect descriptions and they have discussed this several times since the early 1980s with the code commitee meetings. I would suggest following the ASME code committee interpretations for precedence. Re: Asme b31.1 acceptance criteria for undercut for radiography21 Feb 2014, 16:52 In Reply to Adam Stasuk at 01:40 Feb-20-2014 . Hi Adam, Sorry for the delay was extremely busy yesterday, and yes I agree UW35 can trump a RT indication of undercut in some circumstances, although it doesn't allow for much, (10% of wall thickness to a maximum of 0.03175"). I have accepted, after ensuring all the conditions were met, radiographically determined external undercut on the basis of UW35 on a couple of occasions, but on these occasions the image of the undercutting was in a location on the radiograph where it could not mask, or readily be confused with another imperfection(EUC on a single sided weld). But when you have an indication from undercutting along the root of a single sided weld, or along the narrower cap of a doubled sided weld whereas the indication appears right in the midst of the weld corrective actions must be taken. As for ASME interpretations, I am not aware of, or have I been able to find anything that says "Any other elongated indication" doesn't include undercutting. I haven't seen the 2013 Section VIII yet, but as of the 2010 edition there has been no changes that would affect this. As for B31.3 it is essentially the same as Section VIII, except for an elongated indication, you are allowed two times the wall thickness in length and a maximum depth of 0.03175". I don't understand how you can interpret "Any other elongated indication" to mean any thing other than what it says. If you are aware of an interpretation that says otherwise please enlighten me as I would surely like to read it. Re: Asme b31.1 acceptance criteria for undercut for radiography24 Feb 2014, 18:38 In Reply to Adam Stasuk at 01:40 Feb-20-2014 . Hi Adam, Sorry for the delay was extremely busy yesterday, and yes I agree UW35 can trump a RT indication of undercut in some circumstances, although it doesn't allow for much, (10% of wall thickness to a maximum of 0.03175"). I have accepted, after ensuring all the conditions were met, radiographically determined external undercut on the basis of UW35 on a couple of occasions, but on these occasions the image of the undercutting was in a location on the radiograph where it could not mask, or readily be confused with another imperfection(EUC on a single sided weld). But when you have an indication from undercutting along the root of a single sided weld, or along the narrower cap of a doubled sided weld whereas the indication appears right in the midst of the weld corrective actions must be taken. As for ASME interpretations, I am not aware of, or have I been able to find anything that says "Any other elongated indication" doesn't include undercutting. I haven't seen the 2013 Section VIII yet, but as of the 2010 edition there has been no changes that would affect this. As for B31.3 it is essentially the same as Section VIII, except for an elongated indication, you are allowed two times the wall thickness in length and a maximum depth of 0.03175". I don't understand how you can interpret "Any other elongated indication" to mean any thing other than what it says. If you are aware of an interpretation that says otherwise please enlighten me as I would surely like to read it. Re: Asme b31.1 acceptance criteria for undercut for radiography18 Dec 2018, 10:59 In Reply to Brian Belanger at 18:38 Feb-24-2014 . Did ASME B31 series ever mention that Elongated indication is on Surface? or Sub Surface? if you can answer , I think that Question will be clear. Re: Asme b31.1 acceptance criteria for undercut for radiography26 Dec 2018, 00:49 In Reply to Brian Belanger at 18:38 Feb-24-2014 . ASME B31.3 Table 341.3.2 is quite clear on the difference between undercut and elongated indication. The examination method for undercut is VT and RT so it is a surface indication. The examination method for elongated indication is RT only so it cannot be a surface indication. If there is no evident undercut on the external surface and the possible internal undercut is not adjacent to the root on the radiograph then it would classed as an elongated indication.SponsoredHamamatsu offers a full line of high-precision X-ray sources and detectors for X-ray inspection of... electronic components and industrial products; as well as for a wide range of applications, such as automotive inspection, aerospace / space, 3D metal printing and industrial CT. We also offer low energy X-ray sources to meet needs in food processing and packaging.➤Hamamatsu Photonics Europe GmBHProduct SpotlightJUTAN, the ultrasonic soft transducer fits on a rough surface directly as it is made of soft mater...ial. The Jutan also provides features of high S/N ratio and narrow deadzone, and it is capable of detecting defects near the surface. There is a wide range of model variations: Cartridge, Case, Flat and Pencil types for various usages such as butt welding or fillet welding parts, narrow groove part, inner and outer surfaces of pipes, gas-cut surface of reinforcing bar, gap of crankshaft and so on. With the Cartridge type, it is easy to change element size and frequency due to its plug-in structure. The JUTAN was released in 2015 at Japan, and its demand has been increasing year by year with Japan and other countries.➤The HSPA30-X supports PA, TFM, TOFD, and A-scan detection functions. It is suitable for detecting ...a variety of materials, including metals like carbon steel, stainless steel, alloy steel, copper, and aluminum, as well as non-metallic materials. It offers multifunctional integration, supporting PA (TFM/PCI/PWI), TOFD detection, and A-scan detection capabilities.➤Wuhan Zhongke Innovation Technology Co., Ltd.This 1.2kg instrument is perfect for your ultrasonic immersion tank or in-line inspection needs! TE...CHNOLOGY Phased Array with DDF and Zone focus FMC/TFM, PWI and many more Standard probe connector Very Rugged: IP 65 and IP 68 Rated Battery Kit in option TARGET USES On-Scanner Field inspection Immersion Tank Gantry In-Line (manufacturing)➤