NDT CERTIFICATION EXAM GUIDE

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Form 506E/2026-02

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1 INTRODUCTION

Canadian Welding Bureau NDT Certification Body (CWB NDT CB) is a national, independent and not-for-profit entity acting as a certification body for NDT certification and recertification of personnel in accordance with CAN/CGSB-48.9712-2022.

This guide explains the examinations for initial certification, renewal and recertification under the CWB NDT Certification Body's scheme to CAN/CGSB-48.9712-2022. It applies to the CWB scheme only; requirements of another certification body may differ. Eligibility, training, experience, vision and application requirements are addressed in Form 500 — NDT Personnel Application Guide.

Contact Information:

Toll-free Help Line: 1-800-844-6790

Email: info@cwbgroup.org

Website: www.cwbgroup.org

1.1 MYCWB INSPECTOR PORTAL

Apply through myCWB — the preferred application route. PDF application forms remain available for candidates who choose not to use the portal. The same eligibility and supporting-document requirements apply to both routes. Obtain CWB examination authorization before booking.

2 Examination Information

2.1 Note on Examinations

CWB's NDT Personnel Certification examinations assess an individual's competence using relevant training materials and typical workplace situations. Because the examinations cannot cover every situation or requirement faced by a certified NDT professional, passing does not demonstrate competence in all circumstances. Personnel must continue to develop the knowledge and skills required for their specific roles through work experience, ongoing training and continuing education. Certified NDT personnel and their employers are responsible for ensuring that personnel have the training and experience needed to perform their work and comply with the code of ethics. Failure to meet these responsibilities may result in suspension or cancellation of the individual's certification.

2.2 Situations Needing Examination

The following scenarios require examinations:

1. Initial Certification - any method/level.
2. Renewal - only if the candidate is unable to satisfy the requirements for Structured Credit System or chooses not to use structured credit.
3. Recertification — Levels 1 and 2 complete the applicable practical examination. Level 3 candidates complete the written examination or accepted structured-credit route and demonstrate continued practical competence under Section 8.3. There is no separate Level 3 practical examination. See Sections 8.2 and 8.3 for continuing certification.

More information can be found in CWB's Form 500 – NDT Personnel Application Guide.

2.3 Prepare Before You Book

Read Section 2 and the section for your method and level before arranging an examination. The study references are part of that preparation: use your course notes together with the relevant references, rather than relying on course notes alone.

Your examination	**Read these sections**
MT Level 2 / PT Level 2	Section 4 / Section 5
UT Levels 1 and 2 / PAUT Level 2	Sections 6.1–6.2 / Section 6.3
ET Levels 1 and 2	Section 7
Level 3 — any available method	Section 8 and the relevant method's study references
Re-examinations / complaints / fees	Sections 9 / 10 / 11

Current candidate documents: NDT certification and preparation resources

Application requirements: Form 500 — NDT Personnel Application Guide

2.4 Study References and Examination Aids

The relevant ASNT Nondestructive Testing Handbook is a primary technical study reference, not merely optional background reading. Prepare across the theory, materials and processes, applications and reporting topics identified for your method and level. Course notes support this study but should not be assumed to cover every examination topic. The guide does not require a candidate to purchase a particular publication. Other references are listed in the relevant exam guide section.

Study references and examination aids are different. A book listed for preparation is not automatically permitted in the examination. Use only the documents and devices supplied or specifically authorized by CWB, including any code extracts identified in the examination instructions.

Where a publication edition is stated, use that edition for the referenced study material. For entries marked “edition specified by CWB”, confirm the examination-basis edition with CWB before preparing or booking. A publisher’s newly released edition does not automatically change the examination basis. When an extract is supplied during the examination, answer using that extract and the stated examination instructions.

2.5 Examination Types

The examination requirements include computer-based multiple-choice elements, hands-on practical elements and, where applicable, written NDT instructions or Level 3 procedures. These are assessed separately; an examination involving written answers is not necessarily a computer delivered multiple-choice examination

2.5.1 Accommodations

Please email inspector@cwbgroup.org well in advance if you require any accommodations. CWB authorization is required for any accommodations even with remotely proctored exams; asking the proctor to authorize a change on examination day is prohibited.

2.5.2 Authorized Examination Centres (AEC) and Remote Delivery

CWB NDT written examinations are available through ProctorU remote proctoring and at approved examination centres. Hands-on practical examinations remain in person at an AEC approved for the method and technique. The delivery arrangements for Level 2 instruction writing and Level 3 procedure examinations are specified in the candidate’s examination authorization.

Obtain the CWB Examination Authorization email before booking. For in-person examinations, arrange the date, equipment availability and applicable invigilation or facility fees with the AEC. For remote written examinations, follow the CWB-issued booking instructions.

Examination locations and remote-delivery information: CWB Examination Centres Directory

2.5.3 In-person Written Examinations

Multiple-choice written examinations can be delivered through CWB’s computer-based examination system under in-person invigilation at an AEC. The same authorized examination content, time allowance and passing requirements apply whether the examination is taken remotely or at an approved centre.

Before starting, check the method, level, examination element, language and time allowance against your authorization. Tell the invigilator or proctor immediately if any detail is incorrect. Use only the references and aids authorized for that examination.

2.5.3.1 Remotely Proctored Written Examinations (ProctorU)

2.5.3.1.1 Authorization and booking

Request the remote option through CWB after submitting the appropriate NDT application by separately filling out Form 0196NDT ” Examination Request Form - NDT” and submitting it to inspector@cwbgroup.org. Select the exact exam(s) you intend to complete remotely. Do not select a welding-inspector examination or assume that a visual-inspection form or fee applies to NDT.

When the email is provided, use the account, registration link and examination title identified in the CWB booking instructions.

Check the appointment date and local time zone, and cancellation or rescheduling conditions before confirming the booking.

2.5.3.1.2 Computer and room preparation

Use a compatible computer with a working webcam, microphone and speakers, a stable internet connection and one active monitor. Check the current ProctorU equipment requirements and run the equipment test on the same computer and network you will use for the examination. ProctorU examinations use Guardian Browser, so this must be downloaded and tested prior to your exam. A successful automated check is not a guarantee against technical difficulties on the day.

A work-issued computer may require administrator permission or assistance from your IT department. Resolve installation, firewall and camera or microphone permissions in advance. Use a private, quiet, well-lit room and clear the test area of any materials. Close all unrelated applications and remote-access software. Do not use a phone or tablet as the examination computer.

2.5.3.1.3 Check-in, materials and support

Have valid photo identification and the CWB examination authorization email available. At check-in, follow the identification, computer and room checks requested by the proctor. Remote supervision can include webcam, microphone and screen monitoring or recording. Review the privacy and consent information presented during booking and launch.

Similarly, with in-person AEC examinations, no outside materials are allowed during remotely invigilated exams. It is prohibited to photograph, copy, record, transmit or retain examination questions or materials, or to use AI or any outside assistance. These will be monitored constantly during the exam.

Do not leave the camera view or end the session without the required permission. Report technical problems immediately through the proctor or the ProctorU support channel. Record the support case number and contact CWB when an examination cannot be completed. CWB determines the examination or rebooking outcome; a technical interruption is not automatically a failure or a free retest.

Preparation and technical support: ProctorU support

2.5.3.2 Grading of Written Examinations

Multiple-choice examinations are graded in the e-assessment system. The existing question weighting is as follows; a grade of exactly 70% is a passing grade:

Exam/Question Type	Points Per Question	Pass Percentage
General	1	70% or higher
Specific	1	70% or higher
Code	4 (L2) or 5 (L3)	

A displayed result does not itself grant certification; all certification requirements and any required result review must be completed.

2.6 PRACTICAL EXAMINATIONS

Level 1 and Level 2 practical examinations require the candidate to set up and use NDT equipment, examine assigned specimens and report the results at an approved NDT practical AEC. Level 2 candidates also prepare a written NDT instruction. Level 3 procedure drafting and procedure review are separate Part F assessments; see Section 8. Remote written-examination availability does not extend to hands-on NDT practical examinations.

2.6.1 Practical Assessment and Reporting

Practical specimens and the Level 2 written instruction are assessed independently. A strong result on one specimen cannot compensate for a failed specimen or written instruction. Complete the assigned calibration and performance checks, obtain the required coverage and submit a complete, traceable report. Report units, reference datums, equipment settings and indication details as required by the supplied forms.

CWB's practical assessment also considers mandatory indications, excessive false calls and compliance with essential examination requirements. Failure to detect a mandatory indication or to meet a specified essential requirement may prevent a pass even when other work is satisfactory. The examination instructions define the applicable tasks and conditions; do not infer the locations or number of discontinuities from an example in this guide.

2.6.2 Recertification practical scope.

Level 1/2 recertification uses the reduced specimen assignment and checks in the method chapter, selected for the relevant method, sector and work activity; it is not a repetition of the entire initial practical. Level 2 also requires a separately graded written instruction. Only failed assignments are repeated as authorized by CWB. A Level 2 practical examination used to establish competence for Level 3 excludes instruction writing (8.3.1 and 11.3.1), but not the separate initial Level 3 Part F procedure examination.

2.6.3 Practical Grading Overview

The following assessment summaries are based on Annex D of CAN/CGSB-48.9712-2022. Each specimen and the Level 2 written instruction must separately achieve at least 70%. The listed subitems are assessment weights, not separate 70% pass thresholds. A higher average does not compensate for a failed specimen or instruction. Approved method-specific instructions and essential requirements remain applicable.

2.6.3.1 Practical specimens — Levels 1 and 2

Assessment area	Level 1 (%)	Level 2 (%)
Equipment/media knowledge and control	10	5

Assessment area	Level 1 (%)	Level 2 (%)
Validity of checks and media	10	5
Subtotal — equipment and media	20	10
Specimen preparation and visual examination	5	2
Technique selection and operating conditions	—	10
Equipment setup and examination	25	12
Post-examination actions	5	2
Subtotal — method application	35	26
Detection of mandatory reportable indications	20	18
Characterization and location	15	18
Evaluation against applicable criteria	—	18
Examination report	10	10
Subtotal — detection, evaluation and reporting	45	64
Total	100	100

Basis: CAN/CGSB-48.9712-2022, Table D.1.

2.6.3.2 Written instruction — Level 2

Assessment area	Weight (%)
Scope	5
NDT personnel	5
Equipment	5
Product	10
Test conditions	10
Detailed examination instructions	40
Recording, classification and evaluation of results	20
Reporting	5
Total	100

Basis: CAN/CGSB-48.9712-2022, Table D.2.

For the Level 2 renewal practical-examination route, the candidate must also produce a written NDT instruction suitable for Level 1 personnel. The specimen and instruction are graded separately and must each achieve at least 70%. The instruction is included in the stated renewal session duration. This requirement does not apply to an accepted structured-credit renewal or to a Level 1 practical examination. See CAN/CGSB-48.9712-2022, 10.1(d) and 11.2.2.

2.6.3.3 Procedure examination — Level 3, Part F

Assessment area	Weight (%)
Scope, document control and references	8
NDT personnel	2

Assessment area	Weight (%)
Main and ancillary equipment/materials	20
Test piece, preparation, area and discontinuities sought	5
Technique, settings, execution and characterization	40
Acceptance criteria	7
Post-test actions	3
Test report	5
Overall presentation	10
Total	100

Basis: CAN/CGSB-48.9712-2022, Table D.3.

The Level 3 procedure examination is separate from the Level 2 practical-competence prerequisite. Excluding the Level 2 instruction from that prerequisite does not remove Part F.

3 METHODS

3.1 METHODS FOR EXAMINATION

The following methods and levels are available under CWB's certification scheme, except where identified as coming soon:

a) Magnetic Particle Testing (MT), Levels 2 and 3
b) Liquid Penetrant Testing (PT), Levels 2 and 3
c) Ultrasonic Testing (UT), Levels 1, 2 and 3, including the Phased Array Level 2 technique (PAUT2 / UT-PA2)
d) Eddy Current Testing (ET), Levels 1, 2 and 3
e) Radiographic Testing (RT), Levels 1, 2 and 3 — coming soon; not currently available for examination booking

Currently, there is only the EMC sector being offered by CWB, as below.

