



Toase-eh Park Sanati Gohar Ofogh
 Petrochemical Co.
**CONCEPTUAL, BASIC and DETAIL DESIGN
 ENGINEERING OF STYRENE PARK OFFSITE**



ARKAN SANAT PAYDAR
 Procurement & Construction

Document Title:
 NDT procedure for Ru0001A / B-D-02

Document No.: EI027-ASP-VD-ME-PRO-010

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UT Procedure shall be added.

STYRENE PARK OFFSITE

NDT procedure for Ru0001A / B-D-02

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REVISION RECORD SHEET

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1- SCOPE

This specification covers the minimum requirements for the nondestructive test (NDT) application to fuel daily tank, etc. which will be exposed to Toase-eh Park Sanati Gohar Ofogh project in Iran.

2- CODES & STANDARDS

The following design codes, standards and specification shall be used for the design and application of painting and protective coatings, where referred to in this specification:

- SNT-TC-1A: Recommended Practice for NDT Personnel Qualification & Certification
- EN 473/ISO 9712
- ASTM E165: Standard practice for Liquid Penetrant Inspection Method.
- ASME Code Sec. V: Non-destructive Examination -Art.6: Liquid Penetrant Examination
- ASME Code Sec VIII Part UW and Appendix 8

3- METHODS FOR PENETRATION TEST

3-1- Examination materials

For instance the following trade mark Karl Deutsch are Used in the examination:

- Cleaner – SPOTCHECK (SKC-S)
- Penetrant – SPOTCHECK (SKL-SP2)
- Developer – SPOTCHECK (SKD-S2)

When examining austenitic stainless steels, titanium and nickel – based alloys the examination materials shall be certified for halogen and Sulphur contents.





The analysis of the penetrant, developer and cleaner shall be performed in accordance with the requirements of ASME V, article 6, T 641.

Examination materials from different manufacturers shall not be mixed.

The above mentioned examination materials may be replaced by other materials if these meet the requirements of the customer for the relevant task.

When necessary, the materials are presented for the customer for his approval.

The safety precautions to be employed shall be in accordance with instructions furnished with each

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manufacturers penetrate material. Highly volatile solvents shall be used cautiously. Their vapors may be toxic and the liquids irritate the skin.

Extreme care should be exercised in handling the volatile solvents, as many of them are highly inflammable.

3-1- Pre – Examination Cleaning

The surfaces to be examined shall be clean, dry and free from Oil, sand, rust and scale, welds patters and other contaminants, which may affect the examination result.

In general, satisfactory results are obtained when the clean lines of the surface corresponds to the quality of a welded, rolled, cast or forged surface as well as all adjacent areas within at least 25 mm shall also be cleaned and dried.

When surface conditions do not meet these requirements and grinding or machining is not feasible, the examination can nevertheless be conducted at the request of the customer. In this case, the specific surface condition and its probable effect on the examination method and result shall be noted in the examination report.





Prior to the examination, the surface to be examined shall be made clean with a cleaner mentioned under 2.1.

The surface shall be completely dry, It takes a minimum a five minutes for the surface to dry. During the examination, the temperature of the surface shall remain between +15°C and +50°C.

When it is not practical to conduct a liquid penetrant examination within the temperature range of 10°C to 52°C, the examination procedure at the proposed lower and higher temperature range requires qualification of the penetrant materials and processing in accordance with Mandatory Appendix III Article 6.

3-2- Application of Penetrant and Removal

Cast & welds 5 min. and wrought-forging, plate 10 min. of excess penetrant. The penetrant shall be applied by brushing or spraying.

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The minimum penetration time of the penetrant on the surface is 10 minutes at standard temperatures, as under 2.2. Maximum penetration time shall not exceed 60 minutes. The penetrant shall not be allowed to dry during the penetration time. If drying occurs, the penetrant shall be removed and reapplied.

The excess penetrant shall be removed by wiping the surface with moistened cloth or paper. The cloth shall be moistened with the cleaner C5. Extreme care shall be employed to avoid the removal of eventual indications.

3-3- Application of Developer and Evaluation of Indications

The surface shall be completely dry prior to the application of the developer.

The maximum drying time shall not exceed 15 minutes.

The developer shall be homogenous. To ensure this, the container shall be agitated thoroughly. A thin layer of the developer shall then be sprayed on the surface directly after the drying of the surface.

