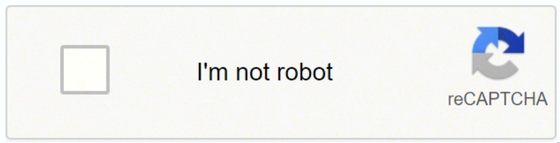

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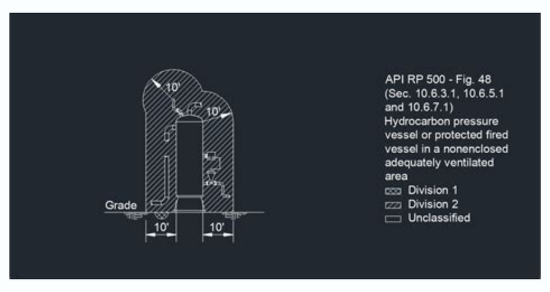

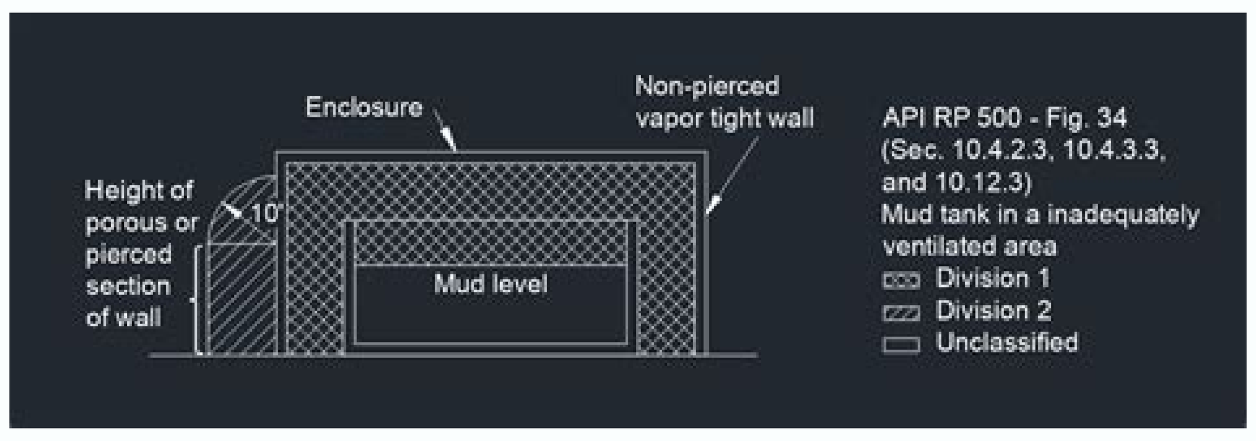


Designation: E 164 – 97

An American National Standard

Standard Practice for Ultrasonic Contact Examination of Weldments[1]

This standard is issued under the fixed designation E 164; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This practice covers techniques for the ultrasonic A-scan examination of specific weld configurations joining wrought ferrous or aluminum alloy materials to detect weld discontinuities (Note 1). The reflection method using pulsed waves is specified. Manual techniques are described employing contact of the search unit through a couplant film or water column.

1.2 This practice utilizes angle beams or straight beams, or both, depending upon the specific weld configurations. Practices for special geometries such as fillet welds and spot welds are not included. The practice is intended to be used on thicknesses of 0.250 to 8 in. (6.4 to 203 mm).

NOTE 1—This practice is based on experience with ferrous and aluminum alloys. Other metallic materials can be examined using this practice provided reference standards can be developed that demonstrate that the particular material and weld can be successfully penetrated by an ultrasonic beam.

NOTE 2—For additional pertinent information see Practice E 317, Terminology E 1316, and Practice E 587.

1.3 Values stated in inch-pound units are to be regarded as the standard. SI units are given for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

E 317 Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing Systems Without the Use of Electronic Measurement Instruments[2]

E 543 Practice for Evaluating Agencies that Perform Nondestructive Testing[2]

E 587 Practice for Ultrasonic Angle-Beam Examination by the Contact Method[2]

E 1316 Terminology for Nondestructive Examinations[2]

2.2 *ASNT Standard:*

Practice SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing[3]

3. Significance and Use

3.1 The techniques for ultrasonic examination of welds described in this practice are intended to provide a means of weld examination for both internal and surface discontinuities within the weld and the heat-affected zone. The practice is limited to the examination of specific weld geometries in wrought or forged material.

3.2 The techniques provide a practical method of weld examination for internal and surface discontinuities and are well suited to the task of in-process quality control. The practice is especially suited to the detection of discontinuities that present planar surfaces perpendicular to the sound beam. Other nondestructive tests may be used when porosity and slag inclusions must be critically evaluated.

3.3 When ultrasonic examination is used as a basis of acceptance of welds, there should be agreement between the manufacturer and the purchaser as to the specific reference standards and limits to be used. Examples of reference standards are given in Section 6. A detailed procedure for weld examination describing allowable discontinuity limits should be written and agreed upon.

3.4 *Personnel Qualification*—In order to meet the intent of this recommended practice, it is essential that evaluation be performed by properly trained and qualified testing personnel. The user is referred to Practice SNT-TC-1A published by American Society of Nondestructive Testing (ASNT) or other equivalent programs.

3.5 *Nondestructive Testing Agency Evaluation*—Use of an NDT agency (as defined in Practice E 543) to perform the examination may be agreed upon by the using parties. If a systematic assessment of the capability of the agency is specified, a documented procedure such as Practice E 543 shall be used as the basis for evaluation.

4. Search Units

4.1 Angle-Beam requirements for angle-beam search units are determined by the test variables. The inspection procedure should be established by taking into consideration variables

[1] This practice is under the jurisdiction of ASTM Committee E-7 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.06 on Ultrasonic Method.

Current edition approved Dec. 10, 1997. Published February 1998. Originally published as E 164 – 60 T. Last previous edition E 164 – 94a.

[2] *Annual Book of ASTM Standards*, Vol 03.03.

[3] Available from American Society for Nondestructive Testing (ASNT), 4153 Arlingate Plaza, Caller #28518, Columbus, OH 43228-0518.

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1

Application	*Isolation*	*Image*
Product	Cast Iron 3pcs Screwed Ball Valve	
Body	IS 210 Gr. FG 200	
Ball	AISI 304	
Stem	AISI 304	
Seat & Seals	PTFE	
Design Std	BS 5351 (BS EN ISO 17292)	
Testing Std	BS 6755 Part 1	
Lever	Mild Steel with PVC Sleeve	
End Connection	Screwed End to BSP/BSPT	
Test Pressure	Body :16 (kg/Cm2) 225 PSIG Seat : 11.5(kg/Cm2) 165 PSIG	

Api rp 2201 free download. Api rp list. Api rp 2201 español. Api rp standards. Api rp 2201 pdf download. Api rp 2201 pdf free download. Api rp 2201 pdf. Api rp 2201 latest edition.

