Base Load Power Hub (BLPH)

NON-DESTRUCTIVE EXAMINATIONS PROCEDURES (NDE) NDE OPERATORS LIST AND QUALIFICATIONS
For Sea Water Lift Progressive Cavity Pumps (P-50001 A/B)

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Rev.	Date	Description	Prepared	Reviewed	Approved

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Revision / Change Log

Rev.	Description
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02	Accepted for Construction (AFC) – No change
03	Accepted for Construction (AFC) – Procedures updated

HOLDS LIST

No.	Description
1	
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3	
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1 Procedure for visual Testing according to ASME VIII & V (2023)

TECHNICAL INSTRUCTION

EXAMEN PAR VT

Procedure for visual testing according to ASME VIII & V (2023)

Référence du document : IT_NDT_506E_rév03 du 27/01/2025

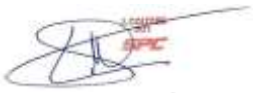
	NOM	DATE / VISA
Rédacteur	Stanislas PACCAULT	27/01/2025 
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Approuvé par	Ludovic COLARD	27/01/2025 

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1. SCOPE

The purpose of this document is to describe the procedure to be used for visual inspection of welds. Technique: direct visual examination.

2. REFERENCE DOCUMENTS

Asme VIII div.2, 2023 edition Rules for construction of pressure vessels.	
Asme V, 2023 edition	Article 9, Visual Examination
SNT-TC-1A, 2024 edition	Personnel Qualification & Certification
EN ISO 9712 (03/22)	Certification of personnel

3. PERSONNEL QUALIFICATION

Personnel conducting visual inspection in accordance with this procedure shall be qualified in VT level 2 (or qualified NDT according to EN ISO 9712 or SNT-TC-1A).

All welds for pressure retaining parts shall be visually examined. Personnel performing visual examinations shall have vision, with correction if necessary, to read a Jaeger Type No. 2 Standard Chart at a distance of not less than 300 mm, and be capable of distinguishing and differentiating contrast between colors used. Compliance with this requirement shall be demonstrated annually.

4. EQUIPMENT

Visual inspectors shall have available sufficient equipment required to carry out their tasks. These items may be, but are not restricted to, Welding Institute Gauge, depth gauge, torch, magnifying glass, ruler, measuring tape, optical aids, etc.

5. VISUAL INSPECTION TECHNIQUE

5.1 DIRECT VISUAL EXAMINATION

Direct visual examination may usually be made when access is sufficient to place the eye within 24 in. (600 mm) of the surface to be examined and at an angle not less than 30° to the surface to be examined. Mirrors may be used to improve the angle of vision, and aids such as a magnifying lens may be used to assist examinations.

Illumination (natural or supplemental white light) of the examination surface is required for the specific part, component, vessel, or section thereof being examined.

The minimum light intensity shall be 1076 lux. The light intensity, natural or supplemental white light source, shall be measured with a white light meter prior to the examination or a verified light source shall be used.

Verification of light sources is required to be demonstrated only one time, documented, and maintained on file. All visual inspections shall be carried out in accordance with the requirements of this procedure.

5.2 REMOTE VISUAL EXAMINATION

In some cases, remote visual examination may have to be substituted for direct examination. Remote visual examination may use visual aids such as mirrors, telescopes, borescopes, fiber optics, cameras, or other suitable instruments.
Such systems shall have a resolution capability at least equivalent to that obtainable by direct visual observation.

6. REPORTING

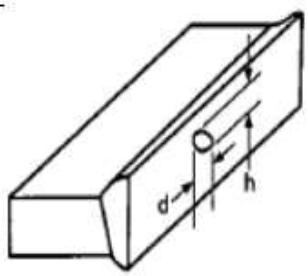
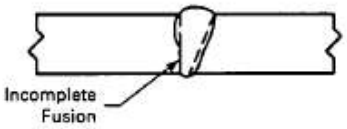
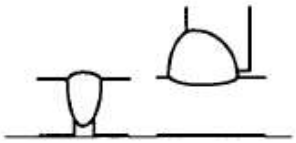
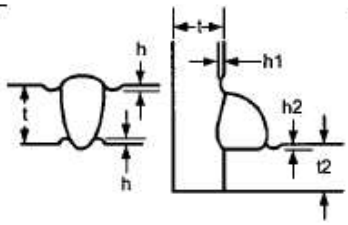
Visual inspections shall be reported on a Visual Inspection Report **MQD_002**, which shall include all relevant technical details.

