

Magnetic particle test report



Report number LW25-1782-03 MT

Customer name FUSION-WELD ENGINEERING PTY LTD

Address 1865 Frankston Flinders Road Hastings VIC Australia 3915

Requested by Brian Cameron

Purchase Order PO-0695

Accredited laboratory LMATS Melbourne Laboratory

Test date 26/11/2025

Job address 1865 Frankston Flinders Road Hastings VIC Australia 3915

Job description Visible magnetic particle testing of 1-off closing circ vessel butt weldment

Identification Refer to Table below

Material grade ASTM A516/516M - Grade 70

Test specification AS 4037 -1999 (R 2016) - Sec. 8 (AS 1210 - 2010 Class 1 PV) - NDT, AS 4037 -1999 (R 2016) - Sec. 8 (AS 1210 - 2021 Class 2A PV) - NDT

Acceptance criteria AS 4037 -1999 (R 2016) - Sec. 8 (AS 1210 - 2010 Class 1 PV) - NDT, AS 4037 -1999 (R 2016) - Sec. 8 (AS 1210 - 2021 Class 2A PV) - NDT

Test method AS 1171 - 1998 (Reconfirmed 2022)-MT - colour contrast

Test procedure TP-MT-01 (I1, R9)

Test type Wet colour contrast (visible)

Viewing condition Visible colour contrast (non-fluorescent)

Magnetization Magnetic flow method - AC yoke

Test area Weld zone & associated HAZ (Refer Table 1 for identification)

Surface condition As Welded

Equipment L002851 Magflux Y1 MT Yoke, L005029 JINING DONGFANG B2 Block standard bar MT Calibration block, L004715 Hold Peak 881D Light meter

Lighting conditions White light illuminance >1200 lx

Consumables

Background	Batch no.	Particle type	Batch no.
MR 72	2212023	MR 76S	2311070

Demagnetised No

Approved tester Lachlan Hooppell (SNT-TC-1A and AINDT L2 - RT MT PT)

Test results Refer to Table 1 for test area identification and results



Accredited for compliance with
ISO / IEC 17025 - Testing

Signatory
Lachlan Hooppell
(SNT-TC-1A and AINDT L2 - RT MT PT)

Report issued on 26/11/2025

Table 1: Test items identification (provided by the client) and results (All dimensions in mm unless stated otherwise)

Identification	Drawing No.	Weld No.	Description	Test area	Discontinuities	Result
Vessel number: CV176	21-12-041	Circ 5 (closing weld)	Chlorine Road Tanker	Whole circumference of weld and associated HAZ. See test restrictions	NUSID	C

Test restrictions

Multiple tool marks adjacent to weld
Kingpin support masking some of the HAZ

Comments

Refer to attached images.

Test, inspection process specific notes

- According to the guidelines in international standards, Magnetic Particle Testing is not preferred for detecting surface porosity. Clients are advised to consider alternative methods such as Penetrant Testing to detect surface porosity on an uncoated surface.

Normative general notes

1. Test and inspection items may be discarded after 6 weeks, unless alternative arrangements are made with LMATS.
2. Samples, identification of samples and all job specific details were supplied by the client. The test results relate only to the items tested or sampled.
3. Any stated nominal pipe sizes and nominal thickness of the material were provided by the client.
4. Where applicable, the Measurement Uncertainty (MU) applies to the test results as per LMATS procedure. MU can be obtained by contacting one of LMATS ISO 17025 accredited laboratories.
5. Acceptance criteria is applied from the test specification. If the test specification does not include acceptance criteria, then the test or inspection results should be referred to a competent authority for further action.
6. Refer to the attached revision notes if this report has been revised. This report shall not be reproduced except in full without approval of the issuing laboratory to ensure that parts of a report are not taken out of context. The client or their representatives shall not edit this report.
7. LMATS or its professional indemnity insurance provider do not indemnify the contents within this report or the conformity of a tested product unless the invoice for the reported work is paid in full within the agreed credit terms. Reports will be revoked if the invoice for the completed work is not paid in full.