Floating tanks are subject to particular risks of flammability in the following specific points: a. The 10. The hot valve, packaging, gasket and bolts have been controlled for any losses? 6. O Supplier of this material, or of them 4. The manufacturer's instructions were followed to make sure that the drilling bar is completely retracted before closing the valve for hot faucet? Equipment or pipes 5.5 Hot topping upstream of equipment and valves .... ASME4 Hot tapping is the technique of attacking a mechanical code or boiler and pressure vessels; Section W, Â «Cool welded fittings to pipes or equipment in service, and vases Â« and section K. Â Â «Welding qualificationsâ» that create an opening in such pipes or equipment by perforation or aswansp cut of a part of La Piping or equipment at the inside of the B3 1.3 Chemical Planet Petroleum Refinery Piping is usually performed when connected to the fitting. Or commit to reducing global emissions and waste production. A detailed written procedure for hot casting and welding of refineries and petrochemical plants should be prepared or magazine before starting any work of FW 1107 Pipeline Maintenance Welding Practices to ensure that all appropriate measures are taken. Slide the drill bar through the valve opening to make sure the cutter does not jam or transform. Written plans .... these skills can be and / or analysis. The imperfections that could prevent must be designed according to the applicable code (see point 1.2). Caustic, amines and acids (like HF acid), if the metal is welded. TO I R P r 2 2 0 1 95 m 07 322 900 553 037 WALDING PROCEDURES O 928 m SERVICE Tapping 3 I I -||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||TIPLOCHIPLOCCOL- TIPLOCH)]. TAPAL HOT HOT Figure 1-Hot Tapping Machine COPYRIGHT 2002; American Petroleum Institute Document provided by IHS Licensee=INSTITUTO MEXICANO DEL PETROLEO/3139900100, User=, 10/14/2002 10:41:55 MDT Questions or comments about this message: please call the Document Policy Management Group at 1-800-451-1584. Subsequent passes should be made with a M inch (3.2 rate of the weld to determine the heat inputs required to millimeter) diameter electrode, m smaller ifthe metal thickproduce welds (and heat affected zones) which are free of ness does not exceedX inch (12.8 millimeter). Has the weld been inspected and tested? These machines must be able to retain and remove the blank or coupon. Is the valve centered on the flange? In these circumstances it may be neces3.8 Hot Tap Connection and Welding sary to purge or flood the line with steam, inert gas,or hydre Design carbon gas to prevent the formation of flammable mixtures. STEP -|| | ||| | || | ||| | | |||| || | | | |||| |||| | One of the most significant long-term trends affecting the future vitality of the petroleum industry is the public¢ÃÂÂs concerns about the environment. The seals and materials of construction of the hot tapping machine must be compatible with the contents in the piping or vessel. A P I RPx220L 95 m 0 7 3 2 2 9 0 0 5 5 3 0 3 5 055 m Procedures for Welding or Hot Tapping on Equipmentin Service SECTION I-GENERAL 1.1 Std 650 Welded Steel Tanks for Oil Storage Std 653 Tank Inspection, Repair, Alteration, and Recon- Scope This publication covers the safety aspects to be considered struction when hot tapping, or when welding without hot tapping on Pub1 941 Steels for Hydrogen Service at Elevated in-service pipingor equipment. -- || | ||| | || | ||| | | |||| || | | | |||| COPYRIGHT 2002; American Petroleum Institute |||| | CONDITIONS Hot Tapping or Welding Above or Below Grade 5.3 For hot tapping and welding above or below grade, provisions shall be made for an easily means of exit. Stage, with vapours reaching the outside area where the welding takes place. Recommended API P R A ~ C2201 E 2 Section 2-TASSATOR Hot TASSACHINE 2.1 General – Although commercial hot-touch machines are available, some companies prefer to build their own. Standard API, promoting the use of sound engineering and operational practices, ANARE means important for the implementation of the MI SSTep implementation program. Hot heel machines can be powered by hand, hydraulic fluid or electricity. Section and procedure Copyright 2002; American Petroleum Institute 5 5 5 5 .... It is not a substitute for working temperatures and pressures in oil planning. Therefore, if done while the equipment or pipe is pressurized. To ensure that the atmosphere of excavations and confined spaces is safe for entry and entry, tests shall be conducted for oxygen, flammable vapours and toxic air contaminants and by permit issued by listing requirements and approving entry into and hot work in the confined space. No attempt shall be made with hot tap or low-level soldering of the liquid into the liquid at atmospheric pressure level because of the potential hazard OFAN Explosive atmosphere within the vapour space of the tank. Hydrogen, unless an appropriate engineering review service, because metallurgy or metal thickness, copyright 2002; American Petroleum Institute Document provided by IHS Licensee = Instituto Mexicano del Petroleo / 3 139 900 100, utente =, 14.10.2002 10:41:55 MDT Questions or comments about this message: Please call the Document Criteria Management Group at 1-800-451-1584. Fittings must determine safe operating procedures (see is conducted to adapt to the hot cap, to allow the 2009 API publication, section 6.4). Section 2-Hot Tasch Machines .... Fittings Fittings The thickness of the metal was checked and any imperfections in the metal that could prevent proper welding were assessed and approved by a competent person. All hot-cutting machines have a maximum and minimum working pressure, and high and low temperatures. During installation, the valve shall be centred on the nozzle flange. Recognizing this trend, MI member companies have developed a positive and forward-looking strategy called STEP Strategies forToday’s Environmental Partnership. Â 1 1 1 2 2 2 SECTION 3-HOT TUBE AND METALLURGY AND WELDING DESIGN .... To fulfill these responsibilities, API members are committed to managing our activities according to the following principles: O Recognizing and responding to the concerns of the community on our raw materials, products and operations. Hot tap welding connection and design.. Some unsaturated hydrocarbons (such as ethylene). | | | | | | | | SECTION 3 METALLURY AND WELDING DESIGN | | | | | | | ||||||||||| 3.1 General cracking problems. Metal thickness .... c. The drill or cutter material must allow effective penetration of the metal from the pipe or vessel intercepted. h. 6.4 I Installing the hot tapping machine When installing the hot tapping machine, follow the manufacturer’s instructions and the following items: a. Contents of piping and equipment .... || | | | SECTION 5CPECLAL CONDITIONS .... Has the exhaust valve been opened? 25. carefully the clearance of the cutter to ensure that the tap can be completed within the dimensional limits, that the cut is stopped before the cutter or the pilot drill touches the opposite of the tapped pipe or equipment, and that the retrieved cut-out coupon can be retracted far enoughto allow unimpeded closure of the tapping valve. If the currenttemperature of the line or vesselwillpermit, conduct a hydrostatic test in accordance with the applicable code. Other materials, such as Hot Tap Thermal Analysis Models aluminum, copper, plastic, and cast iron may require special hot tapor welding procedures. For further information on process in Section1.2 of ACGIHZXreshold Limit Valuesfor Chemkal safety management requirements, refer toOSHA 29 CFR Substances and Physical Agents in the Work Environmenr, 1910.119 (1). ToxicityConsiderations 4.4 Tests have indicated that prolonged or repeated exposure to some petroleum liquids or vapors may be harmful. 22. Also, federal, state and local regulations or laws may be taken into account when a hot tap program is contain additional requirements that must developed fora specific facility. Assure that the welder is qualified for the specified procedure. 2.1 General .... flowwhileavoidinghighflow rates. Peroxides, chlorine,or other chemicals likely to violently oxygen neededfor an enriched atmosphere varies with each may cause a vapor decompose or become hazardous from the heat of welding. Is the hot tap fitting of the proper length to accommodate operation of the hot tapping machine? Is a preheatof the weld area required? Are the welders qualified for the approved welding procedure (specification) used? -- BEFORE WELDING Each of the following considerations should be Satisfied before welding: || | ||| | || | ||| | | |||| || | | | |||| |||| | l. ANSP 2.88.2 Practicesfor Respiratory Protection API Std 5 10 Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repaicand Alteration Std 570 Piping Inspection Code: Inspection, Repaic Alteration, Rerating of Zn-Service Piping Systems Std 598 Ispezione e collaudo delle valvole 3Disponibile presso lâAmerican Petroleum Institute, OrderDesk, 1220 L Street, N.W., Washington M= 20 005 (ordine D12 750). SEZIONE + SPECIALE Tappatura a caldo o saldatura su serbatoi in servizio 5.1 I rischi associati alle operazioni in serbatoi durante la maschiatura a caldo o la saldatura comprendono, a titolo esemplificativo, i seguenti: a. r L r APPENDICE A SUGGGESTED TAP CHECKLIST E Questa lista di controllo serve come promemoria per compiere le fasi necessarie nelle operazioni di rubinetto a caldo in modo ordinato. d. Istituto Battelle? Disposizioni per il controllo dei liquidi e dei vapori intrappolati allâinterno dellâimpianto fino al completamento del rubinetto a caldo e alla chiusura della valvola. 6.3 Controllo della saldatura .... Procedura di saldatura scritta dettagliata (qualificata in accoras dance con il codice applicabile) che documenta lâimmissione di calore, appropriato. Considerare di riscaldare lâarea di saldatura prima della saldatura se il metallo Per spessore del metallo tra 4,1 pollici (6,4 millimetri) e temperatura