A written report of the examination shall contain the following information:

1) The date of the examination
2) Procedure identification and revision used
3) Technique used
4) Results of the examination
5) Examination personnel identify, and, when required by the referencing Code Section, qualification level
6) Identification of the part or component examined.

7. ACCEPTANCE CRITERIA FOR VISUAL EXAMINATION

Welds that are observed to have indications exceeding the criteria given in Tables 1 & 2 are unacceptable. Unacceptable indications shall be removed or reduced to an indication of acceptable size. Whenever an indication is removed by chipping or grinding and subsequent repair by welding is not required, the area shall be blended into the surrounding surface so as to avoid notches, crevices, or corners.

n°	Type of Imperfection (note 1)		Acceptance Criteria	
1	Cracks (all)	...	Not permitted	
2	Gas cavity (all) Shrinkage cavity (all)		Not permitted	
3	Slag inclusions (all) Flux inclusions (all) Oxide inclusions (all) Metallic inclusions (all)	...	Not permitted when occurring at the surface 2	
4	Incomplete fusion (all)		Not permitted	
5	Lack of penetration		Not permitted if a complete penetration weld is required.	
6	Undercut		Refer to [Note (3)] for acceptable undercut.	

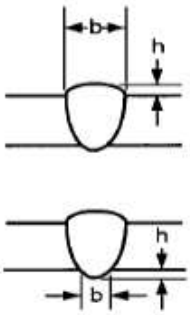
7	Weld reinforcement		Acceptable weld reinforcement in butt welding joints shall be in accordance with [Note (4)]. A smooth transition is required.	
8	Stray flash or arc strike	...	Not permitted [Note (2)].	
9	Spatter	...	Spatter shall be minimized [Note (2)].	
10	Torn surface Grinding mark Chipping mark	...	Not permitted [Note (2)].	
11	Concavity		Refer to [Note (4)] for acceptable concavity.	

Table 1: Acceptance criteria

NOTES:

1) The following symbols are used in this Table:

a = nominal fillet weld
throat thickness b = width
of weld reinforcement d =
diameter of pore h = height
of imperfections
t = wall or plate thickness

2) These imperfections may be removed by blend grinding.

3) Type No.1 Butt Joints.

Weld Penetration and Reinforcement
A reduction in thickness due to the welding process is acceptable provided all of the following conditions are met.
Note that it is not the intent of this paragraph to require measurement of reductions in thickness due to the welding process. If a disagreement between the Manufacturer and the Inspector exists as to the acceptability of any reduction in thickness, the depth shall be verified by actual measurement.

a) The reduction in thickness shall not reduce the material of the adjoining surfaces below the minimum required thickness at any point.
b) The reduction in thickness shall not exceed 0.8 mm or 10% of the nominal thickness of the adjoining surface, whichever is less.

4) Type No.1 Butt Joints.

Weld Reinforcement - to assure that the weld grooves are completely filled so that the surface of the weld metal at any point does not fall below the surface of the adjoining base materials, weld metal may be added as reinforcement on each face of the weld. The thickness of the weld reinforcement on each face shall not exceed that shown in Table 2.
Concavity due to the welding process on the root side of a single welded circumferential butt weld is permitted when the resulting thickness of the weld is at least equal to the thickness of the thinner member of the two sections being joined and the contour of the concavity is smooth.