Special care shall be applied to avoid spraying too heavy on coat of the developer, as this may mask eventual defect indications as soon as wet developer coating has dried on surface of parts.

The developer will dry in 1 – 2 minutes. Possible defects on the surface will be indicated by color contrasts.






During the first 7 minutes, the surface shall be closely observed to detect the nature of any defect indication.

Final interpretation shall be made after allowing the penetrant to bleed out within 7 to 30 minutes. Adequate illumination is required to ensure reliable evaluation of the possible defect.

3-4- Cleaning of the Surface

After the examination, the penetrant and the developer shall be removed by wiping the surface with paper or cloth or by using a cleaner mentioned under 2.1.

Other cleaning methods shall be separately agreed upon with the customer.

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EQUIPMENT AND MATERIAL

1 Penetrant Apparatus. Compressed-air-type apparatus, or paint brushes may be used to apply the liquids (paint brush shall not be used to apply remover or developer).

2 Materials. The following materials (Table 1) shall be used with this procedure. For the examination of nickel base alloys, austenitic stainless steels, and titanium, the residual total halogen and sulfur content be in accordance with Annex 4 of SE-165, Their content shall not exceed 1% by weight. Intermixing of penetrant materials from different families or different manufacturers is not permitted.

Brand			
	Penetrant	Remover	Developer
MAGNAFLUX	SKL-SP1	SKC-S	SKD-S2
SREM - FLUXO	Fluxo P125	Fluxo S190	Fluxo R175

Table 1






4- EXTENT OF TESTING

4-1- Penetrant testing be used when is recommended by technical spec and project requirements.

When examining welds, any adjacent area within 25 mm of the surface also examined. The root side of the welds be examined as well if accessible.

4-2- NDT map shall be prepared by vendor according to relevant standard, and shall be submit owner / MC for approval.

4-3- liquid penetration test will be done according to NDT map (or DWG.).

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NDE PERSONEL QUALIFICATION

a. Written Practice Qualification and certification of NDE Examiners shall be made in accordance with the subcontractor's written practice.

The qualification documents will be provide the followings;

- 1) Level of certification
- 2) Current vision test
- 3) Signature of examiner and his level on the certification
- 4) Interpretation of results shall be performed by personnel qualified Level II

b. Qualification Records

The QC Dept. Manager shall retain on file the list of certified NDE personnel in their applicable methods and their qualification records as required by the subcontractor's written practice.

c. Re-certification of NDE Personnel






(1) The re-certification of the subcontractor's NDE personnel shall be made in accordance with the approved subcontractor's written practice every three years.

(2) This basis for re-certification shall be either their continued satisfactory NDE performance or the results of re-examination.

(3) The Aria's QC Dept. Manager may require re-qualification of any NDE Examiner

(including subcontractor's) when either has specific reason to question the ability of the NDE Examiner.

(This applicable for all of NDT methods)

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NDT PERFORMANCE AND RECORDS

1 The Level III Examiner in the applicable method shall assign certified NDT Examiners to perform NDT.

2 The QC Department Chief shall assure that;

(1) The personnel who will perform the NDT are qualified and certified in accordance with the written Practice, Latest Applicable Edition and their names appear on the list of certified NDE personnel.

(2) The procedure describing how examinations will be conducted are in accordance with the Code.

(3) The NDT equipment that will be used in the applicable method is within the calibration valid due date.

This verification (1), (2) and (3) above shall be determined prior to start of any examination.

3 The NDT Examiner shall perform NDT in accordance with the certified procedure and prepare a NDT report.

All NDT reports shall be submitted to the QC Dept. manager for review of completeness.






4 Interpretation of results shall be performed by personnel certified Level II.

(This applicable for all of NDT methods)

RESPONSIBILITY

The Vendor's QC Dept. Manager has responsibility for all NDE required for above mentioned Project. (This applicable for all of NDT methods)

5- OTHER REQUIREMENTS

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5-1- Evaluation of indications

The evaluation of indications shall be performed in accordance with the following requirements:

Discontinuities at the surface will be indicated by bleeding out the penetrant, however, localized surface imperfections such as may occur from machining marks or surface conditions may produce similar indications, which are not relevant to the detection of unacceptable discontinuities.

Any indication in excess of the acceptance standards stipulated below which is believed to be no relevant shall be regarded as a defect and shall be reexamined to verify whether or not actual defects are present.

Surface conditioning may precede the re – examination.