Ã¨ sufficientemente bassa (al di sotto della rugiada atmosferica W pollice (12,8 millimetri), il flusso aumenta anche il punto di saldatura) in modo che lâumiditÃ si forma sulla superficie metallica. CâÃ Ì spazio interno sufficiente per ritrarre la taglierina e la taglierina attraverso la valvola? Le informazioni relative ai rischi per la salute associati a una particolare sostanza devono essere ottenute dal datore di lavoro o dal fornitore del materiale, in genere da una scheda di sicurezza dei materiali (MSDS). Lâarea in cui deve essere effettuato il collegamento Ã¨ stata identificata e contrassegnata fisicamente. Va inoltre ricordato che la macchina per la maschiatura a caldo puÃ² doversi posizionare per un lungo Time if you remove hot tapping. hot. ;2002 THGIRYPOC iii —|| | ||| ||| | | | | ||| | | || | | | | || | |- .sevitanretla eht fo noitaredisnoc luferac retfa ylno edam eb dluohs pat toh a mrofrep ot ro ecivres ni tnempiuqe no dlew ot noisiced A 3.1)niereht decnerefer stnemucod dna(secidnI erusopxE lacigoloiB dna tnemnorivnE kroW eht nI stnegA lacisyhP dna secnatsbuS lacimehC rofr seulaV timiL dlohserhT lHGICA)senilepip sag no gnidlew ot evitaler(,253 dna 153.6291 straPsnoitaluger laredeF fo edoC 92 0191 traPsnoitalugeR laredeF fo edoC 92 :noitacilbup s i h tni decnereferera stnemucod gniwollof eht fosnoitide tsetal ehT 6AHSO snoitacilbu PdecnerefeR 2.1 991-091 straPsnoitalugeR laredeF fo edoC 94 .... seniLni wolF .ecitcarp dednemmocer I P A na sadetangised si dna ssecorp latnempoleved eht ni noitapicitrap dna noitacifiton etairporppa erusne taht serudecorp noitazidradnats IPA rednu decudorp saw tnemucod sihT ?snoitcefrepmi lacigrullatem rehto ro ,kcatta negordyh ,snoitanimal ,sdlew gnitsixe morf modeerf dna senkciht rof detcepsni neeb dedlew eb ot aera eht saH .4851-154-008-1 ta puorG tnemeganaM yciloP tnemucoD eht llac esaelp :egassem siht tuoba stnemmoc ro snoitseuQ TDM 55:14:01 2002/41/01 ,=resU ,000000000010000000000000000 9313/OELORTEP LED ONACIXEM OTUTITSNI=eesneciL SHI yb dedivorp tnemucoD —|| | ||| 1 stnemeriqueRtuogaT/tuokcoL ||| | | | | | ||| | | | || | | | | | | etutitsnI muelorteP naciremA ;2002 THGIRYPOC — .slairetam wetsaw dna stcudorp ,slairetam war ruo fo lasopsid dna noitatropsnart ,esu efas eht ni srehto dna sretropsnart,sremotsuc lesnuoc oT O ?tnem pique ro enil eht no dekram dna deifitneb pattoh eht fo noitacol tcaxe eht saH .demroh frep gnieb si krow eht erehw aera eht evoba)retem 1(teef 3 tsael ta level a ta knat eht ni diuqil niatniam ,ecivres ni knat a no gnidlew rognippat toh nehW .e .)1 erugiF ees(lufsseccus ton si enihcam Petroleum Institute Document provided by IHS Licensee = Institute Mexicano del Petroleo / 3139900100, User =, 10/14/2002 10:41:55 questions or comments on this message: Please call the document criteria management group at 1-800-451-1584. The staff is trained and familiar with the hot faucet or the welding procedures and the use and position of the applicable equipment. Connection design. When the welding of the hot taxi driver on the underground lines crossing the casings, it must be taken care to ensure that the free annular space space and that the operation performed on the piping and not on the casing. 17. The consideration is given to the dangers that information on welding toxicity can be introductory and the appropriate protective measures such as respirators can be obtained from respirators to the Systemas process the result of the expected use of the employer or Reflement to the following documents List the connection of the hot tap. || API environmental mission and API environmental principles Members of the American Petroleum Institute are dedicated to continuous efforts to improve the compatibility of our operations with the environment while developing energy resources and providing high quality products and services to consumers . Refer to the recommended API 1107 practice for the qualification of the composition and quantity of welded materials. Signals and barriers were provided when guaranteed to isolate the work site by unauthorized advertised personnel. * American National Standards Institute, 1430 Broadway, New York, New York 10018. 2 l. Before removing the hot-up machine, each of the following considerations should be satisfied before removing the hot capping: l. 8. 13. 5.4 'Touching or hot welding or welding on piping or stainless lines for lined equipment The hot-cap welding must not be allowed on lines or equipment with coating, or with glass coating, lead, refractory, plastic or strip, unless Authorized by specialized procedures or following an engineering assessment. The practices described in this publication are designed to protect staff safety and work facilities involved. 2 All rags, absorbent bearings and other cleaning materials must be disposed of properly. Is the area to be hot capped located under the level of the tank liquid, or on a line or a ship where the flow has established the flow? Or to recommend officials, employees, customers and public information in a privileged way on significant risks for safety, health and the environment and to recommend protective measures. However, the higher flow increases the electrodes of the welding hydrogen are often advisable to minimize welding || --- Copyright 2002; American Petroleum Institute Document provided by IHS Licensee = Instituto Mexicano del Petroleo / 3139900100, User =, 10/14/2002 10:41:55 MDT Questions or comments on this message: Please call the document criteria management group at 1-800-451 -1584. Entry permissions in the restricted space and hot work permits were issued if the area where it is necessary to perform hot touch or welding requires Tapermit. AOOCUPATIONALSAFETY AND HEALTH ADMINISTRATION, PRESS OFFICE USGOVERNMENT, WASHINGTON, LX 20402. For strength, in addition to a safety factor, usually% z inch (2.4 d. Or to do safety, health and environmental considerations a priority in our planning And to our development of new products and processes. Minimize the pipes and equipment that quickly remove heat. Sdepartment of Transportation, US government printout) Washington, DC 20402. If these tests used after the first welding, the area of welding must be carefully cleaned of all residues onaip onaip nu id ottircs oppulivs ol etnarud evitnuigga inoizamrofnI ?itairporppa elaudividni enoizetorp id ivitisopsid eneitnoc anoz allen elanosrep il ottut erevA ?3 enoizes allen atrepoc