

**BY ORDER OF THE COMMANDER
AIR FORCE SUSTAINMENT CENTER**

**AIR FORCE SUSTAINMENT CENTER
INSTRUCTION 20-114**



25 JANUARY 2024

Incorporating Change 1, 29 JANUARY 2025

Logistics

**QUALIFICATION OF
NONDESTRUCTIVE INSPECTION
PERSONNEL**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for downloading or ordering on the e-Publishing website at www.e-Publishing.af.mil

RELEASABILITY: There are no releasability restrictions on this publication

OPR: AFSC/ENSI

Certified by: AFSC/ENS
(Mr. Greg C. Hughes)

Supersedes: AFSCI20-114, 2 July 2019

Pages: 45

This instruction implements Department of the Air Force Instruction AFI63-101__20-101

Integrated Life Cycle Management and (DAFI) 63-140, *Aircraft Structural Integrity Program and Air and Space Equipment Structural Management*, and is the written practice establishing the minimum requirements for the qualification and certification of personnel involved in the application of the Nondestructive Inspection (NDI) certification process per National Aerospace Standard 410 (NAS 410), *Certification and Qualification of Nondestructive Test Personnel*. This instruction applies to personnel within the Air Force Sustainment Center (AFSC) using NDI methods to accept materials, products, subsystems, components or systems. It also applies to individuals responsible for the technical adequacy of NDI procedures, and those providing technical training for NDI personnel. This includes personnel at Oklahoma City Air Logistics Complex (OC-ALC), Ogden Air Logistics Complex (OO-ALC), Warner Robins Air Logistics Complex (WR-ALC) as well as Satellite Facilities managed by OO-ALC. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) listed above using the Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate chain of command to AFSC/EN. This publication may be supplemented at any level, but all Supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Waivers to the requirements of this document may be granted. These requests must be coordinated at the Group level for final approval by the AFSC NDI Program Manager using AF Form 1768, *Staff Summary*

Sheet, or its electronic equivalent. For those instances herein where the ALC NDI Program Manager has been delegated waiver authority, waiver request will be made to the ALC NDI Program Manager. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>. Send comments and suggested improvements through channels to AFSC/ENS, 3001 Staff Dr., Post 2AF69A, Tinker AFB OK 73145-3001. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

The interim change revised [paragraph 2.11.2](#).

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Chapter 1

OVERVIEW

1.1. Scope. This instruction establishes the minimum requirements for the qualification and certification of personnel performing NDI functions and operations within the AFSC. This instruction implements the specific requirements for physical examinations, training, experience, qualification, certification and documentation set forth in DAFI 63-140, NAS 410, AFI 21-101_Air Force Materiel Command (AFMC) Supplement, and their local supplements. In the event of a conflict between the text of this Air Force Sustainment Center Instruction (AFSCI) and NAS 410, the text of NAS 410 takes precedence. However, there may be instances where this AFSCI is more restrictive than NAS 410. This does not constitute a conflict.

1.1.1. Applicability. This instruction applies to personnel using NDI methods to test and/or accept materials, products, components, assemblies or sub-assemblies. This standard also applies to personnel directly responsible for the technical adequacy of the NDI methods used, who approve NDI procedures and/or work instructions, who audit NDI facilities, or who provide technical NDI support or training.

1.1.2. Implementation. Personnel currently certified to previous written practices conforming to NAS 410 or EN 4179 may not need to recertify to the requirements of this standard until their current certification expires. The ALC NDI Program Manager will make this determination.

1.2. NDI Methods. The following are the NDI methods utilized by AFSC:

1.2.1. Liquid Penetrant (PT)

1.2.2. Magnetic Particle (MT)

1.2.3. Eddy Current (ET)

1.2.4. Ultrasonic (UT)

1.2.5. Radiography (RT)

1.2.6. Shearography (ST)

1.2.6.1. Shearography Testing (ST) is now listed as an emerging method in Revision 5 of NAS 410.

1.2.7. Thermography (IRT)

1.2.8. Holography (HT)

1.3. Techniques within a Method. Designation of techniques within the methods is the responsibility of the ALC NDI Program Manager. The following may be considered techniques within the methods described above.

1.4. New/Emerging Methods. New workloads may require new methods of NDI to be performed within AFSC. New/emerging methods may be considered techniques within an existing method as stated above, or as standalone methods. The AFSC NDI Program Manager (PM) or the respective ALC NDI Program Manager will determine the requirements for personnel training, experience, and examinations for any new/emerging NDI methods. Initial certification requirements for individuals performing new methods will be determined by the respective NDI Program Manager.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Characterizations. This AFSCI adopts the characterizations in NAS 410 with the following additions. Other terms and definitions can be found in [Attachment 1](#).