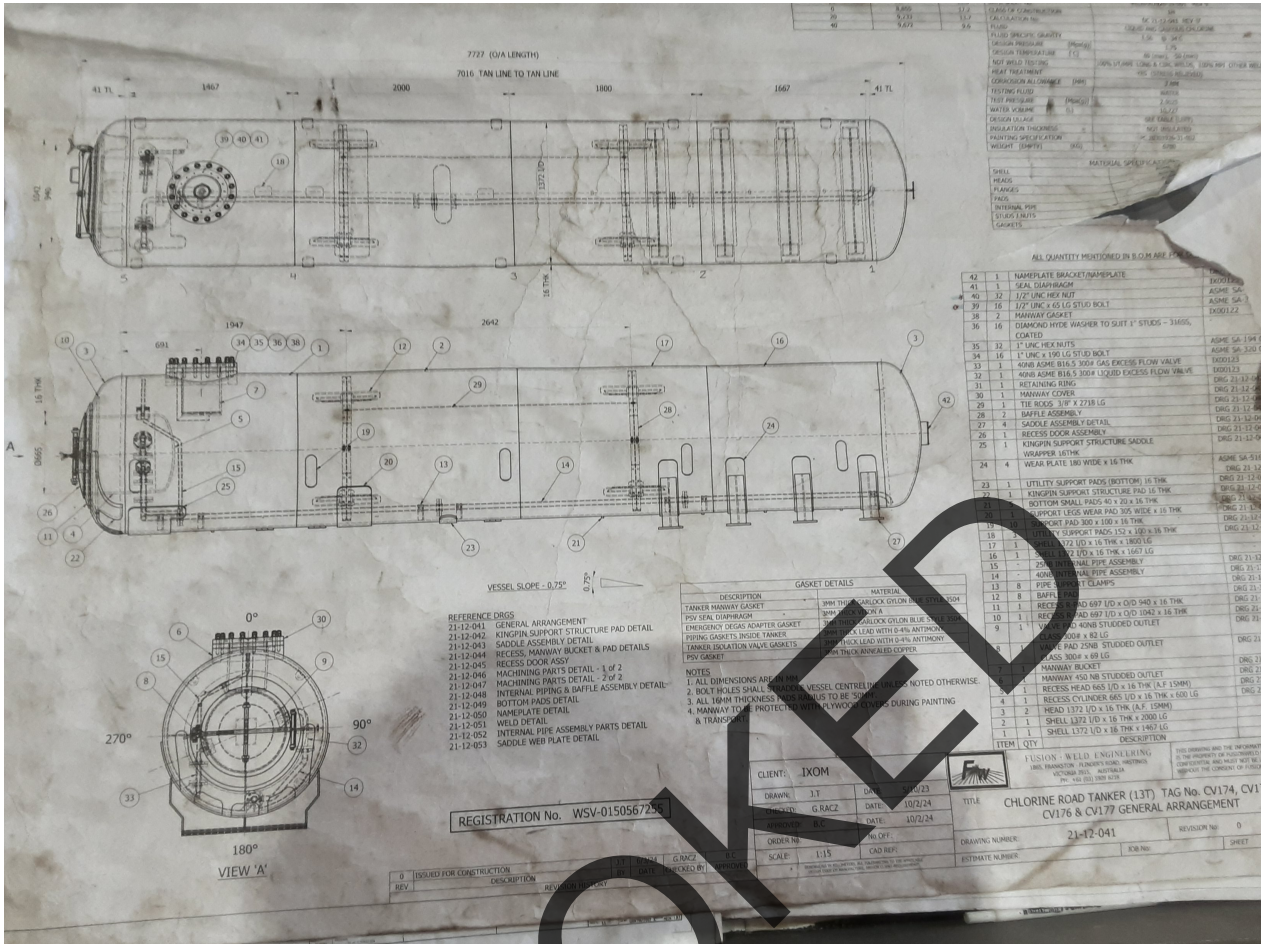
Abbreviations used in this report

A - No discontinuities detected	BT - Burn (melt) Through	C - Comply
CP - Crater Pipe	DNC - Does Not Comply	EC - Elongated Cavity (hollow bead)
F - Failed	GP - Gas Pore	HiLo - Linear misalignment
IC - Copper Inclusion	IL - Linear Inclusion (slag line)	IN - Inclusion
IO - Oxide Inclusion (wagon tracks)	IT - Tungsten Inclusion	KC - Crater crack
KL - Longitudinal crack	KT - Transverse Crack	LI - lack of Inter-run fusion
LP - Incomplete root Penetration	LR - lack of Root fusion (missed edge)	LS - lack of Side fusion
NRRD - No Recordable Reflections Detected	NUSID - No unacceptable Surface Indications Detected	P - Passed
p.d. - Processing / film Defects	PG - Localized Porosity	PL - Linear Porosity
PU - Uniform Porosity	RP - Report findings	SED - Excessive Dressing (underflushing)
SGL - Incompletely filled Groove	SGS - Shrinkage Groove	SMG - Grinding Mark
SMH - Hammer Mark	SMT - Tool Mark (chipping mark)	SRC - Root Concavity (Suck back)
SSP - Spatter	SUC(e) - Undercut External	SUC(I) - Undercut Internal
SXP - Excessive Penetration	WH - Worm Hole	