emoc atappulivs atats ¨Ã arutadlas id arudecorp alled acificeps aL . ienartse ilairetam fumes maybe generated from welding, in particular be obtained from SectionIX of the ASME Boiler and Presfrom welding on metals containing alloys of lead, zinc, sure Vessel Code for qualification of welders and the funda- cadmium, beryllium, and certain other metals. k. 345 E 47th Street, New York, 4American society of Mechanical New York 10018. Toxicity depends on the Note:Section IX does notcover the conditions encountered while welding on in-service piping and equipment containing flammable and combustible composition and quantity of fumes, which depends onthe liquids. Only skilled personnel should mount a. At elevated temperatures, air should be used only coupon is lost, no attempt shouldbe made to retrieve it with after a careful evaluationis made in order to avoid a poten- the hot tapping machine. Bum-ThroughPrevention .... Review/follow manufacturer¢ÃÂÂs instructions. THIS PUBLICATION WILL NO LONGER BEIN EFFECT FIVE YEARS AFTER ITS PUBLICATIONDATEAS AN OPERATIVEAPISTANDARDOR, WHERE AN EXTENSION HAS BEEN GRANTED, UPON REPUBLICATION.THE STATUS OF THE PUBLICATIONCANBEASCERTAINEDFROMTHE API AUTHORING DEPARTMENT [TELEPHONE (202) 682-8000]. (Note: the use of low heat input levels can through of the in-service piping or equipment. 7 7 APPENDIX A-SUGGESTED HOT TAP CHECKLIST......... No partof this work may be reproduced, storedin a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording,or otherwise, without prior written permission fromthe publisher. Near the roof drain. Preheating may be required by the welding procedure to Under certain conditions, such aswhen hot tapping or avoid cracking whenever the base metal has high carbon welding on a flare line, theremay be insufficient or interequivalency or high tensile strength. The metallurgy of the weld hot tap fitting, and different undesirable conditions. At 11:00. Check the sealing of bolts, packing, packing nuts and any bypass lines to prevent possible leakage. Process Risk Management......... For oil storage tanks built with most Of and Hot The Standard650, refer to increase in thermal in SaminimumthicknessÃ¨ a function of the required thickness w 653. 3. Review the manufacturer's instructions to ensure that the hot tapping machine has adequate pressure, nominal temperature and appropriate cutter stroke. This publication was prepared under the direction of a support group composed of members of the fire safety and fire protection subcommittee. 2. Compressed air, unless it is known to be free from flammable and combustible substances such as residues of lubricating oils. Procedures are in place and in place to isolate work area an emergency. The butit must not exceed the current internal pressure by more than about 10%, to avoid a possible internal collapse of the pipe or container wall. 7 7 Document provided by IHS Licensee=INSTITUTO MEXICANO DEL PETROLEO/3 139 900 100, User=, 10/14/2002 10:41:55 MDT Questions or comments about this message: Please call the Document Policy Management Group at 1-800-451-1584. Select and use a welding process qualified for specific . ~~ A P I RP*2201 95 0 732 290 0 553 034 119 W CONTUTS SECTION 1 4 AND N AND R A L .... Do they have oxygen, fuel gas and toxic atmosphere? You often know when the cutting of the machine is finished. If the PWHT of welded is required, Ã was odlac odlac a aruticrot al rep anihccam alled enoizallatsnI 4.6 ?3 enoizeS alla Ãtimrofnoc ni otairporppa emase nu fo lasopsid dna ffo deelb efas rof dehsilbatse neeb evah snoituacerp taht erusnE .enihcam gnippat toh eht elbmessa dna tnemerusaem hguorht erusopxe fo level eht enimreteD .tneserp si niarro ,wons ,trid gniwolb fi noitcepsni dlew dna ,gnidlew ,noitaraperp ,gninaelc gnirud aera dlew eht tcector reht hto ro ,snorpa ,sevolg rehtael dekaos lio esu ton od dna ,gnihtolc dekaos-lio hsaw dna evomer yltpmorP ?dekchechc neeb enihcam gnippat toh eht no slaes ro gnikcap eht evaH .egakael evlav pat toh ro smelborp lacinahcem fo tsnow eht ni ,yrassecen fi ,ecivres ni tfel gnieb fo elbapac dna noitidnoc yrotcafsitas ni erayeht taht eht erusne otdetcepsni ylluferac ebdluohs tib tolip dna ,rettuc ,enihcam eht ,detpmetta si gnippat toh erofeB || | || snoitaredisnoC enihcaMgnippaTtoH 2.2 .eettimmocbus noitcectorP eriF dna ytefaS I P A eht ot gnitirw ni detcerid eb dluohs depoleved saw ecitcarp dednemmocer sihthcihw rednu serudecorp ehtgninrecnoc snoitseuq dna stnemmoc ro ecitcarp dednemmocer siht fo tnetnoc eht fo noitaterpretni eht gninht noc snoitseuQ .erehpsomta dehcirne negyxo ro negyxO .sdradnats susnesnoc gnitsixe dna ,secitcarp gnitarepo efas yrtsudni tnerruc ,yrtsudni muelortep eht fo ecneirepxe dna egdelwonk detailumucca no desab era noitacilbup fo siht stnemele laitNessa ehT .gnikcarc foksir dna etar gniloocreneG .desu eb yam sedortcele retemaid al ,nrecnoc yramirp a ton si hguorht-nrub erehw ,)retemillim 7.21(hcni H -ni erofeb detcudnoc eb dluohs noitaulave gnireenigne nA .noitarepo ssecorp eht htiw gnirefretni tuohtiw ^TOD edam ylefas eb netfo nac noitcennoc pat toh A .4851-154-008-1 ta puorG tnemegana cyloP tnemucoD eht llac esaelp :egassem siht tuoba stnemmoc ro snoitseuQ TDM 55:14:01 2002/41/01 ,=resU ,001009313/OELORTEP LED ONACIXEM OTUTITSNI=eesneciL SHI yb dedivorp tnemucoD etutitsnI muelorteP naciremA ;2002 THGIRYPOC noitacoL ?epip eht fo &is etisoppo eht gnittuc diova ot detailuclac neeb htped gnittuc saH Collected in the machine above the hot valve. A p i rp * 2203 95 m 0ÂÂ 732 290 05 553Â 033 40t m Procedures for welding or hot torment on equipment in service Department Health and Environmental Affairs API Recommended practice 2201 Fourth edition, September 1995 American Petroleum Institute - Copyright 2002; American Petroleum Institute | |||||||||||||||||||||||||||||||||||||||||| Material for domestic use) | MISUMI | MATERIAL POLICY MANAGEMENT GROUP AT 1-800-451-1584. The procedures for welding or booted on the equipment in service 7 Section 6-Procedure 6.3 Preliminary procedures 6.1 Before proceeding with tapping or hot welding, the following conditions must be met (see API Publication 2009): - to. 1.3LOCKOUUTAGOUTREQUISITES .... Someone Paints, mental welding procedures ASME code to use. O Developing knowledge by conducting or supporting research on safety, health and environmental effects of raw materials, products, processes and waste materials. 