No relevant indication and broad areas of pigmentation, which would mask indications of defects, are unacceptable.

Linear indications are those indications in which the length is more than or equal to 3 times the width.

Rounded indications are indications, which are circular or elliptical with the length less than 3 times the width.

5-2- Timing






The liquid penetrant examination shall be performed in the final surface condition, e.g. after the last heat treatment, machining or grinding has been performed. However, the examination shall precede blasting.

Intermediary examinations may be carried out by the contractor in different work phases. Yet, these do not substitute for the final examination.

When unacceptable indications are removed by grinding, the area shall be re-examined. If welding is required after required after the grinding, the surface shall be examined before and after welding. Both examinations shall be reported.

6- ACCEPTANCE CRITERIA

The acceptance criteria shall be as per appendix 8 of ASME VIII, Div. I are specified for specific materials or applications within division1 of the ASME.

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All surfaces to be examined shall be free of:

- (a) Relevant linear indications.
- (b) Relevant rounded indications greater than 4.8 mm
- (c) Four or more relevant rounded indications in a line separated by 1.6mm or less (edge to edge).





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.

7- REPAIR REQUIREMENTS

Unacceptable imperfections shall be repaired and reexamination made to assure removal or reduction to an acceptable size. Whenever an imperfection is repaired by chipping or grinding and subsequent repair by welding is not required, the excavated area shall be blended into the surrounding surface so as to avoid sharp notches, crevices, or corners.

Where welding is required after repair of an imperfection, the area shall be cleaned and welding performed in accordance with a qualified welding procedure.

- (a) Treatment of indications believed no relevant. Any indication, which is believed to be no relevant, shall be regarded as an imperfection unless it is shown by reexamination by the same method or by the use of other nondestructive methods and/or by surface conditioning that no unacceptable imperfection is present.
- (b) Examination of areas from which defects have been removed. After a defect is thought to have been removed and prior to making weld repairs, the area shall be examined by suitable methods to ensure it has been removed or reduced to an acceptable sized imperfection.
- (c) Reexamination of repair areas. After repairs have been made, the repaired area shall be blended into the surrounding surface so as to avoid sharp notches, crevice, or corners and reexamined by the liquid penetrant method and by all other methods of examination that were originally required for the affected area.

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8- INSPECTION REPORTS/DOCUMENTATION

After examination a liquid penetrant examination report shall be made by NDT qualified personnel.
The inspection will be documented as attached forms.



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RADIOGRAPHY EXAMINATION PROCEDURE (RT)

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1- GENERAL

1.1 SCOPE

1.1.1. This specification covers the nondestructive examinations to be performed on field or shop welds of drums, reactors and heat exchangers.

1.1.2. This specification is to be considered together with ASME SEC. VIII DIV.1 and according to drawing, as well as the requirements motioned in ASME section V article 2.

1.2. DEFINITIONS

For the definition of some terms used hereinafter, ASME SEC.VIII DIV .1 and according to drawing.

ASME Sec. V Nondestructive Examination edition 2019

ASNT Recommended Practice No. SNT-TC-1 A for NDT Personnel Qualification

1.3. APPROVAL OF THE EXAMINATION PROCEDURES





The Contractor shall submit to the Inspector, for approval, detailed written procedures and technique to be applied during examinations. The Inspector can request further details, or the execution of tests.

1.4. PERSONNEL CONCERNED WITH THE EXAMINATIONS

1.4.1. Nondestructive examination personnel shall have an adequate competence and experience in the Techniques used.

1.4.2. The Inspector is entitling to ascertain the above, through interview and / or practical tests to be agreed with the contractor additional radiographer shall have minimum ASNT SNT-TC-1A level II or similar.

1.4.3. The radio-active isotope shall be handled only by authorized personnel, following proper safety criteria.

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1.5 DOCUMENTS

1.5.1. For each examination performed, the Contractor shall draw up relevant records, issuing a preliminary judgment to be indicated, on attached official forms. The final judgment on the results of examination shall be issued by the Inspector in the space pertaining to him.

1.5.2. The contractor, moreover, shall furnish to the Inspector the drawings necessary to identify the location of the radio graphed welds.

1.5.3. radiography films and the relevant reference drawings, as well as the original of all records, shall be filed by contractor in rooms deemed suitable by inspector for the whole duration of the work and will remain in the employer's property.