Section Thickness (mm)	Circumferential joint in Pipe and Tubing	Other Welds
2.5 < t	2.5	0.8
2.5 ≤ t < 5	2.5	1.5
5 ≤ t < 13	3	2.5
13 ≤ t < 25	4	2.5
25 ≤ t < 50	4	3
50 ≤ t < 76	4	4
76 ≤ t < 100	5.5	5.5
100 ≤ t < 125	6	6
125 ≥ t	8	8

Table 2: Maximum reinforcement for Welded Joints

8. VISUAL INSPECTION REPORT

RAPPORT D'EXAMEN VISUEL / VISUAL REPORT

N° de rapport / Report N° : NDT0001_A001-001VT / page : 1 / 3

Client / *Customer :*	**N° imputation client/** *Customer Affiliation n°:*	**N° d'affaire SPC NDT /** *SPC NDT project n° :*
N° Cde - Demande / *Order n° - Request :*	**Date de l'intervention /** *Testing date :*	**ISO - Plan /** *Isometric - Plan :*

Objet du contrôle / *Testing description :*

Identification de l'ensemble - intitulé du chantier / *part - project identification :*

Adresse des essais / *Test address :*

Spécification- Code - Norme / *Specification - Code - Standard*	**Critères d'acceptation /** *Acceptance criteria*
SPC NDT : **Client /** *Customer :* **Norme - Code /** *code :*	

Type Examen / *Testing type :*	**Dispositif de contrôle /** *control device :*		**Eclairage / Intensité /** *Lighting / Intensity (Lux) :*		
Visuel direct / Direct visual			**Type luminosité**	**Requis/** *required*	**Mesuré/** *measured*

Caractéristiques des éléments contrôlés / *Tested elements characteristics*

Identification pièce / *Part designation*	**Dimension pièce /** *Part size (mm)*	**Epaisseur /** *Thickness (mm)*	**Matériau Nuance /** *Material - Grade*	**Procédé de soudage /** *Welding process*	**Etat de surface /** *Surface condition*	**Etendue du contrôle /** *Testing coverage*	**Stade d'examen /** *Step of inspection*	**Soudeur /** *Welder*	**Résultat /** *Result*

NOTA : **NC = Non Conforme** / *Not satisfactory* - **C = Conforme** / *Satisfactory* - **NA = Non applicable** / *Irrelevant* - **AR = A réparer** / *To repair* - **AC = A couper** / *To cut* - **PC = Pour courtoisie** / *for observation*

Annexe / *Appendix :* Non/no

Observation(s) / *Remarks :* /

/

Agent SPC NDT / *SPC NDT agent :*	**Nom /** *Name*	**Niveau /** *Level*	**Visa**	**Date rapport /** *Report date*
Responsable technique client / *Customer Technical Supervisor :*				

MOD_002_rév a - 24-02-2021

RAPPORT D'EXAMEN VISUEL / *VISUAL REPORT*

NON DESTRUCTIVE TESTING

N° de rapport / *Report N°* :
NDT0001_A001-001VT
/

page : 2 / 3

Repère zone et n° indication / *Zone mark and indication n°*	**Position indication /** *Indication location (mm)* X	Y	Z	**Dimensions**	**Type /** *Shape*	**Conforme /** *Conform*	**Observation /** *remark*

NOTA: NC = Non Conforme / Not satisfactory - **C = Conforme** / Satisfactory - **NA = Non applicable** / Irrelevant **AR = A réparer** / To repair
AC = A couper / To cut - **PC=Pour constat** / for observation

Observation(s) / *Remark(s)* : /

	Nom / *Name*	**Niveau** / *Level*	**Visa**	**Date rapport** / *Report date*
Agent SPC NDT / *SPC NDT agent* :				
Responsable technique client / *Customer supervisor* :				

MQD_002_rév 4-24-02-2021

RAPPORT D'EXAMEN VISUEL /
VISUAL REPORT

NON DESTRUCTIVE TESTING

N° de rapport / *Report N°* :
NDT0001_A001-001VT
/
page : 3 / 3

Plan :

Visa :

MOD_002_rév a-24-02-2021

2 Procedure for Penetrant Testing of Welds in Accordance with ASME VIII & V Edition 2023

PROCEDURE END

EXAMEN PAR RESSUAGE

Procedure for penetrant testing of welds in accordance with ASME VIII & V edition 2023

Référence du document : IT_NDT_302F_rév03 du 27/01/2027

	NOM	DATE / VISA
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Vérifié par	Jean COUTIN	27/01/2025
Approuvé par	Ludovic COLARD	27/01/2025

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1. SCOPE

This procedure provides instructions to perform liquid penetrant examination using water or solvent removable products and details the acceptance criteria for welds.
The purpose of this document is to assure the quality of application and interpretation for liquid penetrant examination by providing a well-documented work description.