Image 1 of 1 - General view of the test area

REVOKED



ITEM	QTY	DESCRIPTION	UNIT
42	1	NAMEPLATE BRACKET/NAMEPLATE	ASME SA-320 F
41	1	SEAL DIAPHRAGM	ASME SA-320 F
40	32	1/2" UNC HEX NUT	ASME SA-320 F
39	16	1/2" UNC X 6.5 LG STUD BOLT	ASME SA-320 F
38	2	MANWAY GASKET	EXD01-22
36	16	DIAMOND NYLON WASHER TO SUIT 1" STUDS - 316SS, COATED	ASME SA-320 F
35	32	1" UNC HEX NUTS	EXD01-23
34	16	1" UNC X 1.90 LG STUD BOLT	EXD01-23
33	1	40# ASME B16.5 300# GAS EXCESS FLOW VALVE	EXD01-23
32	1	40# ASME B16.5 300# LIQUID EXCESS FLOW VALVE	EXD01-23
31	1	RETAINING RING	EXD01-23
30	1	MANWAY COVER	EXD01-23
29	1	TE RINGS 1" X 2738 LG	EXD01-23
28	2	BAFFLE ASSEMBLY	EXD01-23
27	4	SADDLE ASSEMBLY DETAIL	EXD01-23
26	1	RECESS DOOR ASSEMBLY	EXD01-23
25	1	KINGPIN SUPPORT STRUCTURE SADDLE WRAPPER WITH	EXD01-23
24	4	WEAR PLATE 180 WIDE X 16 THK	EXD01-23
23	1	UTILITY SUPPORT PADS (BOTTOM) 16 THK	EXD01-23
22	1	KINGPIN SMALL PADS 40 X 20 X 16 THK	EXD01-23
21	1	BOTTOM SMALL PADS 40 X 20 X 16 THK	EXD01-23
20	1	SUPPORT LEGS WEAR PAD 376 WIDE X 16 THK	EXD01-23
19	1	SUPPORT PAD 300 X 100 X 16 THK	EXD01-23
18	1	UTILITY SUPPORT PADS 150 X 150 X 16 THK	EXD01-23
17	1	UTILITY SUPPORT PADS 150 X 150 X 16 THK	EXD01-23
16	1	SHELL 1772 ID X 16 THK X 1667 LG	EXD01-23
15	1	25# INTERNAL PIPE ASSEMBLY	EXD01-23
14	1	40# INTERNAL PIPE ASSEMBLY	EXD01-23
13	8	PIPE SUPPORT CLAMPS	EXD01-23
12	8	BARREL TIES	EXD01-23
11	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
10	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
9	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
8	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
7	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
6	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
5	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
4	2	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
3	1	RECESS HEAD 697 ID X 610 X 16 THK	EXD01-23
2	1	SHELL 1772 ID X 16 THK X 2000 LG	EXD01-23
1	1	SHELL 1772 ID X 16 THK X 1467 LG	EXD01-23

DESCRIPTION	MATERIAL
TANKER MANWAY GASKET	30# THK CARBON OILON BLUE TIGHTENING
PSV SEAL DIAPHRAGM	30# THK CARBON OILON BLUE TIGHTENING
EMERGENCY GASKET/SCREWER GASKET	30# THK CARBON OILON BLUE TIGHTENING
PIPING GASKETS INSIDE TANKER	30# THK CARBON OILON BLUE TIGHTENING
TANKER ISOLATION VALVE GASKETS	30# THK CARBON OILON BLUE TIGHTENING
PSV GASKET	30# THK CARBON OILON BLUE TIGHTENING

- REFERENCE DROSS
- 21-12-041 GENERAL ARRANGEMENT
 - 21-12-042 KINGPIN SUPPORT STRUCTURE PAD DETAIL
 - 21-12-043 SADDLE ASSEMBLY DETAIL
 - 21-12-044 RECESS, MANWAY BUCKET & PAD DETAILS
 - 21-12-045 RECESS DOOR ASST
 - 21-12-046 MACHINING PARTS DETAIL - 1 of 2
 - 21-12-047 MACHINING PARTS DETAIL - 2 of 2
 - 21-12-048 INTERNAL PIPING & BAFFLE ASSEMBLY DETAIL
 - 21-12-049 BOTTOM PADS DETAIL
 - 21-12-050 NAMEPLATE DETAIL
 - 21-12-051 WELD DETAIL
 - 21-12-052 INTERNAL PIPE ASSEMBLY PARTS DETAIL
 - 21-12-053 SADDLE WEB PLATE DETAIL

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. BOLT TIGHTENING SHALL BE AS PER VESSEL CENTRELINE UNLESS NOTED OTHERWISE.
3. ALL 10MM THICKNESS PARTS SHALL BE TO BE SONOTON.
4. MANWAY TO BE PROTECTED FROM ANY WORK ACTIVITIES DURING PAINTING & TRANSPORT.

CLIENT: IXOM

DRAWING: 3-T DATE: 10/2/24

DESIGNED BY: G RACE DATE: 10/2/24

CHECKED BY: DATE:

SCALE: 1:15 CAD REF:

DRAWING NUMBER: 21-12-041

ESTIMATE NUMBER: BOX NO: SHEET

FUSION WELD ENGINEERING

130 BRANSON RD, HUNTERSBURG, NSW 2158

TEL: 02 893 3078

CHLORINE ROAD TANKER (13T) TAG No. CV174, CV176 & CV177 GENERAL ARRANGEMENT

REVISION No. 0

REVISION