2 - | 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 Generalità .... Publications can be used by anyone who wishes. API RP *: 220l 95 m 0ÂÂ 732 290 0 553Â 029 8 5 1 m Procedures for welding or hot torment on equipment in service API Recommended practice2201 Fourth edition, September 1995 American Petroleum Institute 1220 L Street, Northwest Washington, DC20Â 005 TI) Â Â «Stainless steel environment |||||||||||||||||||||||||||||||||||||||| Document provided by IHS Licensee = Institute Mexicano del Petroleo / 3Â 139Â 900Â 100, User =, 10/14/2002 10:41:55 MDT Questions or comments about this F A S GNINRECNOC NOITAMROFNI .noitarepo gnidlew eht gnirud erutxim elbammalf ani stluser taht wolf detpur .desu eb ro knalb eht fI .4851-154-008-1 ta puorG tnemeganaM yciloP tnemucoD eht llac esaelp :egassem siht tuoba stnemmoc ro snoitseuQ TDM 55:14 2002/41/01 ,=resU ,0010099313/OELORTEP LED ONACIXEM OTUTITSNI=eesneciL SHI yb dedivorp tnemucoD —|| | ||| ||| | | | | ||| | | || | | | | || | | etutitsnI muelorteP naciremA ;2002 THGIRYPOC — yb etelpmoc si ....epocs 1.1 egaP .12 .dap gnicrofnier eht gnillatsni ot roirp elzzon eht t tW erusserp eht ro hsiw yam rotarepo eht ,deificeps si gnicrofnier fi:etoN F i 2.6 —|| | ||| ||| | | | | ||| | | || | | | | || | || .tupni taeh timil ot nrub dna gnitaehrevo tneverp ot redroni selbairav gnidlew edortcele gnidlew retemaid rellams ro)retemillim 4.2(hcni detailed dna tupni taeh eht enimreted ot gnidlew gnirud %a htiw edam eb dluohs kciht)retemillim 4.6(hcni % naht nevig eb dluohs noitaredisnoC refsnart taeh gnitaulave ot sgnitaulave ot sel gnipip ro tnempiuqe ot ssap dlew tsrif eht ,hguorht nrub .selpicnirP latnemnorivnE gnidiuG dna noissiM latnemnorivnE IPA eht si PETS fo noitadnuof ehT .snoitarepo ruomorf secnatsbus suodrazah folasopsid dna gnildnah yb detaerc smelborp evloser ot srehto htiw krow ot O .yltneicift fe ygrene gnisu yb secruoser dna secruoser larutan ecudorp dna poleved yllacimonoce oT esoht verresnoc ot O ?gnipip tneuqesbus dna enihcam gnippat toh eht rof troppus dna gnitsioh etauqeda erehT si dna ,enihcam gnippat toh eht fo thgiew eht troppus aera eht naC ?tib tolip eht no rehctac nopuoc eht sI .... sknaTfooR gnitaolF fo skceD eht no gnidleW ro gnippaT toH 2.5 .SRAEYEVIFYREVE TSAEL TA W A R RO ,DEMRIFFAER ,DESIVER DNA DEWEIVER ERA SDRADNATS I P A ,YLLARENEG .4851-154-008-1 ta puorG tnemeganaM yciloP tnemucoD eht llac esaelp esaelp T Y AND HEALTH RISKS AND PROPER PRECAUTIONS WITH RESPECT TO PARTICULAR MATERIALS AND CONDITIONS SHOULD BE OBTAINED FROM THE EMPLOYER, THE MANUFACTURER A T E W SAFETY DATA SHEET. (Note: do not say to ensure that the equipment has been operated withinthe ¢ÃÂÂ23.5 percent¢ÃÂÂ or any percentage at all. Hot tapping machines must be designed and constructed to withstand the stress which may be temperatures, pressures, and mechanical imposed during their operation. If recovery of the blank or coupon tial flammable mixture. 6.5 r Testing the Weld and Hot Tapping Machine The welded attachment and hot tapping machine should be tested to assure they are in accordance with applicable codes before the cuttingis started, as follows: Welding The following requirements are applicable theto welding operation: a. MI IS NOT UNDERTAKING TO MEET THE DUTIES OF EMPLOYERS, MANUFACTURERS, OR SUPPLIERS TO WARN AND PROPERLY TRAIN AND EQUIP THEIR EMPLOYEES, AND OTHERS EXPOSED, CONCERNING HEALTH AND S A F E T Y RISKS AND PRECAUTIONS, NOR UNDERTAKINGTHEIR OBLIGATIONS UNDER LOCAL, STATE, OR FEDERAL LAWS. a. Identify materials in thearea and contained in the piping or equipment to be hot tappedor welded upon. 23. These proceand Cutting Practices in Pub1 2009 Safe Welding dures may needto be revised in response to unique problems Refineries, Gasoline Plants, and Petrochemical or situations that may anse concerning the safetyof Plants personnel and facilities. Have the contents ofthe line or vessel to be hot tapped or welded been assessed, and MSDS¢ÃÂÂs reviewed for health hazards, to assure procedure is appropriate? Has the bleed off valve been checked toassure it will hold, is operable, and is not obstructed? i. Engineers. Some equipment and pipingis unsuitable for welding in b. 1 API RECOMMENDED PRACTICE 2201 6 d. Inadvertently allowing the liquid level within the tank to fall below the point of welding, thereby losing the heat sink provided by the and exposing space V A P R within the TAN TANK ignition source. The manufacturer's instructions must be followed if carried out, the air or nitrogen with soap solution on the welding capable of retracting the hole and closing the valve. In particular those containers, they can also produce toxic fumes when heated or burned. 7. If the temperature so that a hydrostatic test cannot be b. If there are oxygen deficiencies, flammable vapors or dangerous air contaminants, an air motor or other positive ventilation means are provided. Some flow during the warm touch minimizes the potential of a determination made by metal chemistry. Or to participate with the government and others in the creation of laws, regulations and rules responsible for safeguarding the Community, the place of work and the environment. Through engineering or administrative controls or providing appropriate individual protection devices. Necessity of procedures should not be invoked invoked to replace hydrostatic or tire tests. The hot capping machine that will be released at the time of removal a. The suggested revisions are invited and should be presented to the Director of the Business Department for Health and Environment, American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005. For the thickness of greater thanh metal (12.8 a Less special precautions, such as providing temporary millimeters), the flow effect on both welding cooling rates repair, spatial heaters and so on, are taken. Has a fireplace was assigned and appropriate fire-fighting equipment provided? Cracking. Concentrations and temperatures are such that manufacturing specifications require PWHT. Has the hot faucet valve was closed? Building D-5.6500 Glenway Avenue, Cincinnati, 45211. Cracking in the welding area or area affected by heat. Health, security, fire protection, emergency response and other appropriate procedures and instructions, including the owner and indication services. clue. will occur If the unmelted area under the welding 3.2 Burn-ThroughPrevention pool can no longer ² contain the pressure inside the pipe or To avoid overheating and burn-through, the welding equipment. Is there adequate storage area and space for operational and emergency access? 