3.1.1 EMC Sector

The Engineering, Materials and Components (EMC) Sector includes manufacturing, fabrication, construction, and general inspections in Canadian industry. Below are the areas of products and industry it covers in general:

- Castings and forgings, composed of ferrous or non-ferrous metallic alloys
- Extrusions of shapes and seamless tubing composed of ferrous or nonferrous metallic alloys
- Wrought product that has been rolled to form plates, blooms, bars or rods and composed of ferrous or nonferrous metallic alloys
- Welds including brazing or soldering that is utilized during fabrication of ferrous or nonferrous metallic alloys
- Composite materials, concrete, plastics, and ceramics

4 MAGNETIC PARTICLE TESTING (MT)

4.1 MT LEVEL 2

4.1.1 Initial Examinations

4.1.1.1 Written Examination

4.1.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions and Code related questions.

Below is a summary of the MT2 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
MT2 General Written	• 40 multiple choice questions on MT theory	1 hour 20 mins	70% or higher
MT2 Specific (EMC) Written	• 50 multiple choice questions ○ 20 M&P ○ 20 applications ○ 10 Codes (2 codes, 5 questions each, worth 4 marks each)	2.5 hours	70% or higher

4.1.1.1.2 Study References

Prepare for the MT2 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- ***Primary technical reference — ASNT Nondestructive Testing Handbook, Volume 8: Magnetic Particle Testing; edition specified by CWB (see Section 2.4).***
- ASM Handbook, Volume 17: *Nondestructive Evaluation of Materials* by ASM International
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

4.1.1.1.2.1 Codes and Standards

Review the following codes and standards for the code-related portion of the Specific (EMC) examination. Confirm the applicable examination editions and permitted extracts under Section 2.4.

- ASME BPVC Section V, Article 7, *Magnetic Particle Examination*
- ASTM A275: "*Standard Practice for Magnetic Particle Examination of Steel Forgings*
- ASTM A456/A456M: "*Standard Specification for Magnetic Particle Examination of Large Crankshaft Forgings*"
- ASTM E709: "*Standard Guide for Magnetic Particle Testing*"
- ASTM E1444/E1444M: *"Standard Practice for Magnetic Particle Testing for Aerospace"*

- ASTM E3024/E3024M: "*Standard Practice for Magnetic Particle Testing for General Industry*"

4.1.1.2 Practical Examination

Below is a summary of the Initial MT2 practical exam:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade

MT2 Practical	• Verification / Performance Checks
	• Inspect 4 specimens
	  ○ 2 yoke using visible, prepared MT black suspension.
	  ○ 2 wet bench using fluorescent bath
	• Written Instruction for one of the inspected specimens.
		8 hours	70% or higher for each part

4.1.1.2.1 Layout & Content

There are four components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and *suggested* timing, each candidate's preferences may differ.

Initial Exam Components	Suggested Time Spent*
1. Review Instruction Manual	*½ hour*
2. Verification / Performance Checks	*1 hour*
3. MT of Four Test Specimens	*5½ hours*
4. MT Instruction Writing for 1 of the 4 MT Specimens	*1 hour*
Total Duration	***8 Hours***

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

4.1.1.2.1.1 Reviewing Instruction Manual

The Instruction Manual for MT2 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn as directed by the Invigilator.
2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.
3. This is a closed-book examination; supplied examination instructions remain available for use.
4. Only examination documents, equipment, manuals and other aids supplied or expressly authorized by CWB may be used. Personal references and unauthorized electronic devices are prohibited.
5. All required equipment, accessories, and paperwork shall be provided at the exam centre.
6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.
7. Carefully read all the questions and answer in the space provided.

8. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.
9. The candidate shall be shown proper use of the equipment as required by the Invigilator.
10. Completely fill in the information in the Examination Reporting Sheets using a dark pen or pencil.
11. Record units for all measurements taken. Only metric units (mm, °C, etc.) shall be used.
12. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.
13. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.
14. DO NOT make any permanent markings on the test specimens.

4.1.1.2.1.2 Verification/Performance Checks

There are four verification/performance checks that are to be completed:

- Determine Particle Concentration using Settling Test for In-Use, Fluorescent, Wet Bath
- Measure the maximum UV-A irradiance (µW/cm²).
- Measure the maximum white-light illuminance (lx).
- Perform lift test for the electromagnetic yoke

Be sure to familiarize yourself with the equipment and fill out all the required parameters **and include all units**.

4.1.1.2.1.3 MT of Test Specimens

MT of the test specimens should occur after the performance/verification checks above are completed. The inspection of the test specimens should adhere to the following:

1. Visually inspect the specimen test area, prior to MT. Report visual indications.
2. For the specimens assigned to the yoke technique, use the specified AC or DC electromagnetic yoke. Permanent-magnet yokes are not permitted for this examination. Use the assigned wet-bench technique for the wet-bench specimens.
3. Perform required calibration verification/performance check(s).
4. Perform MT for the required Specimen Surface Area for 100% coverage. The specimen drawing provides the information in the 'Scope of MT' section.
5. Map indications and record details in the MT Specimen Drawing using a red-coloured pen only.
    - Indication # assigned to an indication along with the indication details are recorded in the drawing.
6. After MT, demagnetize each specimen and verify a residual magnetic field of less than 4 gauss, as required for this examination exercise.
7. No post-cleaning is required for MT Specimens.

Reporting and documentation are an essential part of the exam, and may include mark-up of drawings, report completion and technique sheet completion. The following are the expectations of reporting/documentation for the MT2 Practical Exam:

MT SPECIMEN AND REPORTING DOCUMENTATION:

1. Each specimen is traceable to a Unique Specimen Number.
2. MT reporting documentation for each specimen is provided, which includes:
    a) MT Report.
    b) Specimen Drawing.
    c) MT Technique Sheet. **NOTE:** This is applicable for the Wet Bench Specimen Only.
3. MT REPORT:
    a) There are two separate MT Report Forms based on the technique used. For Yoke, there is 'MT Report - Yoke' and for Wet Bench there is 'MT Report - Wet Bench'.
    b) Each of these MT Reports can be used for up to two specimens that are tested by the same technique. For Example: Up to two specimens tested by Yoke will have one common 'MT Report - Yoke' and up to two specimens tested by Wet Bench will have one common 'MT Report - Wet Bench'.
    c) Based on the technique used for the specimen(s), complete the relevant MT report(s).
4. SPECIMEN DRAWING:
    Each MT Specimen will have a unique specimen drawing sheet that includes the following information:

    a) Specimen # (*generic*), Specimen Name and Description.
    b) Scope of MT and Surface Area to be Tested.
    c) MT Technique to be used, such as Yoke or Wet Bench.
    NOTE: Record Specimen # **AS STAMPED** on the Specimen in the MT reporting documentation.
5. TECHNIQUE SHEET:
    a) NOTE: The technique sheet is applicable only for Wet Bench technique.
    b) There is a unique technique sheet for each MT - Wet Bench specimen.
    c) The technique sheet includes the specimen's drawing along with its geometric dimensions.
    d) MAP AND RECORD DETAILS OF THE REQUIRED TECHNIQUE SHOTS. ENSURE COMPLETE COVERAGE OF THE TEST AREA.
    e) Use the pictorial representations to show each shot, such as Head Shot, Central Conductor, and Coil Shot.
    f) Each shot shall include required details, example Current for Central Conductor state applicable rotations and central conductor bar information, etc.
    g) Demagnetization shot - include type of demagnetizing coil used with number of turns.

EXAMPLES OF MT COMPLETED DOCUMENTATION AS BELOW:

Note that the below are examples only and may not represent actual exam documents, specimens or data.

1) Yoke – example of completed MT Report and Specimen Drawing:

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MT REPORT - YOKE

SPECIMEN(S) & MT REQUIREMENT:		
	1st SPECIMEN - INFORMATION RECORDED BELOW:	2nd SPECIMEN - INFORMATION RECORDED BELOW: (when applicable)
SPECIMEN #:	TS12	
SPECIMEN NAME:	Butt Welded CS Plate	

EQUIPMENT, MATERIAL & TECHNIQUE:		
CURRENT: ☑ AC ☐ DC (Check mark ✓)	MAGNETIZATION: ☑ CONTINUOUS ☐ RESIDUAL (Check mark ✓)	MT MEDIUM (BATH/PARTICLES): ☑ WET ☐ DRY (Check mark ✓)

YOKE:		MT PREPARED BATH / PARTICLES:		WHITE CONTRAST PAINT:	
MAKE:	TAS	MANUFACTURER:	TOJNU	MANUFACTURER:	TOJNU
MODEL:	T3				
SERIAL #:	1990	TYPE/BRAND:	KJ2	TYPE/BRAND:	WC3

MT RESULTS	
1ST SPECIMEN (Specimen # as above. Check mark ✓) ☐ ACCEPT ☑ REJECT	2ND SPECIMEN (Specimen # as above. Check mark ✓) ☐ ACCEPT ☐ REJECT
FIRST SPECIMEN: (1st SPECIMEN # as above) DRAWING ATTACHED ☑ YES ☐ NO (Check mark ✓)	SECOND SPECIMEN: (When applicable, 2nd SPECIMEN # as above) DRAWING ATTACHED ☐ YES ☐ NO (Check mark ✓)
COMMENTS	COMMENTS
Indications mapped on the attached drawing.	

SIGNATURE & CERTIFICATION:			
NAME: (PRINT)	SIGNATURE:	CWB REGISTRATION #:	DATE:
Terry Singh	TSingh	032690	03/26/2024

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MTL2 PRACTICAL EXAM

SPECIMEN DRAWING- TO MAP INDICATIONS & RECORD DETAILS

SPECIMEN #: TS12 SPECIMEN NAME: Butt welded CS plate

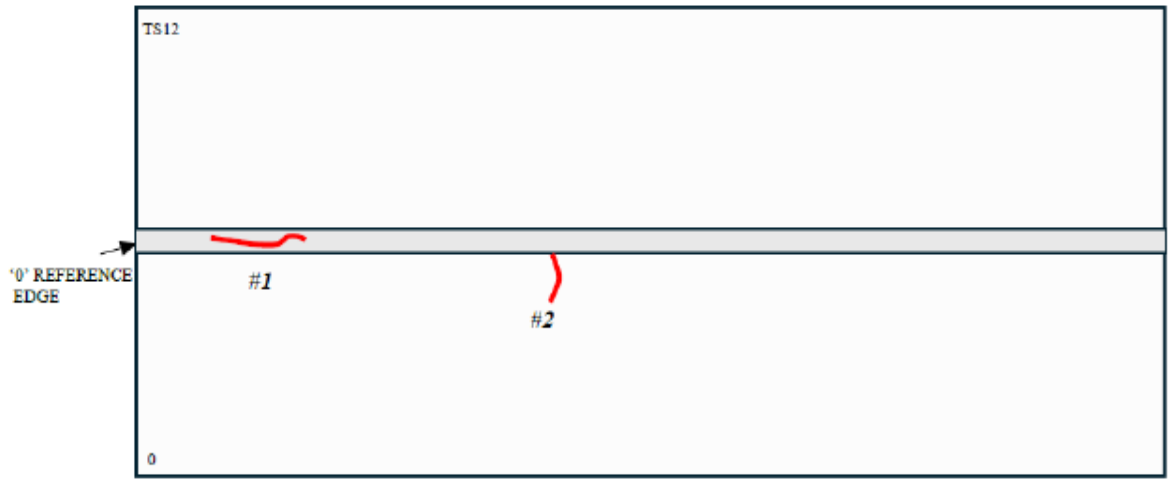
Dimensions:
length= xx mm
width = xy mm
thickness=xz mm

SPECIMEN DESCRIPTION: Butt welded plate. Welding process-FCAW. Plate has been in service.

MT SCOPE: 100% weld.

TECHNIQUE: MT using Yoke and a can of visible, wet prepared bath.

ACCEPTANCE CRITERIA: Refer Acceptance Criteria in the given document # 26.