1.5.4 The inspector must sign each record.

2- VISUAL EXAMINATION





2.1. GENERAL REQUIREMENTS

2.1.1. The visual examination shall ascertain that the welds are in compliance with the codes and specifications as concerned:

- Regularity, dimensions and cleanness of the weld face
- Undercuts
- Surface defects
- Presence of welder's stamp (when required)

Absences of spatters or weld residues, tearing on base metal, as well as any other not allowable irregularity on the equipment.

2.1.2. In particular cases, when there are doubts about the presence of unacceptable surface defects; the inspector may request a liquid penetrant or magnetic particle examination, as an integration of the visual examination.

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3- RADIOGRAPHIC EXAMINATION

3.1 Definitions

3.1.1 Radiographic examination is meant an examination performed by X – rays or radioactive isotopes:

In both cases the exposed film will be called “radiograph “In Case gamma radiation may be Used the required radio graphic Senility should be obtained.

3.1.2 Welds likely to be radio graphed “ shall be considered to mean all butt welds, as well as the branch connection welds having a nominal diameter not less than 6”.

The welds of half couplings, weldolets, etc. will be considered not likely to be radio graphed.





3.2. Extent of the examination

3.2.1 To be in conformity with ASME sec.VIII, Div.1, UW-51 (radiographic and radiosopic examination of welded joint) or UW-52 (spot examination of welded joints) for ferrous material and UNF-57 (radiographic examination) for nonferrous material.

3.2.2 The radiographic examination, as per Para 3.2.1) shall be properly distributed among the welders, according to the welds performed and to relevant repairs.

For this purpose, the inspector shall draw- up, and weekly up-date a table which shall indicate the amount of welds likely to be radio graphed, performed by each welder, the amount of radio graphed welds and number of repairs. Moreover, during selection of the welds to be radio graphed, position and accessibility as well as appearance of the weld shall be taken into account. According to ASME SEC.VIII DIV I. and drawing.

3.2.3 The selection of welds to be radio graphed shall be made by the inspector. The radiography shall be performed within the next working day after notification is given.

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3.2.4 The Level III Examiner in the applicable method will be assign certified RT Examiners to perform RT.

3.3 Technique and modalities

3.3.1 Before beginning the work, the contractor shall furnish to the inspector, for approval, a written procedure for the execution of the radiography, as per ASME Sect. V Para T-221.2.

3.3.2 The only isotope allowed is Iridium 192, with source size not over 3×2 mm .The isotope cobalt 60 is allowed only in particular cases, and subjected to employer's authorization.





The Contractor, for every isotope utilized, shall be able to produce to the inspector the certificate of origin issued by the supplier, with the following indications:

- Type of isotope
- Source size
- Source activity on the date when the certificate was issued. The decay chart shall be given to inspector.

3.3.3 As a rule, the double wall exposure with single wall viewing shall be used. The elliptical technique (double wall viewing) can be used when the nominal pipe diameter is not over 3 in. (90mm) .The technique with source inside the pipe may be allowed only provided Inspector's authorization is given, after performing satisfactory tests.

3.3.4 Where the double wall exposure with single wall viewing technique is used for welds to be examined 100%, four exposures at least are required when the ratio thickness diameter of the pipe exceeds 0.12, and otherwise three exposures may be used .In any case an overlap of at least 25 mm shall be provided for adjacent films.

Where the elliptical technique (double wall viewing) is used for welds to be examined 100%, two exposures at 90° from one another will be performed, and film distance should not be less than 60 cm.

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3.3.5 When isotopes are used, the film type used shall be “very fine grain “type, corresponding to Agfa or Kodak M.types, unless otherwise agreed with Employer.

For the weld examination of branch connections, and of elbows having diameter less than 4 “ and radius equal to the diameter, single- package type films (with incorporated screen) will preferably be used, with a width not over 60 mm.

3.3.6 The films shall be commercial size, which shall be specified for the various cases in the written procedure as per pare 3.2.1. And anyhow shall have a minimum length of 150 mm for pipes having a diameter less than 6”, and of 300 mm for pipes having a diameter over. 6”.

3.3.7 The development shall be performed in compliance with the indications given by the suppliers of the films and chemicals used, and in accordance with ASME Sect. V recommended practice SE-94 part III. The Inspector shall previously authorize the use of different procedures.

3.3.8 The intensifying screens shall be of lead type and shalbear a progressive number stamped in one corner, for identification (the defective ones shall be replaced). Saline or fluorescent screens are not allowed, unless in special cases Inspector’s prior authorization is given after satisfactory qualification tests.