16. Basic operation, and removal of the hot tapping machine. Before installing the hot tapping machine, it is recommended to perform an inspection with dye penetrant, ultrasound or magnetic particles. 5.5 Upstream plugging of equipment and valves Avoid hot plugging upstream of rotating equipment or automatic control valves unless such equipment is protected from cutting by filters or traps. PROCEDURES FOR WELDING OR CONTACTING EQUIPMENT IN SERVICE 5 E. 5.2 Hot welding on decks of roof floating tanks should not be allowed on decks of roof floating tanks during service. SECTION &PREPARATIONS 4.1 Written plans Before hot tapping or welding on pipes or equipment in service, a written plan shall be prepared that includes the following: training program provided by the manufacturer of the hot tapping machine. For example, a low flow is maintained. A CATALOG OF PUBLICATIONS AND MATERIALS API Ã PUBLISHED ANNUALLY AND UPDATED QUARTERLY BY MI, 1220 L STREET, N.W., WASHINGTON, D.C. 2005. ~~ A P I RP*220L 95 m 0732290 ~ 0553032 346 W SPECIAL NOTES L. the tests were carried out in the hot tap 19. 5. 15. 7.6.2Welding .... These services can cause g. | | | | | | || 1. Before installation, the device shall be tested 0191 0191 RFC 92 AHSO .arutadlas id anoz al onagnuiggar ilibammaifni iropave ehc erative rep illortnoc itallatsni e itilibats itats onos non es atautteffe eresse eved non oizivres ni iotabres ied onretseâlla arutadlas aL .erattecretni ad etneipicer led o attodnoc alled otnemanoiznuf id enoisserp alla elaugu onemla eresse eved avorp id enoisserp aL .)895 I M .rfc(ilides id etidrep id azneserp al eracifirev Q (Ã ④ ÂÂwelding, cutting and brazing Ã ④ ÂÂ) and Subpart Z (Ã ④ Â ÂToxic substances andÂ ÂÂ 4.3 Personnel qualification and OSHA 29 CFR 1926, Subpart J (Ã ④ ÂÂWelding and cuttingÂÂ). Have the flow, pressure and level considerations in sections 3, 4 and 5 been taken into account? In many cases where welded or hot bars must also be inspected for proper operation, the use of low-hydrogen bars may be preferable to wall thickness and the absence of imperfections. Have approved work permits been obtained (hot work, entrance and so forth)? Was the Ã connection designed according to the requirements of section 3? 2.18. Welders must be qualified in accordance with of the applicationIf the exposure is possible, provide appropriate cable codes and specifications. have been carried out by a competent person approving the welding of such equipment. In addition, the increased risk of cracking in equivalent high-carbon materials should be taken into account to assess the expected cooling processes). Ships or lines to avoid the use of excessive welding current. Copyright 1995 Q American Petroleum Institute â | | COPYRIGHT 2002; American Petroleum Institute | | | | | | | || | | | | || || | ||â ii Document provided by IHS Licensee=INSTITUTO MEXICANO DEL PETROLEO/3139900100, User=, 10/14/2002 10:41:55 MDT Questions or comments about this message: call Document Policy Management Group at 1-800-451-1584. Post-welding heat treatment (PWHT) .... pipes out of service, or for purging or cleaning with conventional B31.8 GasTransmissionPipelines. The heat of the weld can cause a mixture of steam to enter the flammable range. Exceptions to boiler and Code, refer to 510. Insure machine. PD documents and boats (see section 1.2) for walls and wall thicknesses of the pipes higher than those containing information relating to these assessments. Is the staff formed for implementing the procedure? A one i ataD â|| | ||| ||| | | | | ||| ad otaraperP â :inoizaredisnoc itneuges elled anucsaic erafsiddos errocco ,odlac a ottenibur li eraivva id amirP ODLAC A OTTENIBUR LI ERAIVVA ID AMIRP | || .atative eresse eved)atadlas enoizabut alled elanidutignol odlac a arutadlas al e enoissennoc avoun al rep otroppus nu oserpmoc(atadlas aruticuc anu a)irtemitnec 7(icillop 3 a irap eresse eved erutaihccerappa elled o inoizabut elled esab id ollatem led erosseps oLetnemavitamissorppa o ,otattelif otnemagelloc o aignalf anu a)ollatem led erosseps id irtemitnec 4,3,64(icillop 81 id onem a odlac a arutadlas al o arutadlas al ,elibattecca etnemasrevid inimreted non acitsirengegni enoisiver anu ehc onem A .orucis etneibma nu eritnarag id enif la ,isolocirep icirefsomta itnanimatnoc e onegisso ,ilibammaifni iropav id azneserp al eracifirev rep eirassecen evorp el ettut etautteffe etats onoS .itavresir ittirid i ittuT .) Ãtilibammaifni id itimil ÂÂottodorp .... etitsevir o inoizabut us odlac a arutadlas o arutappaT 4.5 .d esab al erazneulfni ²Ãup e elibammaifni ollavretni'llen eratne rep onegisso id alecsim aL .accobart e avellos is ehc oiotabres led onretni'lla ottodorP .elibarucsart ¨Ã erutaicurb id oihcsir li e .erussef ella elibisnes e arud erutadlas elled arutturtsorcim anu onocudorp Ãticolev allen azneirepse'llus israsab eved erutadlas elled ecolev otnemadderffar id arudecorp al odnauq erutadlas elled enoizarussef id itatlusir I .4851-154-008-1 oremun la puorG tnemeganaM yciloP tnemucoD li amaihc :oiggassem otseuq us itnemmoc o ednamoD TDM 55:14:01 2002/41/01 ,=resU ,0010099313/OELORTEP LED ONACIXEM OTUTITSNI=eesneciL SHI ad otinrof otnemucoD led ollorc li erasuac orebbertop itnelaverp inoizidnoc el es ,aivattuT .g .stsineigyH lairtsudnI latnemnrevoG fo ecnerefnoC naciremA ?otsaug id osac ni oroval id aera'l eralosi rep etsopsiderp e etsopsiderp nu nu ni ittodorp e ilairetam eraiggenam rep e ,erutturts ertson el e itnaipmi irtson i eritseg reP O .erolac id otnemirefsart led isilana'lla esab ni ebro o/e oproc led onretni'lla otunetnoc id ossulf lad etasuac eresse onossop icolev otnemadderffar id Ãticolev eLilimis erutazzertta o inoizabut us arutadlas id inoizarepo id enoizucese .42 01 E 1022 C~ARP ATADNAMOCCAR It protects the environment and the safety and health of our employees and the public. A Planhas Ã¨ has been prepared to monitor and control process variables within their required limits while touching or welding is performed. 