2. REFERENCE DOCUMENTS

Asme VIII, 2023 edition	Rules for construction of pressure vessels div.1 app.8 & div.2 part 7
Asme V, 2023 edition	Article 6, liquid penetrant examination
SNT-TC-1A, 2024 edition	Personnel Qualification & Certification
EN ISO 9712 (03/22)	Certification of personnel

3. PERSONNEL QUALIFICATION

Performance of the examination and evaluation of the results will be carried out by a Level 2 operator (as minimum).
All levels will be in accordance with the SNT-TC-1A or NF EN ISO 9712.
Each technician has vision, with correction if necessary, to enable him to read a Jaeger Type No. 2 Standard Chart at a distance of not less than 12 in. (300 mm), and is capable of distinguishing and differentiating contrast between colors used. These requirements shall be checked annually.

4. DESCRIPTION OF EXAMINATION

4.1 Method

The liquid penetrant examination is an effective means for detecting discontinuities which are open to the surface on metals and other materials.

Typical discontinuities detectable by this method are cracks, laps, seams, cold shuts, laminations and porosity.

A liquid penetrant is applied to the surface to be examined and allowed to enter discontinuities. All excess penetrant is then removed, the surface is dried and a developer is applied.

The developer functions both as a blotter to absorb penetrant that has been trapped in discontinuities, and as a contrasting background to enhance the visibility of penetrant indications. After application of the developer, the surface is inspected visually, in order to determine the presence or absence of any discontinuity. Note: Mixing of different trademarks and/or family product is prohibited

4.2 Time and extent of examination

Final examination of welds shall be carried out after completion of the PWHT cycle, if PWHT is required. Examination of progressive stages of welding may be performed before post weld heat treatment.

4.3 Examination conditions

4.3.1 Lighting

Natural or artificial light, sufficient (1076 lux) to illuminate the area to be examined. Light intensity should be routinely checked to assure adequate lighting at the surface of the part being examined.

4.3.2 Direct visual examination

Direct visual examination may be made when access is sufficient to enable examination within 610 mm of the surface to be examined and an angle of not less than 30° to the surface to be examined. Mirrors may be used to improve the angle of vision.

4.4 Application

4.4.1 Surface preparation

a. Satisfactory results are normally obtained in the as-welded conditions. Surface preparation by grinding is necessary when surface irregularities might mask the indications of unacceptable discontinuities, or otherwise interfere with the effectiveness of the examination.

b. Prior to liquid penetrant examination, the surface to be examined and all adjacent areas within at least 25 mm shall be dry and free of all dirt, grease, lint, scale, welding flux and spatter, oil, or other extraneous matter that could interfere with the examination.

c. Cleaning if necessary, shall be performed with a wire brush, by grinding or using alcohol. If using alcohol for cleaning, surface should be left for 5 minutes before applying any penetrant allowing alcohol to evaporate.

4.4.2 Penetrant application

a. The penetrant shall be applied to the whole surface being examined by either using a clean brush or by spraying; in which case the original spray shall be used.

b. The temperature of the surface being examined and the penetrant shall be between 5° C and 52° C. If the surface temperature is outside this range, a specific procedure will be written in accordance with ASME Code Section V paragraph T-653 and appendix III.

c. The time allowed for penetration shall be minimum 5 minutes and maximum 60 minutes. During this time the dye penetrant must stay humid; this can be achieved by additional spraying.

4.4.3 Excess penetrant removal

a. After the penetration time has elapsed, any penetrant remaining on the surface shall be removed.

b. Water washable penetrant:

c. The water pressure for removing water washable penetrant shall not exceed 2 bars, and the water temperature shall not exceed 43°C to minimize removal of penetrant from possible discontinuities.

d. Solvent removable penetrant:

e. Excess solvent removable penetrant shall be removed by wiping with a cloth or absorbent paper, and repeating the operation until most traces of the penetrant have been removed. Any remaining traces shall be removed by lightly wiping the surface with cloth or absorbent paper moistened with solvent. Care shall be taken to avoid the use of excess solvent. FLUSHING THE SURFACE DIRECTLY WITH SOLVENT IS PROHIBITED.