INDICATION #	INDICATION SIZE/LENGTH	DISTANCE FROM '0' REFERENCE EDGE	DESCRIPTION	ACCEPT/ REJECT
1	*13 mm length*	*25 mm*	*Fatigue, surface, longitudinal crack on weld cap.*	*Reject.*
2	*9 mm length*	*75 mm*	*Fatigue, surface, transverse, crack in the HAZ.*	*Reject.*
NAME: PRINT TERRY SINGH			**SIGN:** TSingh	**DATE:** *03/26/2024*

2) Wet Bench - completed MT Report, Specimen Drawing and Technique Sheet:

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MT REPORT - WET BENCH

SPECIMEN(S) & MT REQUIREMENT:		
	1ST SPECIMEN, INFORMATION RECORDED BELOW:	2ND SPECIMEN, INFORMATION RECORDED BELOW: (when applicable)
SPECIMEN #:	WS12	
SPECIMEN NAME:	Forged TSW Pin	

EQUIPMENT, MATERIAL & TECHNIQUE:		
CURRENT:	**MAGNETIZATION:**	**MT MEDIUM (BATH/PARTICLES):**
☐ AC ☐ DC ☐ HWDC ☑ 3ϕ FWDC	☑ CONTINUOUS ☐ RESIDUAL	☑ WET ☐ DRY
(Check mark ✓)	(Check mark ✓)	(Check mark ✓)

MT RESULTS:	
1ST SPECIMEN (Specimen # as above. Check mark ✓)	2ND SPECIMEN (Specimen # as above. Check mark ✓)
☐ ACCEPT ☑ REJECT	☐ ACCEPT ☐ REJECT
1ST SPECIMEN - ATTACHMENT: (1st Specimen - as above)	2nd SPECIMEN - ATTACHMENT: (2nd Specimen, when applicable)
(Check mark ✓)	(Check mark ✓)
1. SPECIMEN DRAWING: ☑ YES ☐ NO	1. SPECIMEN DRAWING: ☐ YES ☐ NO
2. TECHNIQUE SHEET: ☑ YES ☐ NO	2. TECHNIQUE SHEET: ☐ YES ☐ NO
1st SPECIMEN - COMMENTS	2nd SPECIMEN - COMMENTS
Indications mapped on the attached specimen drawing.	

SIGNATURE & CERTIFICATION:			
NAME: (PRINT)	SIGNATURE:	CWB REGISTRATION #:	DATE:
Terry Singh	TSingh	90326	03/06/2024

cwbgroup

MTL2 PRACTICAL EXAM
SPECIMEN DRAWING- TO MAP INDICATIONS & DETAILS

SPECIMEN #: WS12 SPECIMEN NAME: Forged TSW Pin	Dimensions:
SPECIMEN DESCRIPTION: Material: Carbon Steel. Forging-MT required for In-Service Specimen.	Length: xx mm
MT SCOPE: MT 100% Specimen Surface Area.	Diameter: xx to xx mm.
TECHNIQUE: MT using Wet Bench and Fluorescent Bath.	
ACCEPTANCE CRITERIA: Refer to the Acceptance Criteria as stated in the given document.	



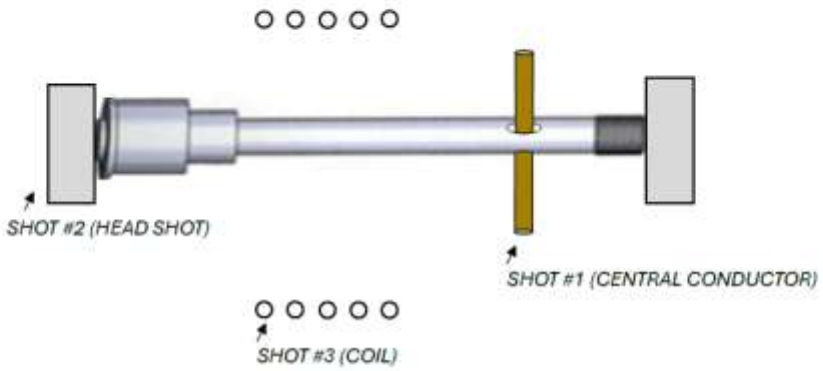
INDICATION #	INDICATION SIZE/LENGTH	DISTANCE FROM REFERENCE EDGE	DESCRIPTION	ACCEPT/REJECT
1	*9 mm length*	*67 mm*	*Fatigue Crack at the Surface, Transversely Oriented.*	*Reject.*
2	*4 mm length*	*202 mm*	*Fatigue Crack at the Surface, Starting from the Hole. Longitudinally oriented.*	*Reject.*

NAME:	SIGN:	DATE:
TERRY SINGH	TSingh	03/26/2024

cwbgroup

MT TECHNIQUE- WET BENCH

PART # WS12	PART DESCRIPTION: Forged TSW Pin



SHOT #	TECHNIQUE SELECTION	CURRENT	COMMENTS
SHOT# 1	CENTRAL CONDUCTOR	800 A	COPPER BAR, LENGTH MINIMUM 10" WITH 0.5" DIAMETER. CENTRAL CONDUCTOR CLAMPED BETWEEN HEADS. NO ROTATION REQUIRED.
SHOT# 2	HEAD SHOT	1,000 A	-
SHOT# 3	COIL	1,200 A	5 TURN COIL.
SHOT# 4	DEMAGNETIZE	--	STAND ALONE AC DEMAGNETIZATION COIL USED, HENCE NO CURRENT SELECTION. RESIDUAL MAGNETISM LESS THAN 4 GAUSS.

NAME: (PRINT) TERRY SINGH	SIGNATURE: Tsingh	DATE: 03/26/2024

4.1.1.2.1.4 Detailed Written Instruction of One Test Specimen

Write an MT instruction for any one specimen that was examined. Use lined paper provided for instruction writing. FIVE lined sheets are provided. The instructions and information provided for the specimen as part of the exam documents may be used to write the specific instructions for the specimen.

Follow the format for a written instruction:

a) Foreword (i.e., scope, reference documents)
b) Personnel (i.e., qualification requirements)
c) Equipment list (i.e., all equipment, accessories and media to be used)
d) Product (i.e., description or drawing, including area of interest and purpose of test)
e) Test conditions (i.e., include preparation for testing and specific calibration procedures for the specimen)
f) Detailed instructions for application of the test, including settings for the specimen.
g) Recording and classifying the test results.
h) Reporting the results

4.1.1.2.1.5 Grading of Practical Examination

The grading of the MT2 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	10
2	Application of NDT method	26
3	The detection of indications or discontinuities and reporting	64
Total		**100**

The grading of the Detailed Written Instruction of One Test Specimen element shall be per the following:

Item	Subject	% maximum
a)	Foreword (scope, reference documents)	5
b)	Personnel	5
c)	Equipment/media to be used	5
d)	Product (description or drawing, including area of interest and purpose of the test)	10
e)	Test conditions, including preparation for testing	10
f)	Detailed instructions for application of the test, including settings	40
g)	Recording and classifying of the test results	20
h)	Reporting the results	5
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. For Level 2, the written instruction is graded separately and must also achieve 70% or higher.

4.1.2 Renewal & Recertification Examinations

For the Level 2 renewal practical-examination route, the candidate must also produce a written NDT instruction suitable for Level 1 personnel. The specimen and instruction are graded separately and must each achieve at least 70%. The instruction is included in the stated renewal session duration. This requirement does not apply to an accepted structured-credit renewal or to a Level 1 practical examination. See CAN/CGSB-48.9712-2022, 10.1(d) and 11.2.2.

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	MT2 Renewal Practical (EMC)	• Verification / Performance Checks • Inspect 1 specimen Written instruction for the inspected specimen, included in this session.	4 hours	70% or higher for each part
Recertification	MT2 Recertification Practical (EMC)	• Verification / Performance Checks • Inspect 2 specimens • Written Instruction for one of the specimens	4 hours	70% or higher for each part

4.1.2.1 Layout & Content

Refer to the content for Initial Examinations per 4.1.1.2 except that:

One Calibration/Performance Check as below:

Measure the maximum UV-A irradiance (µW/cm²) or white-light illuminance (lx), as assigned.

5 LIQUID PENETRANT TESTING (PT)

5.1 PT LEVEL 2

5.1.1 Initial Examinations

5.1.1.1 Written Examination

5.1.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions and Code related questions.

Below is a summary of the PT2 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
PT2 General Written	• 40 multiple choice questions on PT theory	1hr 20mins	70% or higher
PT2 Specific (EMC) Written	• 50 multiple choice questions ○ 20 M&P ○ 20 applications ○ 10 Codes (2 codes, 5 questions each, worth 4 marks each)	2.5 hours	70% or higher

5.1.1.1.2 Study References

Prepare for the PT2 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- ***Primary technical reference — ASNT Nondestructive Testing Handbook, Volume 1: Liquid Penetrant Testing***
- ASM Handbook, Volume 17: *Nondestructive Evaluation of Materials* by ASM International
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

5.1.1.1.2.1 Codes and Standards

Review the following codes and standards for the code-related portion of the Specific (EMC) examination. Confirm the applicable examination editions and permitted extracts under Section 2.4.

- ASME BPVC Section V, Article 6, *Liquid Penetrant Examination*
- ASTM A903/A903M: "*Standard Specification for Steel Castings, Surface Acceptance Standards, Magnetic Particle and Liquid Penetrant Inspection*"
- ASTM E165/E165M: "*Standard Practice for Liquid Penetrant Testing for General Industry*"
- ASTM E433: "*Standard Reference Photographs for Liquid Penetrant Inspection*"

- ASTM E1209: "*Standard Practice for Fluorescent Liquid Penetrant Testing Using the Water-Washable Process*"
- ASTM E1210: "*Standard Practice for Fluorescent Liquid Penetrant Testing Using the Hydrophilic Post-Emulsification Process*"
- ASTM E1219: "*Standard Practice for Fluorescent Liquid Penetrant Testing Using the Solvent-Removable Process*"
- ASTM E1220: "*Standard Practice for Visible Penetrant Testing Using Solvent-Removable Process*"
- ASTM E1417/E1417M: "*Standard Practice for Liquid Penetrant Testing*"
- ASTM E1418/E1418M: *"Standard Practice for Visible Penetrant Testing Using the Water-Washable Process"*

5.1.1.2 Practical Examination

Below is a summary of the Initial PT2 practical exam:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade

PT2 Practical (EMC)	• Verification / Performance Checks
	• Inspect 4 specimens:
	  ○ 3 - fluorescent
	  ○ 1 - colour contrast, solvent removable
	• Written Instruction for one of the inspected specimens.
		4 hours	70% or higher for each part

5.1.1.2.1 Layout & Content

There are four components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and *suggested* timing, each candidate's preferences may differ.

Initial Exam Components	**Suggested Time Spent***
1. Review Instruction Manual	*0.25 hour*
2. Verification/Performance Checks	*0.5 hour*
3. PT of Four Test Specimens	*1.75 hours*
4. PT Instruction Writing for 1 of the 4 PT Specimens	*1 hour*
Total Duration	***4 Hours***

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

5.1.1.2.1.1 Reviewing Instruction Manual

The Instruction Manual for PT2 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn as directed by the Invigilator.
2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.

3. This is a closed-book examination; supplied examination instructions remain available for use.
4. Only examination documents, equipment, manuals and other aids supplied or expressly authorized by CWB may be used. Personal references and unauthorized electronic devices are prohibited.
5. All required equipment, accessories, and paperwork shall be provided at the exam centre.
6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.
7. Carefully read all the questions and answer in the space provided.
8. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.
9. The candidate shall be shown proper use of the equipment as required by the Invigilator.
10. Completely fill in the information in the Examination Reporting Sheets using a dark coloured pen or pencil.
11. Record units for all measurements taken. Only metric units (mm, °C, etc.) shall be used.
12. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.
13. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.
14. DO NOT make any permanent markings on the test specimens.

5.1.1.2.1.2 Verification/Performance Checks

There are four verification/performance checks that are to be completed:

1. Measure the maximum UV-A irradiance (µW/cm²).
2. Measure the maximum white-light illuminance (lx).
3. Record water temperature and pressure at the water wash station
4. Measure dryer temperature

Be sure to familiarize yourself with the equipment and fill out all the required parameters **and include all units**.

5.1.1.2.1.3 PT of Test Specimens

PT of the test specimens should occur after the performance/verification checks above are completed. The inspection of the test specimens should adhere to the following:

1. <u>Visually inspect the specimen test area, prior to PT. Report visual indications.</u>
2. The PT Instructions are applicable for the following Techniques:
    i) Colour Contrast, Visible, Solvent Removable using non-aqueous developer.
    ii) Fluorescent Water Washable using dry developer.
    iii) Fluorescent-Post-Emulsifiable Hydrophilic using dry developer.
3. Specimen drawing provides information for the surface area to be tested using the stated PT technique. Recommended PT parameters are also provided in the specimen drawing.
4. **For these examination specimens, use the specified penetrant dwell time of 20 to 30 minutes. This is an examination condition, not a universal dwell-time requirement for field testing.**
5. Draw and report each indication on the PT documentation provided:
    - As accurately as possible using a **red-coloured pen only.**
    - Each indication is assigned an ‘indication #’.

- It shows their size, length, shape and location.
- Each indication is **interpreted and evaluated correctly** based on the indication's appearance, specimen form, manufacturing process(es) and service condition of the specimen. **Do not just report as 'linear' or 'rounded' indication.**

6. **Do not post-clean the PT specimen(s).** The Invigilator is required to verify PT processed specimen(s).