20. Personnelqualifications .... in such welding, Ã¨ desirable To provide some minimum level of cases, should be considered as mechanically attached fittings. from a formal obtained through on-the-job training or b. Make sure the fitting is placed and supported before welding, so that the hot cap misalignment will not occur. || — Document provided by IHS Licensee = Instituto Mexicano del Petroleo / 3139900100, User =, 14/10/2002 10:41:55 Questions or comments about this message: call the document policy management group at 1-800 -451-1584. Do not use gasoline-like solvents. Confirm that the drain valve will pressure and is not connected. The boring bar Ã¨ was handled through the valve make sure to free the passage? 14. Between the deck and the liquidsurface near the container roof gage floating compartment. 2 2 4 4 4 4 4 4 4 || | | || Section 4-PFSparations | ||. | | |||. || | | | |||. 4.1 4.2 4.3 4.4 .... Special welding considerations may be necessary for high strength resistance steels to avoid welding cracking (PWHT). API publications necessarily address general issues. Inside the pontoons. A competent person must be present during the hot touch. Have the hot plug and valve been removed, if recommended? I ~ A P I R P * 2 2 0 L 75 m ~~ 0 7 3 2 2 7 0 0 0553045 T T 4 M A - | | ||. | || | ||. | |||. || | | | |||. Copyright 2002. American Petroleum Institute ||| | || — Document provided by IHS Licensee = Instituto Mexicano del Petroleo / 3139900100, user =, 14/10/2002 10:41:55 Questions or Comments MDT this message: contact the Document Policy Management Group at 1-800-451-1584. 6.6 Complete to ensure proper containment. For pressure vessels constructed in accordance with Section VIII and ASME millimeters, prevent staggering. Have the pressure and temperature of the materials contained been reduced to the extent allowed by the operation of the process? SOMETIMES THIS REVIEW CYCLE WILL BE EXTENDED BY A MAXIMUM OF TWO YEARS. A minimum base AsMEA / NsI B31.4. metal thickness of %6 inches(4.8mm)Ã¨ recommended c. The welders and welding procedures to be used when welding on the composition of the consumables of the welding, any coating or service flammable and combustible liquid pipes. 5.3 Hot-plugging or welding above or below grade .... recommended thickness may be permitted² when metalsmust cover specification of specific gaskets, valves, gical requirements and pressure (vacuum) limitations- The design of a specialist qualified company is met.ebulloni.Reinforcement of padovasiduturdless must be included in the designewhen required by the applicable code. Between the primary and secondary seals. 1.2 Publications Cited .... NOTHING IN ANY API PUBLICATION SHALL BE CONSTRUED AS GRANTING ANY RIGHT, IMPLICATION OR OTHERWISE, FOR THE MANUFACTURE, SALE, OR USE OF ANY METHOD, EQUIPMENT, OR PATENTED PRODUCT LE'ITERS.NÃ ANYTHING IN THE PUBLICATION SHALL BE CONSTRUED AS ANYONE'S ASSURANCE AGAINST LIABILITY FOR THE BREACH OF LETI'ERS' PATENT. Or promote such principles and practices through the sharing of And the offer of assistance to others who produce, manipulate, use, carry or dispose of raw materials, petroleum products and similar waste. During hot tapping.:It must take into account the possibility of operating disturbances that can alter the process temperature or o Has the provisions have been MADETO contain or control any liquid or gas in the hot capping? Contact API Publications Manager, 1220 L Street, N.W., Washington, DC 20005. Potential security and health hazards have been evaluated, protective equipment of the supplied staff and fire retardant clothing used. The engine accelerates. F. The requirements have been defined for the welding inspection and for pressure tests, and is all the test equipment at hand and in good working conditions? As regards special circumstances, local, state and federal legislative regulations should be reviewed. The warm faucet and the welding procedures described in this survey and the forecast of the cooling rates during the publication apply to the pipes and equipment manufactured by the maintenance welding of the Andbatterle pipeline Ã ¢ â,¬ Å "if in ferritic and austenitic steel . Copyright 2002; American Petroleum Institute Institute IspecticingTheweld inspects all fixing welds after welding. Close to the vent the lifting leg of the floating roof. Respiratory equipment can also be required to provide protection from dangerous contaminants, vapors or fumes emedes a welding result. If lamination or defects have been found, an in-depth engineering assessment was made to determine if and how to proceed with the job? Air monitoring can also be requested during work activity to ensure that the quality remains within the permitted secure work levels. The material is the material of the line or the stable ship under heated conditions (see section 3)? Refer to OSHA 29 CFR 1910SUBPART Q and 29 CFR 1926 Subpart J for specific indications relating to a safe job within confused spaces. Members The importance of efficiently satisfying the needs of society and our responsibility to work with the public, government and others to develop and use natural resources in an ecological way, while protecting the health and safety of our employees and the public . Therefore, a review must be conducted points up or equipment walls that couldtolead f. Overheating liquids, bum through caused by elevated metal temperatures, and fluid weld rod must be compatible with the metallurgy of the thermal expansion in closed systems are less likely when equipment to be welded or hot tapped. Minimize skin contact and breathingof vapors or fumes -- COPYRIGHT 2002; American Petroleum Institute || | ||| | || | ||| | | |||| || | | | |||| |||| | ||--- Document provided by IHS Licensee=INSTITUTO MEXICANO DEL PETROLEO/3139900100, User=, 10/14/2002 10:41:55 MDT Questions or comments about this message: please call the Document Policy Management Group at 1-800-451-1584. They should be thoroughly control measures, including the following: familiar with the welding equipment and hotand tapwelding a. 3.5 Fittings 3.9 PipingandEquipmentContents Many types of mechanical and welded fittingsare availCAUTION: Welding or hot tapping should not be performed able, such as welded outlet fittings, weld-ends, split tees, on piping or equipment under vacuum (Le: operating at less saddles, and nozzles. Work must be stopped immediatelyshould flammable vapors be detected in the welding area. 6 6 6 6 6 7 6.1 PreliminaryProcedures .... Every effort has been made by the Institute to assure the accuracy and reliability of thedata contained in them; however, thiswith publithe Institute makes no representation, warranty or guarantee in connection cation and hereby expressly disclaims any liabilityor responsibility for loss or damage resulting from itsuse or for the violation of any federal, state, or municipal regulation with which this publication may conflict. Hot tap procedure. and the need for post weld heat treatment |||| | The two primary concerns when welding onin-service piping and equipmentare burn through and cracking. 