4.4.4 Drying after excess penetrant removal

a. Water washable penetrant:

The surface may be dried by blotting with clean materials or by circulating warm air; in this case the surface temperature must not be raised above 52° C. As minimum the developer shall not be applied within 10 minutes after drying.

b. Solvent removable penetrant:

The surface may be dried by normal evaporation, blotting, wiping or with circulated air. As minimum the developer shall not be applied within 10 minutes after drying

c. The air pressure for the various operations shall not exceed 50 psi (350kPa), and the air should be filtered and oil free.

4.4.5 Developer application

The developer shall be applied as soon as possible after removal of the penetrant by spraying a uniformly thin coating over the whole surface. The spray must be thoroughly agitated before and during application of the developer.

4.4.6 Interpretation

a. The type of discontinuities is difficult to evaluate if the penetrant diffuses excessively into developer. Therefore, the surface shall be closely observed during the application of the developer to monitor the behavior of indications that bleed-out profusely.

b. Final interpretation of the examination shall be made after allowing the penetrant to bleed-out. The length of time should not be less than 10 minutes with a maximum of 60 minutes. If the surface to be examined is too large to allow complete examination within the prescribed time, then the surface shall be examined in sections.

c. If the penetrant has not been sufficiently removed the surface will show indication with an overall light pink color. In this case a new examination is required.

4.5 Post cleaning

d. Cleaning shall be carried out as promptly as possible after inspection so that developer does not fix to the area. All products shall be removed by spraying with water.

4.6 Type of products used or equivalent

Penetrant	Water washable Babb'Co DP55	Solvent washable Babb'Co DP55
Remover	Water	Babb'Co N120
Developer	Wet developer Babb'Co D100	Wet developer Babb'Co D100

The composition of all products used is to be controlled. Products shall be delivered with a manufacturer's certificate, which shall include the penetrant manufacturer's batch number and the test results obtained.

Specific requirements for products used on austenitic stainless steels, nickel, nickel-alloys and titanium are that the chlorine, fluorine and sulfur content should be limited to 1 % for the remover and the developer and to 0,1% for the dye penetrant.

4.7 Flow diagram of procedure

PRE-CLEAN	
As-welded-Wire brushing-Grinding-Alcohol. Including at least 25 mm adjacent areas. Surface free of all foreign matter	
PENETRANT	**APPLICATION**
Water washable Babb'Co DP55	Solvent washable Babb'Co DP55
Surface temperature : 5 - 52° C Penetrant time : 5 - 60 minutes The penetrant shall stay humid, eventually by an additional spraying	
EXCESS PENETRANT REMOVAL	
Water washable Pressurized water: < 2 bars. Water-wash temperature : 16 - 43° C.	Solvent washable Cloth or absorbent paper. Remaining traces removed with cloth or absorbent paper moistened with solvent Babb'Co N120. FLUSHING THE SURFACE DIRECTLY WITH SOLVENT IS PROHIBITED
DRY SURFACES	
Water washable Clean, cloth, absorbent paper or warm air (52° C maximum)	Solvent washable Normal evaporation
APPLY DEVELOPER	
Babb'Co D100	
INTERPRETATION	
10 - 60 minutes after application of developer. Lighting 1000 lux minimum is recommended.	
POST CLEAN	
Pressurized water	

5. ACCEPTANCE CRITERIA

5.1. Evaluation of indications

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 with major dimensions greater than 1, 5 mm shall be considered relevant.

- A linear indication is one having a length greater than three times the width.
- A rounded indication is one of circular or elliptical shape with a length equal or less than three times its width.
- Any questionable or doubtful indications shall be re-examined to determine whether or not they are relevant.

All examined surfaces shall be free of:

- relevant linear indications;
- relevant rounded indications greater than 5 mm;
- Four or more relevant rounded indications in a line separated by 1, 5 mm or less, edge to edge.