Reporting and documentation are an essential part of the exam, and may include mark-up of drawings, report completion and technique sheet completion. The following are the expectations of reporting/documentation for the PT2 Practical Exam:

PT SPECIMEN AND REPORTING DOCUMENTATION:

1. Each specimen is traceable to a Unique Specimen Number.
2. PT reporting documentation for each specimen includes:
   i) PT report.
   ii) Specimen drawing.
3. PT REPORTS:
   i) Based on the PT technique used, appropriate PT Report form shall be used.
   Two types of PT Report forms are:
      a) PT Report- Color Contrast Technique.
      b) PT Report- Fluorescent Technique.
   ii) Each of these PT Reports can be used for up to three specimens that are tested by the same technique. **Example**: Generate one 'PT Report-Fluorescent Technique' for up to three specimens tested by fluorescent technique and one 'PT Report- Color Contrast Technique' is generated for up to two specimens tested by Color contrast solvent removable technique.
4. SPECIMEN DRAWING:
   Each PT specimen has a unique specimen drawing sheet that includes the following information:
   i) Specimen # (*generic*), Specimen name and description. **NOTE 2**
   ii) Scope of PT and surface area to be tested.
   iii) PT Technique to be used, such as:
      a) Colour Contrast, Solvent Removable.
      b) Fluorescent Water Washable.
      c) Fluorescent Post-Emulsifiable Hydrophilic.

   NOTE 2: Record Specimen # **AS STAMPED** on the Specimen in the PT Report and PT drawing sheets.

EXAMPLES OF PT DOCUMENTATION AS BELOW:

PT report - Colour Contrast Solvent Removable Technique:

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PT REPORT

(COLOR CONTRAST, SOLVENT REMOVABLE TECHNIQUE)

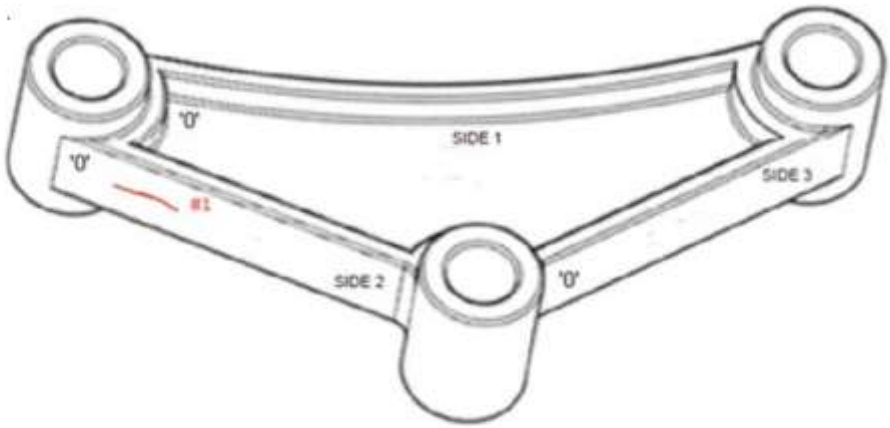
SPECIMEN(S) & PT REQUIREMENT			
	1ST SPECIMEN, INFORMATION RECORDED BELOW:	2ND SPECIMEN, INFORMATION RECORDED BELOW: *(when applicable)*	
SPECIMEN #:	TSW90		
SPECIMEN NAME:	*Tandem Equalizer*		
MATERIAL & TECHNIQUE:			
PENETRANT MATERIAL:	MANUFACTURER:	TYPE:	BATCH #:
CLEANER	NKSCL	SC1C	90326
PENETRANT	NKSCL	PC2P	16121
DEVELOPER	NKSCL	DC3D	03513
PENETRANT DWELL TIME:	EXCESS PENETRANT REMOVAL METHOD:		DEVELOPMENT TIME:
20 mins.	Solvent wipe and dry		10 mins.
PT RESULTS:			
1ST SPECIMEN *(Specimen # as above. Check mark ✓)* ☐ ACCEPT ☑ REJECT		2ND SPECIMEN *(Specimen # as above. Check mark ✓)* ☐ ACCEPT ☐ REJECT	
1ST SPECIMEN - ATTACHMENT: SPECIMEN DRAWING: ☑ YES ☐ NO		2ND SPECIMEN - ATTACHMENT: SPECIMEN DRAWING: ☐ YES ☐ NO	
1ST SPECIMEN - COMMENTS		2ND SPECIMEN - COMMENTS	
Specimen rejected			
Indications mapped on the attached specimen drawing.			
SIGNATURE			
NAME: Terry Jot	SIGNATURE: Tjot	CWB REGISTRATION #: 91263	DATE: 12/04/2024

PT Specimen Drawing:

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LIQUID PENETRANT TESTING L2 PRACTICAL EXAM – SPECIMEN DRAWING TO MAP AND RECORD INDICATION DETAILS

DATE: 12/4/2024	**SPECIMEN #:** TSW90 **SPECIMEN NAME: Tandem Equalizer.**	DIMENSIONS
SPECIMEN#: TSW90-XT	**DESCRIPTION:** Forged Equalizer, material ASTM S36. PT in as-forged condition prior to service .	
NAME: Terry Jot	**SCOPE OF TESTING:** Surfaces- side 1, side 2, side 3 only.	Thickness: xx-xy mm
SIGN:	**TECHNIQUE:** PT using Colour Contrast, Visible, Solvent Removable Technique.	Dimensions: yy-zz mm
	RECORDING & ACCEPTANCE CRITERIA: Reference 'PT2 DOCUMENT #20'.	



Indication #	Indication Length / Size	Location.	Indication Description	Accept / Reject
1.	20 mm	Indication on side 2 surface, located at 13 mm from '0' reference on side 2.	Surface, linear indication, visually verified as having metal fold over- Forging Lap.	Reject

5.1.1.2.1.4 Detailed Written Instruction of One Test Specimen

Write a PT instruction for any one specimen that was examined. Use lined paper provided for instruction writing. FIVE lined sheets are provided. The instructions and information provided for the specimen as part of the exam documents may be used to write the specific instructions for the specimen.

Follow the format for a written instruction:

a) Foreword (i.e., scope, reference documents)
b) Personnel (i.e., qualification requirements)
c) Equipment list (i.e., all equipment, accessories and media to be used)
d) Product (i.e., description or drawing, including area of interest and purpose of test)
e) Test conditions (i.e., include preparation for testing and specific calibration procedures for the specimen)
f) Detailed instructions for application of the test, including settings for the specimen.
g) Recording and classifying the test results.
h) Reporting the results

5.1.1.2.1.5 Grading of Practical Examination

The grading of the PT2 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	10
2	Application of NDT method	26
3	The detection of indications or discontinuities and reporting	64
Total		**100**

The grading of the Detailed Written Instruction of One Test Specimen element shall be per the following:

Item	Subject	% maximum
1	Foreword (scope, reference documents)	5
2	Personnel	5
3	Equipment/media to be used	5
4	Product (description or drawing, including area of interest and purpose of the test)	10
5	Test conditions, including preparation for testing	10
6	Detailed instructions for application of the test, including settings	40
7	Recording and classifying of the test results	20
8	Reporting the results	5
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. For Level 2, the written instruction is graded separately and must also achieve 70% or higher.

5.1.2 Renewal & Recertification Examinations

For the Level 2 renewal practical-examination route, the candidate must also produce a written NDT instruction suitable for Level 1 personnel. The specimen and instruction are graded separately and must each achieve at least 70%. The instruction is included in the stated renewal session duration. This requirement does not apply to an accepted structured-credit renewal or to a Level 1 practical examination. See CAN/CGSB-48.9712-2022, 10.1(d) and 11.2.2.

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	PT2 Renewal Practical (EMC)	• 1 Verification / Performance Check • Inspect 1 specimen Written instruction for the inspected specimen, included in this session.	4 hours	70% or higher for each part
Recertification	PT2 Recertification Practical (EMC)	• 1 Verification / Performance Check • Inspect 2 specimens • Written Instruction for one of the specimens	4 hours	70% or higher for each part

5.1.2.1 Layout & Content

Refer to the content for Initial Examinations per 5.1.1.2 except as below:

One calibration/performance check: Measure the maximum UV-A irradiance (µW/cm²) or white-light illuminance (lx), as assigned.

6 ULTRASONIC TESTING (UT)

6.1 UT LEVEL 1

6.1.1 Initial Examinations

6.1.1.1 Written Examination

6.1.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions, flaws & their names and applications & techniques.

Below is a summary of the UT1 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
UT1 General Written	• 40 multiple choice questions on UT theory	1 hour 20 mins	70% or higher
UT1 Specific (EMC) Written	• 40 multiple choice questions ○ 15 on Flaws & Their Names ○ 25 on Applications & Techniques	2 hours	70% or higher

6.1.1.1.2 Study References

Prepare for the UT1 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- **Primary technical reference — ASNT Nondestructive Testing Handbook, Volume 7: Ultrasonic Testing, third edition (2007).**
- Ultrasonic Testing of Materials by Krautkrämer, J., Krautkrämer, H. (2013)
- Ultrasonics: Fundamentals, Technologies, and Applications by Ensminger, D., Bond, L.J. (2012).
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

6.1.1.2 Practical Examination

Below is a summary of the Initial UT1 practical exam:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
UT1 Practical	• Performance & Calibration Checks ○ 8 calibrations ○ 1 beam spread check • Inspect 2 specimens ○ 1 weld ○ 1 formed product	8 hours	70% or higher for each part

6.1.1.2.1 Use of own UT Equipment

The use of the candidate's own UT Equipment is **not allowed** for initial examinations.

6.1.1.2.2 Layout & Content

There are three components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and *suggested* timing, each candidate's preferences may differ.

Initial Exam Components	**Suggested Time Spent***
1. Review Instruction Manual	*0.5 hour*
2. Verification/Performance Checks	*3 hours*
3. UT of Two Test Specimens	*4.5 hours*
Total Duration	**8 Hours**

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

6.1.1.2.2.1 Reviewing Instruction Manual

The Instruction Manual for UT1 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn and verified by the Invigilator.
2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.
3. This is a closed-book examination; supplied examination instructions remain available for use.
4. Only examination documents, equipment, manuals and other aids supplied or expressly authorized by CWB may be used. Personal references and unauthorized electronic devices are prohibited.
5. The candidate is supplied with the Ultrasonic Flaw Detector, required accessories, calibration and reference blocks, and paperwork by the exam centre.
6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.
7. Carefully read all the instructions and answer in the space provided.
8. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.
9. The Invigilator shall ensure that the candidate has been familiarized with the equipment and will provide access to the equipment manual if requested by the candidate.
10. Completely fill in the information in the Examination Reporting Sheets using a dark coloured pen or pencil.
11. All measurements shall be taken in metric units, e.g. mm, °C. Note: some exam Calibration Blocks may be provided in imperial units.
12. Specimen dimensions provided in the UT Reporting documents have a tolerance of ±1 mm.

13. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.
14. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.
15. DO NOT mark on the equipment, accessories, reference or calibration block. Candidate shall completely remove any traces/marking of temporary pencil (e.g. grease pencil) if used during UT. Only an exam centre provided marking pencil can be used for the specimen.
16. Any candidate who permanently marks the specimen(s) will automatically fail the specimen(s).
17. Couplant shall be wiped off after conducting UT on the specimen(s).

6.1.1.2.2.2 Verification/Performance Checks

There are nine verification/performance checks that are to be completed:

1. Time base calibration - Longitudinal beam
2. Sensitivity Longitudinal beam
3. DAC Longitudinal beam
4. Wedge Index verification
5. Wedge Angle verification
6. Time base calibration - Angle beam
7. Sensitivity angle beam
8. DAC Angle beam
9. Perform Angle Beam Profile on vertical and horizontal planes.

Be sure to fill out all the required parameters **and include all units**.

6.1.1.2.2.3 UT Equipment Report

A report detailing all the UFD, Probes and Couplant used, shall be completed. Be sure to familiarize yourself with the equipment and fill out all the required parameters.