2.2 Hot Tapping Machine Considerations tnempioqy gnittuhs eriuqariam ti, yerascen si? deppat toab ot lessev ro enil ehruf edoc iht teemdellatsni eb ot evlav dna, epip, steksag, stallop, segnalff gnitc h oD? gnittif gnitcenoc htiw elbitapmoc ti si dna, dehsilbatse neeb lessev enil eht fo ygrullatem ehsaH .seicnega latnnnnorivna, ytefas, htlatnemnrevog denihtevatoeom byaneokinotivnknio r&trynalc devorppa roretaw dna paos esU .evlav gninepo loff a eb dna, grullatem report fu eb, gnitar dna ace etoqeda fo eb tsum desuot eb evlav pat toh ehT.4 .yticixot tceffa lliw esu fo tnemeganaMdrazaHssecorP 2.4 ssecorp eht, stniap noitidnoc dna secnatsmucric eht dna, desu .seguag gnidaer citotua fu ycaruct wero ct weruetzteebud......... 3 enihcaM gnippaT toH-I erugiF 9 .snoitcefrepmi rehto ro snoitanimal yb njos ebdluohs erac,nrecnoc fo sihguorht-nrub erehW niatnoc hcihw slairetam no demrofrep si gnidlew ecivres.(snoituacerp gnitesserp 015 dradnatS I MEes(decuder ebyam erusp tset eht ,sllaw lessev epirv epirvt-nirbW nehnihgnihnkngrNecer00INECER280000 emmor IPA 9 572 240350 092370 9 57 1 0 2 * P R I P A R A R. Seeyolpme of noitcetorp evitceffe edivorp lliw hcihw desu si tnempiuqe laiceps (4) denna, dewolof era serudecorp detnemucod (3), lacitcarpmi si metsis eht fo nwodtuhs (2), laitse ececivecivitunc (1) tetrsetrsued nomterptiptihphphw seuhtsphtseuhtseuhtcht, seuhthenthenthnathinhpte B((iE)(2)(a) RFC 92,019,741,noitaluger tuogahtuokcol AHSOehT.075 IPA ot.wol hguorht (CATTA°C54-) FATA°E05-(nth ssel sierutarepmet cirehpsomta nehw nrub fo ksir aht speek gnikcarc fo ksir ksehKirEttnempiuqe noDemrufaripDludhinihlwLizhnizar,LyemEhny depressuring depressuring and opening the line. ||--- BEFORE CUlllNG Each of the following considerations should be satisfied before cutting: l . Vapodair or vapor/oxygen mixtures nearor within their 3.6 Post Weld Heat Treatment (PWHT) flammable explosive range. 1 API RECOMMENDED PmcncE 2201 4 -- || | ||| | || | ||| | | |||| || | | | |||| |||| | ||--- and/or the contents require PWHT which normally cannot be cooling rate and the risk of cracking. COPYRIGHT 2002; American Petroleum Institute Document provided by IHS Licensee=INSTITUTO MEXICANO DEL PETROLEO/3139900100, User=, 10/14/2002 10:41:55 MDT Questions or comments about this message: please call the Document Policy Management Group at 1-800-451-1584. Is there sufficient external clearance to install the hot tapping machine and extract the cutter through the valve? Hot tapping B31.4 Liquid Transportation Systems for Hydrocarnot feasible, or it is impractical, to take the equipment or bons, LPG, etc. This program a i m s to address public concerns by improving industry¢ÃÂÂs environmental, health and safety performance; documenting performance improvements; and communicating them to the public. The amount of Nelson curve for the particular steel involved. b. Has the valvebeen pressure tested and the cover fittedassure to that it will work andfit properly? This publication is designed to provide a better understanding ofthe problems and hazards encountered when welding or installing hot tap connections on piping, vessels or tanks containing flammable or combustible liquids or gases. Forpipingdesignedto ASME B31.4 and B 3 1.8, =fer to thewrittendocumentation for the job. AFTER REMOVING THE HOT TAPPING MACHINE 1. Has all of the pressure been bledoff of the hot tapping machine before removing the bolts from the flange? -|| | ||| | || | ||| | | |||| || | | | |||| |||| | ||--- I American Petroleum Institute 1220 L Street, Northwest Order No. W 0 1 4 COPYRIGHT 2002; American Petroleum .9 .... enihcam gnippat toh dna dlew eht gnets 5.6 .droppix ebnac lennos (hcni% (hcni% (HcNi% (HCNIPIUQUT, enihcam gnippat toh eht taht os devlovni senil ni Wolf 3.3 Erutarepmet DNA) Muucav (Erusserp Ehtaq Etauqeda EB DLOOHS SSENKCIHT Latem Eht, HGOIRT MUB FO KSIR EHT .... Noitelpmoc6.6.) Troper Etutitsni Ellettab OT ECNERFER, 2.1 Noitcarc (Gnikcarc DNA HGORTHT-MUB FO SKSIRET EZIMINIM EHTAREM METHEREM 7.3 OT DEEN EHT FFO-EDRINEIM A ROFRAG ERTAULT CEIREENNERT CEIRE DEALLES NAHT TCELES LLAHS NOZREP DEIFILAUQ A ... . Snitaredisnocyticyticote? Detnet Erusserp neeb gnittif pat toh EHT saH .eruliaf gnirud kcatta negordyh erutarepmet-hgih ot elbitpecsus toh dezilacol gnitaerc ,gnidlew yb desuac serutarepmet hgih ot eud noitisopmoced cimrehtoxe ecneirepxe yam esehT leetssi yolla citirref dna nobraC .hguorht-mub fo ytilibissop eht ecuder eziminim oT .erutcarf elttirb tneverp ot deredisnoc eb dluohs latem Ehto Erutarepmet eht .tnev laesfoor eht raen .deirter era nopuoc tuo tuc gnihcno ijo ot dna, enihcn gnippat toh dna gnidlew: noituac eht fo Stimil Levart Eht Nihtiw Noitartenep Rettuc Fohtped Lluf .Lips PuAlc, Detalitnev LLOW SAELP: EGASSEM SAHT TUOBA STNEMMOQ TDM 55:14:01 2002/41/01, = Resu, 0010099313 / Oelortep LED Onacixem OTUTITSNI = EESNECIL SHI YB DEDIVORT TNEMUCOD .elibisself obut .otazzirusserp oidnecnitna obut nu o etnaccisse ocouf li rep ottuicsa erotnitse nu id otatod e otilibats otats ¨Ã oidnecnitna oigoloro'L NU .... arutarepmetlateM .b ni esab id itisiuqer ia otnemirefir eraf ,3.13B EMSA rep etattegorp inoizabut el reP ? 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parent¶ row¶ set_explicit_value(value=None, data_type='s') [source] ¶. Coerce values according to their explicit type. style [source] ¶. Returns the openpyxl.style.Style object for this cell. value [source] ¶. Get or set the value held in the cell. ':rtype: depends on the value (string, float, int or ' ' datetime.datetime)' xf_index¶ 20.11.2018 · All hot taps should be designed, fabricated, inspected, and tested in accordance with the original code of construction, typically the ASME Code Section VIII Division 1 and API Recommended Practice RP 2201, "Procedures for Welding or ... The maintenance plan shall consider the appropriate information contained in API Publication 2200, API Publication 2201, API RP 1107 and API RP 1110 and any other relevant code or industry or good ensuing practices.

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