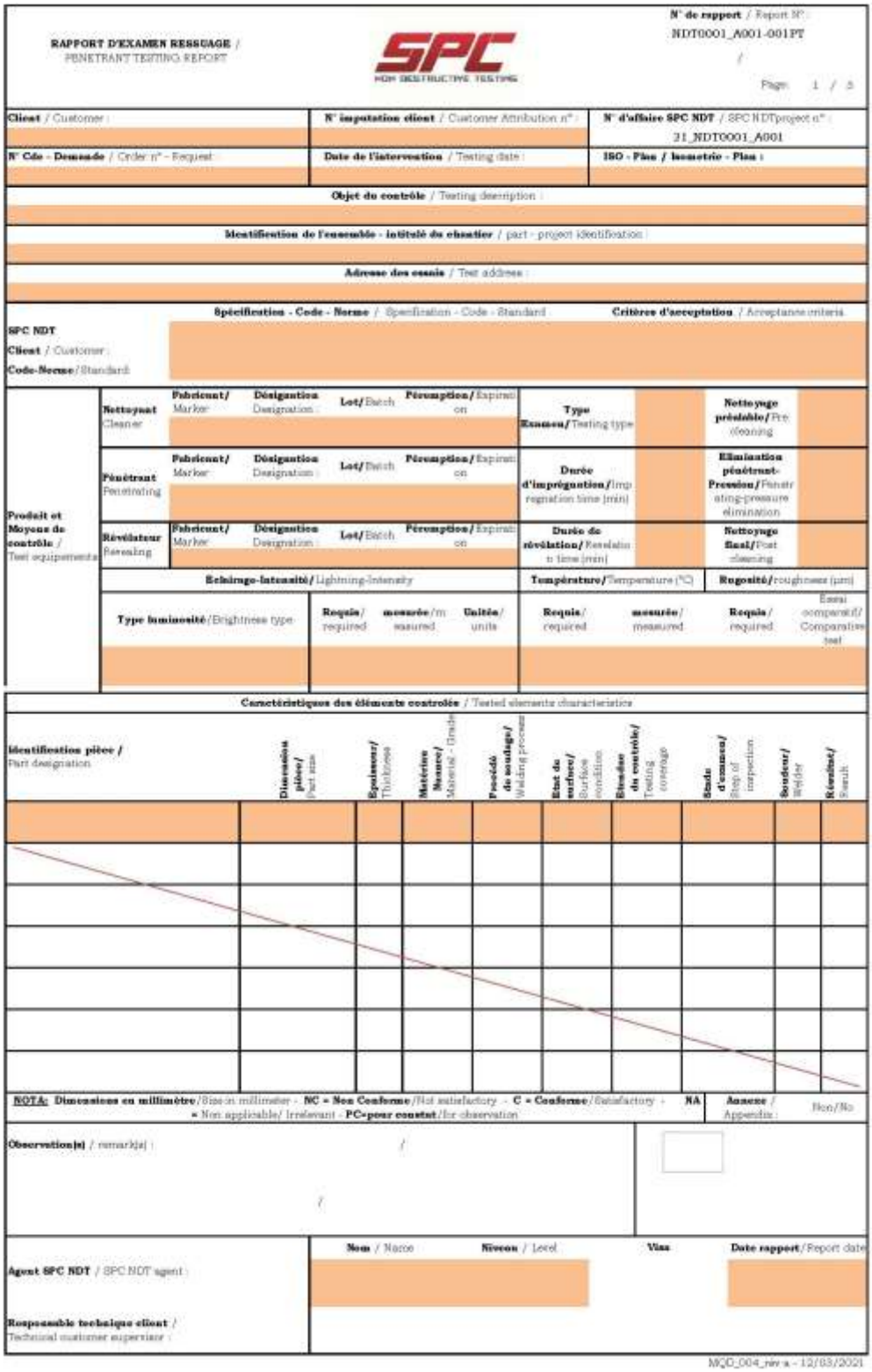
6. REPAIRS

Unacceptable imperfections shall be removed and re-examination made to assure complete removal.
Whenever an imperfection is removed 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 removal of an imperfection, the area shall be cleaned and welding performed in accordance with a qualified welding procedure.
After an imperfection is thought to have been removed and prior to making weld repairs, the area shall be examined by suitable methods to ensure that the imperfection has been eliminated.
When repairs have been made, the repaired area shall be blended into the surrounding surface so as to avoid sharp notches, crevices, or corners, and re-examined by the dye penetrant method and by all other methods of examination that were originally required for the affected area, except that, when the depth of the repair is less than the radiographic sensitivity required, the radiography can be deleted.