6.1.1.2.2.4 UT of Test Specimens

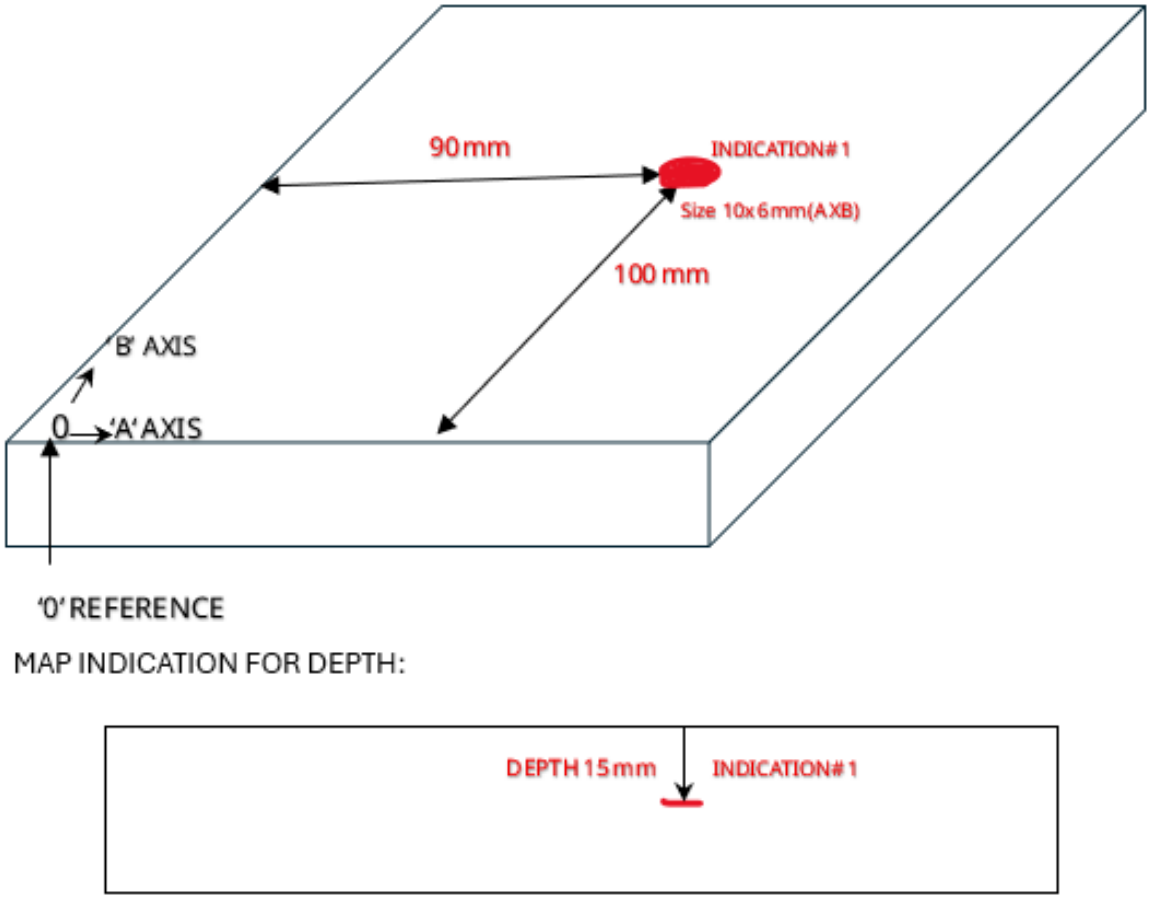
General instructions for the testing and reporting of the UT specimens are as below:

1. Record the complete stamped specimen number, including any suffix, on the UT1 practical examination report.
2. Before UT, visually inspect the specimen and record observed visual indications.
3. Use the specific report and appendix supplied for the specimen. Follow the prescribed technique, calibration and scope of examination.
4. Complete all reference-block, reference-gain, range, specimen-description and scope fields. Record settings and measurements with units.
5. Assign a unique number to each indication and use that number consistently in the report and drawings.
6. Record the distance from the reference “0” or reference face to the start of the indication. Use the 6 dB-drop edge where the specimen instructions prescribe this method.
7. Record indication length and depth; also record width for plate specimens and angular position for cylinder or bar specimens, as applicable. State the dB rating relative to the reference level.
8. Sketch indications using a red-coloured pen. Show their positions, shapes and numbers relative to the stated datum.
9. For plate specimens, use the top view to show length and width from reference “0”, and the cross-sectional view to show depth from the scan surface.

10. For a cylinder or bar, use the referenced end-face view to show angular position. Use the axial/longitudinal view to show position, distance from the reference face and indication length.
11. Complete all required fields and sign each report sheet. Report only the measurements and classifications required by the Level 1 examination instructions.

6.1.1.2.2.4.1 EXAMPLES OF UT INDICATION RECORDED ON THE PLATE SPECIMEN DRAWING.

NOTE: FOR EACH INDICATION SHOW ITS LOCATION FROM REFERENCE '0'/ REFERENCE FACE.



6.1.1.2.2.5 Grading of Practical Examination

The grading of the UT1 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	20
2	Application of NDT method	35
3	The detection of indications or discontinuities and reporting	45
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. Level 1 candidates do not complete the Level 2 written-instruction element.

6.1.2 Renewal & Recertification Examinations

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	UT1 Renewal Practical (EMC)	• 1 Performance Verification • Inspect 1 specimen	4 hours	70% or higher for each part
Recertification	UT1 Recertification Practical (EMC)	• 2 Performance Verification • Inspect 2 specimens	4 hours	70% or higher for each part

6.1.2.1 Layout & Content

6.1.2.1.1 Use of own UT Equipment

Candidates are only allowed to bring their own Ultrasonic Flaw Detector (UFD) for Renewal/Recertification exams only after authorization from CWB. **The candidate must request this via email to inspector@cwbgroup.org at the time of renewal/recertification application.**

Before the examination, the invigilator will delete saved calibration programs, remove the memory card and reset the instrument to factory settings. Back up personal data before bringing the instrument. Bring the ultrasonic flaw detector manual and any adaptor required for the examination-centre probe connectors. Only examination-centre probes may be used.

6.1.2.1.2 UT1 Renewal Examination

6.1.2.1.2.1 UT CALIBRATION/PERFORMANCE CHECK:

Perform only **one** Calibration/Performance Check as per the instructions provided. Complete the 'UT1 CALIBRATION/PERFORMANCE RECORD' with the required information. One required check shall be: Time base calibration - Longitudinal beam.

6.1.2.1.2.2 UT1 EQUIPMENT REPORT

One 'UT1 PRACTICAL EXAM EQUIPMENT REPORT', detailing all the UFD, Probes and Couplant used, shall be completed.

6.1.2.1.2.3 UT1 SPECIMEN (ONE):

Perform contact UT scan using longitudinal beam for **one** specimen. Follow the instructions as per the specimen's 'UT1 PRACTICAL EXAM REPORT' and record the results. The assigned specimen(s) shall be selected from the following:

- Plate
- Formed product. Example: Forged bar

6.1.2.1.3 UT1 Recertification Examination

6.1.2.1.3.1 UT CALIBRATION/PERFORMANCE CHECK:

Perform only **two (2) Calibration/Performance Checks** as per the instructions provided. The checks shall be:

1. Time base calibration - Longitudinal beam
2. Time base calibration - Angle beam

6.1.2.1.3.2 UT1 EQUIPMENT REPORT:

One 'UT1 PRACTICAL EXAM EQUIPMENT REPORT', detailing all the UFD, Probes and Couplant used, shall be completed.

6.1.2.1.3.3 UT1 SPECIMEN (TWO):

Perform the assigned contact UT examinations on two specimens. Follow the technique and reporting instructions supplied for each specimen. The approved assignment identifies the required beam mode and examination area.

The assigned specimen(s) shall be selected from the following:

i) CONTACT UT:

a) Plate

b) Formed product. Example: Forged bar.

6.2 UT LEVEL 2

6.2.1 Initial Examinations

6.2.1.1 Written Examination

6.2.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions, flaws & their names, applications & techniques and codes/standards.

Below is a summary of the UT2 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
UT2 General Written	• 40 multiple choice questions on UT theory	1 hour 20 mins	70% or higher
UT2 Specific (EMC) Written	• 70 multiple choice questions o 30 Flaws & Their Names o 30 Applications & Techniques o 10 Codes	3.5 hours	70% or higher

6.2.1.1.2 Study References

Prepare for the UT2 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- **Primary technical reference — ASNT Nondestructive Testing Handbook, Volume 7: Ultrasonic Testing, third edition (2007).**
- Ultrasonic Testing of Materials by Krautkrämer, J., Krautkrämer, H. (2013)
- Ultrasonics: Fundamentals, Technologies, and Applications by Ensminger, D., Bond, L.J. (2012).
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

6.2.1.1.2.1 Codes and Standards

Review the following codes and standards for the code-related portion of the Specific (EMC) examination. Confirm the applicable examination editions and permitted extracts under Section 2.4.

- CSA W59*, Welded Steel Construction (Metal Arc Welding)*
- ASME BPVC Section V, Article 4, *Ultrasonic Examination for Welds*
- ASTM A503/A503M, *Standard Specification for Ultrasonic Examination of Forged Crankshafts*
- ASTM B548, *Standard Test Method for Ultrasonic Inspection of Aluminum-Alloy Plate for Pressure Vessels*
- ASTM E273, *Standard Practice for Ultrasonic Testing of the Weld Zone of Welded Pipe and Tubing*
- ASTM E797/E797M, *Standard Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method*

6.2.1.2 Practical Examination

Below is a summary of the Initial UT2 practical exam:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade

UT2 Practical	• Inspect 4 specimens
	  ○ 2 welds
	  ○ 1 formed product – contact
	  ○ 1 formed product – immersion
	• Written Instruction for one of the inspected specimens
		16 hours or 20 hours if Direct Level 2	70% or higher for each part

6.2.1.2.1 Performance & Calibration Checks

Candidates directly challenging UT2 without a CWB-recognized UT1 practical result must complete the additional Level 1 performance and calibration checks in Section 6.1.1.2.2.2. Form 500, Annex A allocates a separate 4 hours for these checks, in addition to the 16-hour UT2 specimen and written-instruction examination. Recognition of a prior result must be confirmed by CWB. All candidates still perform the calibrations and verifications required for their assigned UT2 specimens.

6.2.1.2.2 Use of own UT Equipment

The use of the candidate's own UT Equipment is **not allowed** for initial examinations.

6.2.1.2.3 Layout & Content

There are four components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and *suggested* timing, each candidate's preferences may differ.

Initial Exam Components	**Suggested Time Spent***
1. Review Instruction Manual & Reports	*1 hour*
2. UT of Four Test Specimens	*12 hours*
3. Written Instruction	*2 hours*
4. Final calibration checks and report review	*1 hour*
Total Duration	**16 Hours**

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

6.2.1.2.3.1 Reviewing Instruction Manual & Reports

The Instruction Manual for UT2 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator. CWB also recommends that each specimen report and requirements also be reviewed before specimen testing.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn and verified by the Invigilator.
2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.
3. This is a closed-book examination; supplied examination instructions remain available for use.
4. Only examination documents, equipment, manuals and other aids supplied or expressly authorized by CWB may be used. Personal references and unauthorized electronic devices are prohibited.
5. The candidate is supplied with the Ultrasonic Flaw Detector (UFD), required accessories, calibration and reference blocks, and paperwork by the exam centre.
6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.
7. Carefully read all the instructions and answer in the space provided.
8. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.
9. The invigilator shall ensure that the candidate has been familiarized with the equipment, and if required, the candidate can request access to the equipment manual.
10. Complete the information in the Examination Reporting Sheets using a dark coloured pen.
11. All measurements shall be taken in metric units, e.g. mm, °C. Note: some exam Calibration Blocks may be provided in imperial units.
12. Specimen dimensions provided in the UT Reporting documents have a tolerance of ±1 mm.
13. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.

14. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.
15. DO NOT mark on the equipment, accessories, reference or calibration block. The candidate shall completely remove any traces/markings of temporary pencil (e.g. grease pencil) if used during UT. Only an exam centre provided marking pencil can be used for the specimen.
16. Any candidate who permanently marks the specimen(s) will automatically fail the specimen(s).
17. Couplant shall be wiped off after conducting UT on the specimen(s).

6.2.1.2.3.2 UT2 Equipment Report

Complete a report identifying all ultrasonic flaw detectors, probes, wedges and couplant used. Record all required equipment parameters; specimen-specific reports may require additional information, including immersion settings.