3.3.9 Suitable image quality indicators (penetrameters) shall be used to verify the sensitivity of the radiographs, radiographs without penetrameters are not allowed.

3.3.10 When elliptical technique (double wall viewing) is used, the penetrameter shall be placed at the source side. When isotope inside the pipe is used, four penetrameter at least shall be placed, source side, 90° one from the other.

3.3.11 Wire – type penetrameters shall be generally used. The image of the wire indicated in the following table, according to the thickness “t” crossed by rays, shall be visible on the radiograph .





Thickness crossed By rays (mm)	Type of wire according to DIN 54109	Diameter of The wire (mm)
$t \leq 6$	14	0.16
$6 < t \leq 8$	13	0.20
$8 < t \leq 10$	12	0.25
$10 < t \leq 16$	11	0.32
$16 < t \leq 25$	10	0.40
$25 < t \leq 32$	9	0.50
$32 < t \leq 40$	8	0.63
$40 < t \leq 60$	7	0.80
$60 < t \leq 80$	6	1.00
$80 < t \leq 150$	5	1.25

In the case of branch connections, a lower sensitivity than that indicated above can be allowed, considering the unavoidable distortion.

Different penetrameters from those indicated above shall not be used, unless authorized by the employer.

3.3.12 As a check of back scattered radiations, a lead symbol “s” or “B”, having about 1.5 mm thickness and about 10 mm height, shall be attached to the back of each film holder (As per ASME Sec.V Para T-223). The letter “F”, when The IQI holds on the film side, shall be used besides of IQI’s.

3.3.13 In order to identify the location of the radiographs on the weld, a graduated band shall be wrap round the pipe, with lead markers with 100 mm spacing, or a fraction

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thereof. Furthermore, the zero and the winding direction of the band shall be stamped on the pipe, according to a criterion approved by the Inspector.

3.3.14 An identification number shall be assigned to each radiographed weld, which shall appear on the relevant radiographs and be indicated on a copy of the pipe drawing. This number shall also be written in paint beside the weld, and a circumferential band shall be drawn beside the weld in order to find it more easily).

3.3.15 In addition to the penetrameters and location markers, each radiograph shall clearly show, beside the weld seam, the following indications (attached to the film holder):

- Weld identification number
- Rounded off value of the pipe wall thickness (beside the penetrameter)
- In the case of repeated radiograph, the previous judgment (as per Para 3.4.6.), or the symbol TM when the weld has been already radiographed and then cut due to site necessities or line modifications and also No. Of repetition.
- Shall be written name and project number, in addition shall use ASME SEC. V-T275.
- Name of the Contractor performing the welds
- Weld number (as per Para 3.3.15.)
- Progressive number of the films contained in the cover
- Film location, on the joint, for single exposure (as per Para 3.3.14)
- Drawing number of the piping
- Welder stamp
- Piping class
- Pipe material, except in case of carbon steel
- Pipe diameter
- Previous judgment, if any (for repeated radiographs)
- Date of forwarding to the Inspector for the judgment
- Shall be written name and project number, in addition shall use ASME SEC. V-T275
- The Vessel item no.
- Welders Symbol

3.4 Evaluation of radiographs

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3.4.1 The Inspector's judgment shall concern both the radiograph quality (definition, sensitivity, density, etc.) and the weld defects.

3.4.2 Each radiograph shall have a sensitivity complying with the requirements of Para 3.3.11. , And density in the area of interst (weld and base metal shown on the radiograph) shall be 1.8 minimum for radiographs made with x-Ray source and 2.0 minimum for radiographs made with a gamma ray source. For composite viewing of multiple filmexposures, each film shall have a minimum density of 1.3.The maximum density shall be 4.0 for either single or composite viewing.






3.4.3 As a rule, defects with blackening exceeding that of the base metal with lowest thickness will not be accepted, except for slight external undercuts. The evaluation of the defects shall be made by the Inspector, case by case:

The length and width, or the diameter, are indicated in mm for each type of defect. Moreover, for elongated inclusions and for porosity, the maximum defect concentration (total length or area) shall be specified.

3.4.4 The judgment on radiographs shall be expressed by symbols having the following meaning:

- A - Acceptable
- NR - Weld to be repaired
- NT - Weld to be cut
- NX - Radiograph to be repeated due to film quality
- RX - Radiograph to be repeated for doubts above its interpretation
- EX – The examination is to be extended at the side according to ASME SEC. VIII and drawing data.