7. REPORTS

A dye penetrant examination report (MQD_004) shall be recorded for all examined welds. All areas with defects shall be documented with the location and the local position, size and orientation.

8. PENETRANT TESTING INSPECTION REPORT



RAPPORT D'EXAMEN RESSUAGE / PENETRANT TESTING REPORT

N° de rapport / Report N°: NDT0001_A001-001PT

Page: 1 / 3

Client / Customer :	**N° imputation client** / Customer Attribution n° :	**N° d'affaire SPC NDT** / SPC NDTproject n° : 21_NDT0001_A001
N° Cde - Demande / Order n° - Request :	**Date de l'intervention** / Testing date :	**ISO - Plan / isométrie - Plan :**

Objet du contrôle / Testing description :

Identification de l'ensemble - intitulé du chantier / part - project identification :

Adresse des essais / Test address :

	Spécification - Code - Norme / Specification - Code - Standard	**Critères d'acceptation** / Acceptance criteria
SPC NDT		
Client / Customer :		
Code-Norme / Standard :		

Produit et Moyens de contrôle / Test equipments

	Fabricant/ Marker	**Désignation** Designation	**Lot/** Batch	**Péremption/** Expiration			
Nettoyant Cleaner					**Type Examen/** Testing type		**Nettoyage préalable/** Pre cleaning
Pénétrant Penetrating					**Durée d'imprégnation/** Impregnation time (min)		**Elimination pénétrant-Pression/** Penetrating-pressure elimination
Révélateur Revealing					**Durée de révélation/** Revelation time (min)		**Nettoyage final/** Post cleaning

Eclairage-Intensité/ Lightning-Intensity			**Température/** Temperature (°C)		**Rugosité/** roughness (µm)	
Type luminosité / Brightness type	**Requis/** required	**mesurée/** measured	**Requis/** required	**mesurée/** measured	**Requis/** required	Essai comparatif/ Comparative test

Caractéristiques des éléments contrôlés / Tested elements characteristics

Identification pièce / Part designation	**Dimension pièce/** Part size	**Epaisseur/** Thickness	**Matériau Nuance/** Material - Grade	**Procédé de soudage/** Welding process	**Etat de surface/** Surface condition	**Etendue du contrôle/** Testing coverage	**Stade d'examen/** Step of inspection	**Soudeur/** Welder	**Résultat/** Result

NOTA: Dimensions en millimètre / Sizes in millimeter - **NC = Non Conforme** / Not satisfactory - **C = Conforme** / Satisfactory - **= Non applicable/ Irrelevant - PC=pour constat** / For observation

Annexe / Appendix : Non/No

Observation(s) / remark(s) :

Agent SPC NDT / SPC NDT agent :	**Nom** / Name	**Niveau** / Level	**Visa**	**Date rapport** / Report date
Responsable technique client / Technical customer superviser :				

MQD_004_rév a - 12/03/2021

RAPPORT D'EXAMEN RESSUAGE /
PENETRANT TESTING REPORT

SPC
NON DESTRUCTIVE TESTING

N° de rapport / Report N° :
NDT0001_A001-001PT
/
page : 2 / 3

Repère zone et n° indication / Zone mark and indication n°	**Position /** location X	Y	Z	**Dimensions**	**Type /** Shape	**Conforme /** Conform	**Observation /** Remark

NOTA: Dimensions en millimètre/Size in millimeter - **NC = Non Conforme**/Not satisfactory - **C = Conforme**/Satisfactory - **NA = Non applicable**/ Irrelevant - **PC=pour constat**/for observation

Observation(s) / remark(s) /

/

	Nom / Name	**Niveau /** Level	**Visa**	**Date rapport/**Report date
Agent SPC NDT / SPC NDT agent :				
Responsable technique client / Technical customer supervisor :				

MQD_004_rév a-12/03/2021

RAPPORT D'EXAMEN RESSUAGE /
PENETRANT TESTING REPORT

SPC NON DESTRUCTIVE TESTING

N° de rapport / Report N° :
NDT0001_A001-001PT
/

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Plan :

Visa :