6.2.1.2.3.3 UT of Test Specimens

General instructions for the testing and reporting of the UT specimens are as below:

1. Prior to UT, visually inspect the specimen and report observed visual indication(s).
2. Each specimen is traceable to a unique, stamped specimen number. The entire 'as stamped' specimen number (include the suffix, e.g., -1, -3, etc.) shall be recorded in the 'ULTRASONIC TESTING L2 PRACTICAL EXAM REPORT'.
3. Each specimen is provided along with its specific 'ULTRASONIC TESTING L2 - PRACTICAL EXAM REPORT'. UT for the specimen shall be conducted as per requirements stated in the record.
4. Maximize the indication response when determining its amplitude or dB rating. Determine length, width, depth and other required dimensions using the sizing technique prescribed for that specimen; peak amplitude alone does not define every dimension.
5. 'ULTRASONIC TESTING L2 PRACTICAL EXAM REPORT' for the specimen includes the following information:
    a. Reference Blocks
    b. Reference dB
    c. Range
    d. Specimen number
    e. Specimen name
    f. Scope of UT: Provides information for the UT technique and the surface area that requires UT.
    g. UT Instructions: Provides reference to the attached 'Appendix UT2 Instructions' for the specimen.
    h. Indications are recorded and interpreted/evaluated as per the instructions. Where required indication dB rating is recorded.
    i. Record the indications and their parameters as required per the recording table.
    j. There are four different reporting format requirements based on the type of product form, applicable code for the weld, and UT technique, as per the attached Appendix for the specimen.
    k. For each indication measure from the reference '0'/ reference face.
    l. Specimen drawing: Sketch indications using red pen only. Clearly identify each indication and sketch its position and shape as applicable.

m. Number each indication and sketch in the drawings with:
    i. Top View/Side Face View - Sketch indications to show its location with respect to the '0' reference as marked on the drawing and specimen. Show its 'L (length)' and shape.
    ii. For plate only also show its 'W (width)'. For cylinder/bar show angular position.
    iii. Cross Sectional View or Axial/Longitudinal Direction View - For cross sectional view, sketch indications to show its 'Depth' from the scan surface and location.
    iv. The Axial/Longitudinal view is the planar view for angular position of the specimen. Sketch indications to show their angular position, distance from the reference face to the start of the indication and its length.
n. Ensure that all the UT Report sheets are filled in completely and each sheet is signed.

6.2.1.2.3.4 UT2 Specimens:

Perform UT for a total of four specimens. Follow the instructions for each specimen as per each specimen report and record the results as below.

UT specimens as per:

i) CONTACT UT: using longitudinal and shear beam for:

a) **Two** welds - UT requirement for one weld is as per ASME Section V, one weld is as per CSA W59.

b) **One** formed product. Example: Forged bar

ii) IMMERSION UT: using longitudinal beam for:

a) **One** formed product. Example: Aluminum extrusion

6.2.1.2.3.5 UT2 Written Instruction

Write a detailed Written Instruction for **one** UT specimen that was completed during the examination as above. The instructions and information provided for the specimen as part of the exam documents may be used to write the specific instructions for the specimen.

Follow the format for a written instruction:

a) Foreword (i.e., scope, reference documents)
b) Personnel (i.e., qualification requirements)
c) Equipment list (i.e., all equipment, accessories and media to be used)
d) Product (i.e., description or drawing, including area of interest and purpose of test)
e) Test conditions (i.e., include preparation for testing and specific calibration procedures for the specimen)
f) Detailed instructions for application of the test, including settings for the specimen.
g) Recording and classifying the test results.
h) Reporting the results

6.2.1.2.3.6 Grading of Practical Examination

The grading of the UT2 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	10
2	Application of NDT method	26
3	The detection of indications or discontinuities and reporting	64
Total		**100**

The grading of the Detailed Written Instruction of One Test Specimen element shall be per the following:

Item	Subject	% maximum
1	Foreword (scope, reference documents)	5
2	Personnel	5
3	Equipment/media to be used	5
4	Product (description or drawing, including area of interest and purpose of the test)	10
5	Test conditions, including preparation for testing	10
6	Detailed instructions for application of the test, including settings	40
7	Recording and classifying of the test results	20
8	Reporting the results	5
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. For Level 2, the written instruction is graded separately and must also achieve 70% or higher.

6.2.2 Renewal & Recertification Examinations

For the Level 2 renewal practical-examination route, the candidate must also produce a written NDT instruction suitable for Level 1 personnel. The specimen and instruction are graded separately and must each achieve at least 70%. The instruction is included in the stated renewal session duration. This requirement does not apply to an accepted structured-credit renewal or to a Level 1 practical examination. See CAN/CGSB-48.9712-2022, 10.1(d) and 11.2.2.

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	UT2 Renewal Practical (EMC)	• 1 Performance Verification • Inspect 1 specimen Written instruction for the inspected specimen, included in this session.	4 hours	70% or higher for each part
Recertification	UT2 Recertification Practical (EMC)	• 2 Performance Verification • Inspect 2 specimens • Written Instruction for one of the specimens	8 hours	70% or higher for each part

6.2.2.1 Layout & Content

6.2.2.1.1 Use of own UT Equipment

Candidates are only allowed to bring their own Ultrasonic Flaw Detector (UFD) for Renewal/Recertification exams only after authorization from CWB. **The candidate must request this via email to inspector@cwbgroup.org at the time of renewal/recertification application.**

Before the examination, the invigilator deletes saved calibrations, removes the memory card and resets the instrument. Back up personal data beforehand. Bring the manual and compatible adaptors; use only examination-centre probes.

6.2.2.1.2 UT2 Renewal Examination:

6.2.2.1.2.1 UT CALIBRATION/PERFORMANCE CHECK:

Perform and record the required angle-beam time-base calibration.

6.2.2.1.2.2 UT2 EQUIPMENT REPORT

Complete the UT2 Practical Exam Equipment Report, identifying all flaw detectors, probes and couplant used.

6.2.2.1.2.3 UT2 SPECIMEN:

Perform contact/immersion UT scan for **one** specimen. Follow the instructions as per the specimen's 'ULTRASONIC TESTING L2 PRACTICAL EXAM REPORT' and record the results.

The assigned specimen(s) shall be selected from the following:

i) CONTACT UT:
   a. Weld - UT requirement as per ASME Section V or CSA W59.
   b. Formed product. Example: Forged bar.

ii) IMMERSION UT:
   a. Formed product. Example: Aluminum extrusion.

6.2.2.1.3 UT2 Recertification Examination

6.2.2.1.3.1 UT CALIBRATION/PERFORMANCE CHECK:

Complete and record both required time-base calibration checks:

1. Time base calibration - Longitudinal beam
2. Time base calibration - Angle beam

6.2.2.1.3.2 UT2 EQUIPMENT REPORT

Complete the UT2 Practical Exam Equipment Report, identifying all flaw detectors, probes and couplant used.

6.2.2.1.3.3 UT2 SPECIMEN:

Perform contact/immersion UT scan for two specimens. Follow the instructions as per the specimen's 'ULTRASONIC TESTING L2 PRACTICAL EXAM REPORT' and record the results.

The assigned specimen(s) shall be selected from the following:

i) CONTACT UT:
   a) Weld - UT requirement as per ASME Section V or CSA W59.
   b) Formed product. Example: Forged bar.

ii) IMMERSION UT:
   a) Formed product. Example: Aluminum extrusion.

6.2.2.1.3.4 UT2 WRITTEN INSTRUCTION

Write a detailed instruction for one of the two UT specimens examined.

7 EDDY CURRENT TESTING (ET)

7.1 ET LEVEL 1

7.1.1 Initial Examinations

7.1.1.1 Written Examination

7.1.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions, flaws & their names and applications & techniques.

Below is a summary of the ET1 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
ET1 General Written	• 40 multiple choice questions on ET theory	1 hour 20 mins	70% or higher
ET1 Specific (EMC) Written	• 40 multiple choice questions ○ 15 on Flaws & Their Names ○ 25 on Applications & Techniques	2 hours	70% or higher

7.1.1.1.2 Study References

Prepare for the ET1 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- ***Primary technical reference — Udpa, S. S., and Moore, P. O. (eds.), ASNT Nondestructive Testing Handbook, Volume 5: Electromagnetic Testing, third edition (2004).***
- *General Dynamics Corporation, Convair Division. Classroom Training Handbook: Eddy Current Testing, NASA CR-61230 (CT-6-5). National Aeronautics and Space Administration.*
- *ASNT. Fundamentals of Eddy Current Testing, second edition (2022).*
- Cecco, V. S., Van Drunen, G., & Sharp, F. L. (1983). Eddy current testing: Manual on eddy current method (AECL-7523). Atomic Energy of Canada Limited, Chalk River Nuclear Laboratories. International Nuclear Information System. iaea.org
- Canadian General Standards Board. (1986). *Advanced manual for eddy current test method* (CAN/CGSB-48.14-M86). Government of Canada.
- Ahmad, A., & Bond, L. J. (Eds.). (2018). *ASM Handbook: Volume 17: Nondestructive Evaluation of Materials*. ASM International.
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

7.1.1.2 Practical Examination

Below is a summary of the initial ET1 practical examination:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
ET1 Practical	• General Practical o Calibrate and measure the resistivity of two samples; report conductivity or convert units where required by the exercise. o Calibrate one surface probe in absolute mode for plate testing. o Calibrate one bobbin probe in absolute mode for tube testing. o Calibrate one bobbin probe in differential mode for tube testing • EMC Practical: o Measure the assigned non-conductive coating thicknesses (two samples; a third sample when assigned). o Size crack depths in given specimen. o Inspect one given tube.	8 hours	70% or higher for each part

7.1.1.2.1 Use of own equipment

The use of the candidate's own ET Equipment is **not allowed** for initial examinations.

7.1.1.2.2 Layout & Content

There are three components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and *suggested* timing, each candidate's preferences may differ.

Initial Exam Components	Suggested Time Spent*
1. Review Instruction Manual	*0.25 hour*
2. General Practical	*3.75 hours*
3. EMC Practical	*4 hours*
Total Duration	**8 Hours**

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

7.1.1.2.2.1 Reviewing Instruction Manual

The Instruction Manual for ET1 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn and verified by the Invigilator.

2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.

3. This is a closed-book examination. Only the examination documents, equipment, manuals and aids supplied or expressly authorized by CWB may be used.

4. The candidate is supplied with the Eddy Current Test Equipment, required accessories, calibration and reference blocks/material, and paperwork by the exam centre.

5. Candidates are allowed to bring their own Eddy Current Test Equipment, for Renewal/Recertification exams only. Prior to the exam, the Invigilator will delete all saved calibration programs, remove the SD card and reset to the factory settings. The Candidate is responsible for bringing the Eddy Current Test Equipment manual and, if required the appropriate adaptor to connect the probes and cables. Only the probes provided by the Exam Centre shall be used.

6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.

7. Carefully read all the instructions and answer in the space provided. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.

8. The Invigilator shall ensure that the candidate has been familiarized with the equipment and will provide access to the equipment manual if requested by the candidate.

9. Completely fill in the information in the Examination Reporting Sheets using a dark coloured pen or pencil.

10. All measurements shall be taken in metric units, e.g. mm.

11. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.

12. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.

13. Handle the Calibration Blocks and Tube with extreme care to avoid any damage. Note: Calibration tubes are housed in protective plastic casing within the tube bundle. It is secured with an end cap that opens with twist and turn rotation. You may request assistance from the invigilator to remove this end cap if required.

14. DO NOT mark on the equipment, accessories, reference or calibration block. **Any candidate who marks the specimen(s) will automatically fail the specimen(s).**

7.1.1.2.2.1.1 ET INSTRUCTIONS AND REPORTING DOCUMENTS:

1. Each specimen is traceable to a unique, stamped/labelled specimen number. The entire '*as stamped or labelled*' specimen number (include the suffix, e.g., -1, -3, etc.) shall be recorded in the appropriate report.
2. Prior to ET, visually inspect the specimen and report observed visual indications.
3. Each specimen is provided along with its specific report. ET for the specimen shall be conducted as per instructions and exam requirements stated in the documents.
4. Fill in the drawings/reports clearly, label signals as required and completely fill all information.
5. There is one 'ET Equipment Report' that is completed with details for the ET equipment for the exam. Note that the probe information is recorded in each individual exercise.
6. For Tube Calibration and Testing, the cover sheet will provide specific information for ET of the tube calibration or testing. For example: Calibrate *Brass Tube #xxxx* using *Differential mode* of the given probe.
7. The report for the specimen includes the following information:

a) Part description including dimensions as required.

b) Scope of ET.

c) Calibration requirements.

d) Drawing of the Calibration block/standard.

e) Drawing of the Specimen to map the indications with details.

f) Instructions include:

- Equipment list
- Procedure
- ET Recording sheets to plot signals and label details for each signal
- Recording Table for result, when required

8. Specimen drawing: **Sketch indications using red pen only.** Clearly identify/number each indication and sketch its position and shape, signal details as applicable. Record probe and equipment settings.
9. Ensure that all the required fields are filled in completely and each sheet is signed.