3.4.5 As an alternative to what specified at points 3.4.6 a different system of radiographic examination records maybe forwarded by the Contractor for Inspector's approval.

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3.4.6 Where face irregularities on the weld can impair, in particular cases, a correct evaluation of the radiograph, the Inspector is entitled to request the grinding of the welds face, before a new radiograph is performed.

3.4.7 Radiography report shall be made in accordance with the requirements of ASME SEC. V T-290 documentation.






3.5 Acceptance Standards

Film processing shall be free from artifacts that will interfere with the interpretation of the radiograph. If doubt exists concerning the true nature of the defect, the radiograph shall be rejected.

3.5.1 The acceptance standard of radiographs shall be company specification. The discontinuities should be evaluated on the basis of being either elongated or rounded. Regardless of the type of discontinuity, an elongated discontinuity is one in which its length exceeds three times its width. A rounded discontinuity is one in which its length is three times its width or less and may be round or irregular and may have tails. ASME sec VIII part UW 51 shall be used for evaluation of planar and elongated indication. ASME sec VIII app 4 shall be used for evaluation of rounded indication Exhibit 2 is ASME sec VIII appendix 4 rounded indication acceptance chart.

3.5.2. UW51: Indications shown on the radiographs of welds and characterized as imperfections are unacceptable under the following conditions

- (1) Any indication characterized as a crack or zone of incomplete fusion or penetration;
- (2) Any other elongated indication on the radiograph which has length greater than
 - (A) 1/4in for t up to 3/4 in
 - (B) 1/3in for t from 3/4 in to 2 1/4 in
 - (C) 3/4 in for (t) over 2 1/4 in where


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t = the thickness of the weld excluding any allowable reinforcement. For a butt weld joining two members having different thicknesses at the weld, t is the thinner of these two thicknesses. If a full penetration weld includes a fillet weld, the thickness of the throat of the fillet shall be included in t .

(3) Any group of aligned indications that have an aggregate length greater than t in a length of $12t$, except when the distance between the successive imperfections exceeds $6L$ where L is the length of longest imperfection in the group;

(4) Rounded indications in excess of that specified by the acceptance standards given in Appendix 4.

3.6 ATTACHMENT (RT INSPECTION REPORT FORM)

							
Project :				VENDOR : ARKAN SANAT PAYDAR			
RADIOGRAPHY Test Report							
Client :				Manufacturer :			
Item No. :		FORM CODE :		Test Date :			
ITEM NAME;		ITEM NO;		MATERIAL;			
SUBJECT OF TEST;		TYPE OF WELD;		THICNESS;			
TYPE OF PLM;		SOURCE;		SOURCE ACTIVITY;			
DENSITY;		TYPE OF POZITION;		STANDARD;			
INFORMATION							
NO.	JOINT NO.	WELDER ID	LOCATION	TYPE OF DEFECT	RESULT	REMARK	
Q.C. Inspector			TECHINCO			Abbreviation	
Name :			Name :			1) Type of test	
Date :			Date :			2) Prob type	
Signature :			Signature :			$R = \text{Repair}$ $N = \text{New}$ $N = \text{Normal}$ $A = \text{Angle}$ $D = \text{DBL}$	
						3) Test result	
						$A = \text{Accept}$ $R = \text{Repair}$	



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ATTACHMENT (UT INSPECTION REPORT FORM)

Project :					Client :				
Ultrasonic Test Report									
Client :					Manufacturer :				
Item No. :			FORM CODE :			Test Date :			
Code, Standard : ASME SEC V , VIII			CertificateType : EN 10204 - 3.1.B			UT Equipment : KRAUTKRAMER USN 52			
Evaluation Standard : ASME SEC VIII-APP12			Couplant : ADHESIVE WALL PAPER			Calibration certificate No. : MUK06101601			
Test Type (1)	Object Data			Test equipment data				Test Result A/R (3)	Remark
	Area Weld No.	Thickness (mm)	Welder stampNo.	Probe Type (2)	Probe Angel	Frequency (MHz)	Amplitude (dB)		
Q.C. Inspector				TECHINCO				Abbreviation	
Name :				Name :				1)Type of test	2)Prob type
Date :				Date :				R =Repair N =New	N =Normal A =Angle D=DBL
Signature :				Signature :				3)Test result	
								A =Accept	R =Repair