MQD_004_rév a-12/03/2021

3 List Operator & Qualifications

COFREND
Confédération Française pour les Essais Non Destructifs

ETPR / *RTPO*
directive 2014/68/UE

Certificat END / *NDT Certificate*

V6



NOM Prénom / *NAME First Name:*
AGOPIAN Jérémie
N° COFREND : 017711

est certifié(e) / *Is certified* :

Référentiel *	Secteur - Sous-secteur / *Sector - subsector*	Niveau-méthode* / *Level-method*	Option*	Début de validité / *effective date*	Fin de validité / *Expiry date*
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / VT /**		**25/11/2020**	**25/11/2025**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / PT /**		**24/03/2017**	**24/03/2027**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / MT /**		**22/09/2022**	**22/09/2027**

* les certifications sont émises dans le champ d'accréditation COFRAC 4-0007 (certification de personnes, portée disponible sur www.cofrac.fr) de la COFREND à l'exception des certifications « VT / gnv » et des options. *Certifications are issued in the COFRAC 4-0007 accreditation field (certification of persons, scope available on www.cofrac.fr) of COFREND with the exception of "VT / gnv" certifications and options.*

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Confédération Française pour les Essais Non Destructifs

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directive 2014/68/UE

Certificat END / *NDT Certificate*

V6



NOM Prénom / *NAME First Name:*
CARLOT Florian
N° COFREND : 031774

est certifié(e) / *Is certified* :

Référentiel *	Secteur - Sous-secteur / *Sector - subsector*	Niveau-méthode* / *Level-method*	Option*	Début de validité / *effective date*	Fin de validité / *Expiry date*
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / PT /**		**12/07/2023**	**11/07/2028**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / MT /**		**01/09/2023**	**31/08/2028**

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Certificat END / *NDT Certificate*

V6



NOM Prénom / *NAME First Name:*
PERRET Ghislain
N° COFREND : 007561

est certifié(e) / *Is certified* :

Référentiel *	Secteur - Sous-secteur / *Sector - subsector*	Niveau-méthode* / *Level-method*	Option*	Début de validité / *effective date*	Fin de validité / *Expiry date*
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / RT / x,g**		**21/09/2020**	**21/09/2025**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / TOFD /**		**08/06/2016**	**08/06/2026**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / PT /**		**20/02/2008**	**19/02/2028**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / MT /**		**07/07/2023**	**06/07/2028**

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directive 2014/68/UE

Certificat END / *NDT Certificate*

V6



NOM Prénom / *NAME First Name:*
COUTIN Jean
N° COFREND : 005889

est certifié(e) / *Is certified* :

Référentiel *	Secteur - Sous-secteur / *Sector - subsector*	Niveau-méthode* / *Level-method*	Option*	Début de validité / *effective date*	Fin de validité / *Expiry date*
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / MT /**		**12/04/2010**	**12/04/2025**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / PT /**		**22/02/2006**	**22/02/2026**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / RT /**		**27/04/2007**	**27/04/2027**

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directive 2014/68/UE

Certificat END / *NDT Certificate*

V6



NOM Prénom / *NAME First Name:*
COLARD Ludovic
N° COFREND : 001020

est certifié(e) / *Is certified* :

Référentiel *	Secteur - Sous-secteur / *Sector - subsector*	Niveau-méthode* / *Level-method*	Option*	Début de validité / *effective date*	Fin de validité / *Expiry date*
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / TOFD /**		**28/01/2020**	**28/01/2025**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**3 / VT /**		**07/12/2020**	**07/12/2025**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**3 / UT /**		**24/10/2011**	**24/10/2026**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**3 / PT /**		**20/04/2017**	**20/04/2027**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / VT /**		**22/05/2017**	**22/05/2027**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / UT /**		**26/11/2007**	**27/11/2027**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / PT /**		**12/05/2008**	**11/05/2028**
NF EN ISO 9712: 2012	**Fabrication et maintenance - Fabrication et Maintenance**	**3 / MT /**		**11/12/2023**	**10/12/2028**
NF EN ISO 9712: 2022	**Fabrication et maintenance - Fabrication et Maintenance**	**2 / UT PA /**		**29/04/2024**	**28/04/2029**

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