For each exercise, record the probe and operating mode, frequency, filters, balance/null, lift-off direction, phase rotation, gain and display settings required by the report. Demonstrate stable, repeatable reference responses and complete the instructed final calibration check. In property measurements, state the measured quantity and units: resistivity and conductivity are related quantities, not interchangeable labels.

Clearly label the reference and indication signals, scan or signal direction, measurement locations and specimen identification. For tube work, distinguish the assigned internal-surface, external-surface, dent, deposit and other reference responses as instructed. Level 1 reporting follows the supplied instruction; it does not replace Level 2 evaluation authority.

The general/calibration element is separate from the plate and tube specimens. Each assigned calibration or property exercise must be satisfactorily completed; a failed exercise cannot be offset by averaging it with another exercise or with a specimen score.

7.1.1.2.2.2 Grading of Practical Examination

The grading of the ET1 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	20
2	Application of NDT method	35
3	The detection of indications or discontinuities and reporting	45
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. Level 1 candidates do not complete the Level 2 written-instruction element.

7.1.2 Renewal & Recertification Examinations

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	ET1 Renewal Practical (EMC)	• **One** EMC Practical exercise (including calibration relevant to the test specimen).	4 hours	70% or higher for each part
Recertification	ET1 Recertification Practical (EMC)	• **Two** EMC Practical exercises (including calibrations relevant to the test specimens)	4 hours	70% or higher for each part

7.1.2.1 Use of own equipment

Candidates are only allowed to bring their own Eddy Current Equipment for Renewal/Recertification exams only after authorization from CWB. **The candidate must request this via email to inspector@cwbgroup.org at the time of renewal/recertification application.**

Before the examination, the invigilator will delete saved calibration programs, remove the memory card and reset the instrument to factory settings. Back up personal data before bringing the instrument. Bring the equipment manual and any adaptor needed to connect the examination-centre probes and cables. Only the probes supplied by the examination centre may be used.

7.2 ET LEVEL 2

7.2.1 Initial Examinations

7.2.1.1 Written Examination

7.2.1.1.1 Layout & Content

Written Examinations comprise two elements:

1. General Examination Element which tests knowledge of the theory of the method.
2. Specific Examination Element (EMC Exam) which tests knowledge of the applications of the method. This may also include field related Materials & Processes (M&P) questions, flaws & their names, applications & techniques and codes/standards.

Below is a summary of the ET2 Initial Written Examinations:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
ET2 General Written	• 40 multiple choice questions on ET theory	1 hour 20 mins	70% or higher
ET2 Specific (EMC) Written	• 60 multiple choice questions ○ 25 Flaws & Their Names ○ 25 Applications & Techniques ○ 10 Codes	3 hours	70% or higher

7.2.1.1.2 Study References

Prepare for the ET2 written examinations using your RTO course notes together with the relevant materials listed below. The ASNT handbook is a primary technical reference. Review the other listed texts for materials, processes and applications relevant to your level.

- ***Primary technical reference — Udpa, S. S., and Moore, P. O. (eds.), ASNT Nondestructive Testing Handbook, Volume 5: Electromagnetic Testing, third edition (2004).***
- *General Dynamics Corporation, Convair Division. Classroom Training Handbook: Eddy Current Testing, NASA CR-61230 (CT-6-5). National Aeronautics and Space Administration.*
- *ASNT. Fundamentals of Eddy Current Testing, second edition (2022).*
- Cecco, V. S., Van Drunen, G., & Sharp, F. L. (1983). Eddy current testing: Manual on eddy current method (AECL-7523). Atomic Energy of Canada Limited, Chalk River Nuclear Laboratories. International Nuclear Information System. iaea.org
- Canadian General Standards Board. (1986). *Advanced manual for eddy current test method* (CAN/CGSB-48.14-M86). Government of Canada.
- Ahmad, A., & Bond, L. J. (Eds.). (2018). *ASM Handbook: Volume 17: Nondestructive Evaluation of Materials*. ASM International.
- Metallurgy for the Non-Metallurgist, *Second Edition by ASM International*

7.2.1.1.2.1 Codes and Standards

Review the following codes and standards for the code-related portion of the Specific (EMC) examination. Confirm the applicable examination editions and permitted extracts under Section 2.4.

- *ASTM International. (2024). Standard practice for electromagnetic (eddy-current) examination of copper and copper-alloy tubes (ASTM E243-24).*

- ASTM International. (2021). *Standard practice for electromagnetic (eddy current) examination of seamless and welded tubular products, titanium, austenitic stainless steel and similar alloys* (ASTM E426-21).
- *ASTM International. (2023). Standard test method for determining electrical conductivity using the electromagnetic (eddy current) method (ASTM E1004-23).*

7.2.1.2 Practical Examination

Below is a summary of the Initial ET2 practical exam:

Exam Elements	Exam Questions & Parts	Duration	Pass Grade
ET2 Practical	• Inspect one aircraft fastened assembly specimen. • Inspect one aircraft in-service specimen - wheel. • Inspect two different tube specimens. • Written Instruction for one of the inspected specimens	16 hours	70% or higher for each part

The revised ET2 schedule follows Form 500, Annex A: 16 hours for the four specimens and written instruction, plus 4 hours for direct-entry calibration checks when required. Confirm the total authorized booking time with CWB and the AEC before attending.

7.2.1.2.1 General Practical Examination

Candidates directly challenging ET2 without a CWB-recognized ET1 practical result must complete the ET1 general calibration exercises. Form 500, Annex A allocates an additional 4 hours for this element. CWB confirms recognition of prior results and the assigned calibration or property exercises. All ET2 candidates must still calibrate and verify the equipment for each practical specimen.

7.2.1.2.2 Use of own equipment

The use of the candidate's own ET Equipment is **not allowed** for initial examinations.

7.2.1.2.3 Layout & Content

There are three components to the practical examination that the candidate will need to pay attention to for the initial examinations. Below are those components and suggested timing, each candidate's preferences may differ.

Initial Exam Components	**Suggested Time Spent***
1. Review Instruction Manual & Reports	*0.5 hour*
2. ET of Four Test Specimens	*13.5 hours*
3. Written Instruction	*2 hours*
Total Duration	**16 hours**

*The above timings are suggestions. Each candidate may require more or less time for each section of the exam; CWB does not require any candidate to adhere to these timings.

7.2.1.2.3.1 Reviewing Instruction Manual & Reports

The Instruction Manual for ET2 provided during the examination must be reviewed in detail prior to performing any exam tasks. The candidate is expected to adhere to the requirements outlined in the Instruction Manual and clarify any misunderstandings with the Invigilator. CWB also recommends that each specimen report and requirements also be reviewed before specimen testing.

General Instructions may include:

1. SAFETY: Take all required Safety Precautions during laboratory use of equipment, accessories and relevant material/chemicals. Required Personal Protective Equipment shall be properly worn and verified by the Invigilator.

2. Candidates with a CWB-approved accommodation shall confirm with the invigilator, before the examination begins, that the approved arrangements are in place.

3. This is a closed-book examination. Only the examination documents, equipment, manuals and aids supplied or expressly authorized by CWB may be used.

4. The candidate is supplied with the Eddy Current Test Equipment, required accessories, calibration and reference blocks/material, and paperwork by the exam centre.

5. Candidates are allowed to bring their own Eddy Current Test Equipment, for Renewal/Recertification exams only. Prior to the exam, the Invigilator will delete all saved calibration programs, remove the SD card and reset to the factory settings. The Candidate is responsible for bringing the Eddy Current Test Equipment manual and, if required the appropriate adaptor to connect the probes and cables. Only the probes provided by the Exam Centre shall be used.

6. No exam related paperwork or material shall leave the exam room. All sheets in the examination package, including blank or rough work sheets, shall be returned to the Invigilator at the end of the exam.

7. Carefully read all the instructions and answer in the space provided. Comply with all examination instructions including those provided by the Authorized Exam Centre and the Invigilator.

8. The Invigilator shall ensure that the candidate has been familiarized with the equipment and will provide access to the equipment manual if requested by the candidate.

9. Completely fill in the information in the Examination Reporting Sheets using a dark coloured pen or pencil.

10. All measurements shall be taken in metric units, e.g. mm.

11. In case of violation of the examination requirements or unsafe operation of the equipment, the Invigilator may terminate the examination immediately.

12. Do not grind, abrade or otherwise alter examination specimens. Carry out only the cleaning or preparation expressly permitted by the supplied instructions.

13. Handle the Calibration Blocks and Tube with extreme care to avoid any damage. Calibration tubes are housed in protective plastic casing within the tube bundle. It is secured with an end cap that opens with twist and turn rotation. You may request assistance from the invigilator to remove this end cap if required.

14. DO NOT mark on the equipment, accessories, reference or calibration blocks. **Any candidate who marks the specimen(s) will automatically fail the specimen(s).**

7.2.1.2.3.2 ET2 Instructions and Reporting

1. Each specimen is traceable to a unique, stamped/labelled specimen number. The entire '*as stamped or labelled*' specimen number (include the suffix, e.g., -1, -3, etc.) shall be recorded in the reporting sheet.
2. Prior to ET, visually inspect the specimen and report observed visual indications.
3. Each specimen is provided along with its specific report. ET for the specimen shall be conducted as per instructions and exam requirements stated in the documents.
4. Fill in the drawings/reports clearly, label signals as required and completely fill all information.
5. There is *one* 'ET Equipment Report' that is completed with details for the ET equipment and all the probes used for the practical examination.
6. For Tube Calibration and Testing, the cover sheet will provide specific information for ET of the tube testing. For example: ET *Brass Tube #xxxx* using *Differential mode* for the probe.
7. The 'EDDY CURRENT LEVEL 2 PRACTICAL EXAM REPORT' for the specimen includes the following information:
   - i) Part description including dimensions as required.
   - ii) Scope of ET.
   - iii) Calibration requirements.
   - iv) Drawing of the Calibration block/standard.
   - v) Drawing of the Specimen to map the indications with details.
   - vi) Instructions include:
     - Equipment list
     - Procedure
     - ET Recording sheets to plot signals and label details for each signal
     - Recording Table for result, when required
8. Specimen drawing: **Sketch indications using red pen only.** Clearly identify/number each indication and sketch its position and shape, signal details as applicable.
9. Ensure that all the required fields are filled in completely and each sheet is signed.
10. For the ET Instruction Writing examination, write detailed instructions as per the topics provided in the cover sheet for any one of the completed test specimens (not calibration specimens).

For the wheel and fastened assembly, distinguish relevant responses from lift-off and geometry responses and record indication positions against the wheel or fastener layout. For the two tubes,

report the required location, depth or percentage through-wall, response classification and evaluation against the supplied criteria. Label each signal sketch and record the settings needed to reproduce it.

The four ET2 specimens and the written instruction receive separate results. Where the general/calibration element is assigned for direct entry, it also requires a separate passing result. Use Section 9 to determine which failed element or specimen must be repeated.

7.2.1.2.3.3 ET2 Written Instruction

Write a detailed Written Instruction for **one** ET specimen that was completed during the examination as above. The instructions and information provided for the specimen as part of the exam documents may be used to write the specific instructions for the specimen.

Follow the format for a written instruction:

a) Foreword (i.e., scope, reference documents)
b) Personnel (i.e., qualification requirements)
c) Equipment list (i.e., all equipment, accessories and media to be used)
d) Product (i.e., description or drawing, including area of interest and purpose of test)
e) Test conditions (i.e., include preparation for testing and specific calibration procedures for the specimen)
f) Detailed instructions for application of the test, including settings for the specimen.
g) Recording and classifying the test results.
h) Reporting the results

7.2.1.2.3.4 Grading of Practical Examination

The grading of the ET2 Practical Examination element shall be based on the following:

Item	Subject	Weighting (%)
1	Knowledge of NDT equipment and NDT media.	10
2	Application of NDT method	26
3	The detection of indications or discontinuities and reporting	64
Total		**100**

The grading of the Detailed Written Instruction of One Test Specimen element shall be per the following:

Item	Subject	% maximum
1	Foreword (scope, reference documents)	5
2	Personnel	5
3	Equipment/media to be used	5
4	Product (description or drawing, including area of interest and purpose of the test)	10
5	Test conditions, including preparation for testing	10
6	Detailed instructions for application of the test, including settings	40
7	Recording and classifying of the test results	20
8	Reporting the results	5
Total		**100**

A minimum grade of 70% is required for each examination element and each practical specimen. For Level 2, the written instruction is graded separately and must also achieve 70% or higher.

7.2.2 Renewal & Recertification Examinations

For the Level 2 renewal practical-examination route, the candidate must also produce a written NDT instruction suitable for Level 1 personnel. The specimen and instruction are graded separately and must each achieve at least 70%. The instruction is included in the stated renewal session duration. This requirement does not apply to an accepted structured-credit renewal or to a Level 1 practical examination. See CAN/CGSB-48.9712-2022, 10.1(d) and 11.2.2.

Renewal and Recertification exam content will be similar to that of the Initial Examinations except the number of test specimens will change and the technique required will be based upon the candidate's work experience.

Note that for Renewals, examination is only required if the candidate chooses not to renew via Structured Credit or is unable to achieve the Structured Credit requirement.

Below is a summary of the renewal and recertification exams.

	Exam	Exam Questions & Parts	Duration	Pass Grade
Renewal	ET2 Renewal Practical (EMC)	• One EMC Specimen Practical for approved specimen and sector type. Written instruction for the inspected specimen, included in this session.	8 hours	70% or higher for each part
Recertification	ET2 Recertification Practical (EMC)	• Two EMC Specimens Practical for approved specimen and sector • Written Instruction for one of the specimens	8 hours	70% or higher for each part

7.2.2.1 Use of own equipment

Candidates are only allowed to bring their own Eddy Current Equipment for Renewal/Recertification exams only after authorization from CWB. **The candidate must request this via email to inspector@cwbgroup.org at the time of renewal/recertification application.**

Before the examination, the invigilator will delete saved calibration programs, remove the memory card and reset the instrument to factory settings. Back up personal data before bringing the instrument. Bring the equipment manual and any adaptor needed to connect the examination-centre probes and cables. Only the probes supplied by the examination centre may be used.

8 LEVEL 3 EXAMINATIONS

This section applies to MT3, PT3, UT3 and ET3. Initial Level 3 qualification comprises a common Basic examination (Parts A, B and C), a main-method examination (Parts D, E and F) and evidence of the required Level 2 practical competence. CWB determines applicable exemptions and confirms the candidate's authorized examination elements before booking.

8.1 INITIAL EXAMINATIONS

8.1.1 Level 3 Basic Examination

8.1.1.1 Written Examination

8.1.1.1.1 Layout, Content and Grading

The Basic examination covers materials and processes, the certification scheme and Level 2 knowledge of other NDT methods. Form 500, Annex A lists the following examination profile. Parts A, B and C must each achieve 70% or higher; a passing combined average does not compensate for a failed part.

Part	Subject	Questions
A	Materials and processes: 30 general questions and 40 product-form / discontinuity questions.	70
B	CAN/CGSB-48.9712-2022 and the CWB qualification and certification scheme.	10
C	Level 2 knowledge across four NDT methods; 15 questions per method.	60
Total	Combined Basic examination: 4 hours	140

The Basic time allowances are 2 hours 20 minutes for Part A, 30 minutes for Part B and 2 hours for Part C, totalling 4 hours 50 minutes. Each part requires 70% or higher.

Confirm the Part C method combination with CWB before preparing and booking. The combination must include at least one volumetric method (UT or RT) in accordance with CAN/CGSB-48.9712-2022. Note: RT Basic examination questions are available despite RT Certification not yet being available.

The Basic examination is normally completed first. It remains valid provided the first main-method examination is passed within five years. A candidate holding a valid Level 3 certificate may be exempt from repeating Basic, subject to CWB's review of the certificate and its applicable recognition requirements. Do not assume an exemption until it is confirmed in the examination authorization.

8.1.1.1.2 Study References and Examination Aids

For Part A, review the materials, manufacturing processes and discontinuities covered by the materials-and-processes references listed in the method chapters. For Part B, study CAN/CGSB-48.9712-2022 together with CWB Form 500, this guide and the applicable CWB scheme requirements. For Part C, use the relevant ASNT method handbooks at Level 2 depth, not only the handbook for your main method.

An ASNT Level III Basic study guide may assist technical preparation, but ASNT certification-program rules do not replace CWB's scheme rules in Part B. Confirm the authorized references and the open- or closed-book conditions in the CWB examination instructions. The fact that Part B concerns a standard does not automatically permit a personal copy.

8.1.2 Main-Method Examination

8.1.2.1 Parts D and E — Written Examinations

Part D assesses Level 3 knowledge of the selected NDT method. Part E assesses application in the EMC sector, including the applicable codes and standards. The following profile applies separately to MT3, PT3, UT3 and ET3 and follows the detailed method schedules in Form 500, Annex A.

Part	Content	Duration	Pass grade
D — General	30 multiple-choice questions on the selected method.	1 hour	70% or higher
E — Specific (EMC)	40 multiple-choice questions: 30 application questions and 10 code-related questions.	2 hours	70% or higher

Study the method handbook and the relevant method's codes and standards at a depth sufficient to justify technique selection, evaluate limitations, establish procedures and resolve application problems. Use the edition and reference-extract rules in Section 2.4. D and E receive separate results; one cannot compensate for the other.

8.1.2.2 Part F — Procedure Drafting or Procedure Review

For the first Level 3 certification, the candidate must successfully draft an NDT procedure. For a candidate who has already successfully drafted a procedure in a Level 3 examination, CWB may authorize critical review of an existing procedure for a further method or sector. Merely holding a job title, authoring a field procedure or holding an employer-based Level III certificate does not by itself establish this examination exemption.

Format	Required task	Duration	Pass grade
Procedure drafting	Develop a complete procedure for the assigned method, sector and application.	4 hours	70% or higher
Procedure review	Identify and correct errors and omissions throughout the supplied procedure.	1 hour 30 minutes	70% or higher

Applicable codes, specifications and other reference information for drafting are supplied or authorized as part of the examination. For a closed-book procedure review assignment, use the supplied procedure, scenario and authoritative examination information; outside books, personal procedures and unauthorized electronic aids are not permitted.

8.1.2.2.1 Procedure Drafting — Expected Submission

Write a usable procedure that addresses the assigned application rather than a generic training summary. Establish scope and exclusions, document control and references; personnel responsibilities; equipment and reference standards; product condition and examination area; technique, settings, calibration and execution; interpretation and evaluation; post-test actions and reporting. Use the supplied project conditions and acceptance basis consistently and identify any required limitations or referrals.

8.1.2.2.2 Procedure Review — Expected Submission

Review the complete document, including tables, drawings, attachments, notes and cross-references. Identify the location of each error or omission and provide enough replacement wording to make the instruction complete and technically correct. A statement that an item is "wrong" without a usable

correction does not demonstrate full competence. Retain the assigned method, material, service, technique and scope unless the examination instructions expressly require a change.

Use the correction and continuation-sheet method stated in the candidate instructions. Keep each correction traceable to its clause or attachment. When the assignment instructs the candidate to reference the applicable construction-code acceptance requirements, do not substitute invented limits or attempt to reproduce limits from memory. Technically equivalent corrections are acceptable when they satisfy the assigned requirements.

8.1.2.2.3 Part F Grading

Procedure drafting and review are assessed using the Table D.3 framework in CAN/CGSB-48.9712-2022. The grouped weighting is shown below. Presentation is assessed, but sound formatting cannot compensate for missing or incorrect technical controls. In procedure review, identifying a fault without completing its correction may earn only partial credit.

Assessment area	**Maximum (%)**
Scope, document control and references	8
NDT personnel	2
Main and ancillary equipment / materials	20
Test piece, area and discontinuities sought	5
Technique, setup, execution and characterization	40
Acceptance criteria	7
Post-test actions	3
Test report	5
Overall presentation	10
Total	100

8.2 Renewal Examinations

Level 3 renewal uses the structured-credit route when its requirements are met. A Level 3 holder who does not meet the renewal requirements must fulfil the Level 3 recertification requirements in Section 8.3, in accordance with CAN/CGSB-48.9712-2022, 10.5. There is no separate Level 3 practical examination. Current vision, continued-work evidence and the complete application remain required.

8.3 Recertification Examinations

For Level 3 recertification, the candidate selects the written-examination or structured-credit route. Under either route, provide documented evidence of continued practical competence acceptable to CWB or pass a Level 2 practical examination, excluding instruction writing (CAN/CGSB-48.9712-2022, 11.3.1). There is no separate Level 3 practical examination.

8.3.1 Written-Examination Route

The written examination assesses continued knowledge of the certification scheme and method applications, techniques, codes and standards. It is not a repeat of the full initial Basic examination or a substitute procedure-review exercise. Authorized multiple-choice examinations may be taken through ProctorU under Section 2.

Examination	Content	Duration	Pass grade
Level 3 written recertification	50 multiple-choice questions: 10 on the certification scheme, 30 on method applications and 10 on codes.	2 h 30 min	70% or higher

8.3.2 Structured Credit Route

Submit the application and supporting records required by CWB. Level 3 recertification requires at least 100 points over the applicable five-year period: 50 to 70 points from Part A and 30 to 50 points from Part B of Table C.1 in CAN/CGSB-48.9712-2022. The other conditions, including evidence of continued practical competence, remain applicable.

8.3.3 Level 2 Practical Alternative

Method	Assignment	Duration	Pass grade
MT2 / PT2	Two relevant specimens and the required performance checks; no Level 2 written instruction.	4 hours	70% or higher for each specimen
UT2 / ET2	Two relevant specimens and the required performance checks; no Level 2 written instruction.	8 hours	70% or higher for each specimen

This Level 2 assessment applies only when CWB does not accept documented evidence of continued practical competence. Follow the authorized method, technique and specimen instructions.

9 RE-EXAMINATIONS

The requirements for re-examinations are as follows:

1. A candidate excluded for unethical behaviour must wait at least 12 months before reapplying. CWB may impose a longer exclusion; this wording does not permit reduction of the minimum period.
2. Pay the applicable CWB re-examination fees before authorization. Any AEC, facility or remote-proctoring charges are payable according to the confirmed booking arrangements.
3. For Initial Certifications:
    a) A candidate who fails one or more elements of an examination (i.e. general, specific, practical, etc.) may retake the failed examination no more than twice:
        i. after at least one month; CWB may reduce this interval after satisfactory additional training that it accepts, but such training is not required when the normal interval is observed
        ii. no later than two years after the initial examination
    b) After failure of the second re-examination of the same initial-certification element (three failures in total), further training satisfactory to the CWB is mandatory before a new application, followed by all required examination elements.
4. For Renewals
    a) Two re-examinations of the renewal examination shall be allowed after at least 7 days and within 12 months of the first attempt at the renewal examination.
    b) In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:
        i. complete further training, acceptable to CWB; and
        ii. retake all examination elements required for recertification.
5. For Level 1 and Level 2 Recertification:

a) Two re-examinations of the recertification examination shall be allowed after at least 7 days and within 12 months of the first attempt at the recertification examination.
b) In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:
    i. complete further training, acceptable to CWB; and
    ii. retake all examination elements required for initial certification.

9.1 Level 3 Re-examinations

For initial Level 3 examinations, the separate passing requirements for Basic Parts A, B and C and main-method Parts D, E and F apply.

For Level 3 recertification by the direct written-examination route, no more than two retests are permitted within 12 months of the first examination, unless CWB grants a permitted extension. A declined structured-credit application is not an examination failure. However, under CAN/CGSB-48.9712-2022, 11.3.6, when the credit requirements are not met and the first subsequent written recertification examination is failed, only one retest is available within 12 months of the structured-credit application.

After the permitted Level 3 recertification retests are exhausted, certification is withdrawn. Reinstatement requires further training acceptable to CWB and successful completion of the main-method examination items D, E and F.

10 Complaints and Appeals

The CWB Group is committed to ensuring a transparent and impartial approach to our certification programs for companies, individuals and products.

Complaints and appeals related to the activities and/or decisions of the CWB Group or related to the organizations, individuals and products we certify, can be made to the CWB Group's Registrar. All complaints and appeals and resulting outcomes will be documented and communicated back to the complainant or appellant.

Complaints and appeals can be made directly to CWB Group by calling 1-800-844-6790 or can be made through our external ConfidenceLine program (1-800-661-9675).

11 Fees

See Form 505 for the current CWB fee schedule. Confirm any additional AEC, facility or ProctorU charges and the applicable cancellation or rescheduling conditions before booking. Fees are subject to change; welding-inspector examination prices are not automatically applicable to NDT.