2.2. Approved Procedures. Approved procedures consist of, but are not limited to inspections published in Air Force Technical Orders (AFTO), Time Compliance Technical Orders (TCTO), approved Department of Defense (DoD) Statements of Work, Interim Operating Supplements (IOS), Special Handling AFTO Forms 252, Technical Order Publication Change Request, AFMC Forms 202, Nonconforming Technical Assistance Request and Reply, AFSC Form 561, Process Orders, AFTO Forms 242, *Nondestructive Inspection Data*, T.O. 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls*, procedures when accompanied with part specific guidance, or written instructions given by a Level 3. References to general technical data alone, such as Military Standards, T.O. 33B-1-1, *Nondestructive Inspection Methods, Basic Theory*, or industry specifications such as American Society for Testing and Materials (ASTM), Society of Automotive Engineers (SAE), Boeing Aerospace Corporation (BAC), etc., are not adequate. References to equipment manuals for direct conductivity, digital coating thickness, and digital ultrasonic thickness gauging (non-A scan) are adequate, provided the acceptance criteria is identified in the technical data. Only a Level 3 certified in that method has the authority to review and approve an NDI procedure for technical adequacy. Once the NDI procedure has been approved no one other than another Level 3 has the authority to modify the procedure.

2.3. Contract NDI Personnel. Contract NDI personnel performing NDI within the Complex or on Complex workload shall be appropriately certified in the methods and to the levels required by the contract. Certification is employer based, therefore there is no mechanism for the ALC NDI Program Manager to certify contract personnel. Prior to contract NDI personnel performing NDI within the Complex or on Complex workload, the contractor will submit their written practice and the qualification and certification records for each inspector to the ALC NDI Program Manager or designee such as the Qualification Official for review. The ALC NDI Program Manager or designee such as the Qualification Official will determine if the contract NDI personnel meet all training and certification requirements of NAS 410. If the contract NDI personnel do not meet the requirements of NAS 410, the contract NDI personnel will not be permitted to perform NDI operations within the Complex or on Complex workload. The contracting officer will ensure that language in the contract is sufficient to meet these requirements. All funding necessary to comply with these requirements will be the responsibility of the contractor.

2.4. Military NDI Personnel. Military NDI personnel performing NDI within the Complex or on Complex workload to augment civilian inspectors. Prior to military NDI personnel performing NDI within the Complex or on Complex workload, the ALC NDI Program Manager or designee such as the Qualification Official will review the certification records for each inspector to determine if personnel are qualified to perform the intended workload. The ALC NDI Program Manager or designee such as the Qualification Official will ensure the intent of this document is met. The ALC NDI Program Manager or designee such as the Qualification Official may require additional training, testing or limit the work load they will be eligible to perform. This review shall occur prior to the inspectors being PAC certified and issued a stamp.

2.5. Direct Readout Instrument. Instruments that physically display measurements in dimensional or electrical units (e.g., inches, millimeters) either as digital readout or an analog display, such as a scale/pointer configuration and do not generally require adjusting signal displays such as gates, delays, gain, or phase to obtain measurements. For example, common direct readout instruments include basic ultrasonic thickness gauges without an oscilloscope display, and eddy current conductivity/coating thickness gauges without impedance plane display. This may also include other direct readout instruments such as a go no-go crack verification gauge. Non NDI instruments such as paint or sealant thickness measurement instruments do not meet these requirements and are not included.

2.6. Part Time Inspectors. Part time inspectors are certified inspectors who are not 3705 technicians who mainly perform other duties but perform NDI on an irregular or fill-in basis.

2.7. Process Control. Is a general term used to encompass the actions and documentation, as required by official directives or logic, that are necessary for a NDI method to be effective in detecting conditions of interest (e.g., cracks, foreign objects, corrosion, alignment of parts, thickness of parts/coating and pressure/vacuum leaks). Non-certified personnel such as chemist or tool room attendants may perform process control checks IAW T.O. 33B-1-1, T.O. 33B-1-2, or commercial specifications, provided they have received training by the ALC NDI Program Manager or designated Level 3 certified in that method on all process control checks they perform and the training is documented.

2.8. Production Acceptance Certification (PAC) Programs.

2.8.1. PAC Certifying Supervisor. The PAC certifying supervisor will ensure that technicians have successfully completed all training and experience requirements per this instruction prior to scheduling them for qualification examinations. Ensure that only personnel who have been certified in the applicable NDI method per this instruction are PAC certified to perform NDI tasks.

2.8.2. PAC Certified Employee. Employees who are qualified and certified to perform any NDI method should have a correlating PAC task assigned and certified for the method qualified.

2.9. Responsible Level 3. A Level 3 designated by the employer with the responsibility and authority to ensure that the requirements of this instruction are met and to act on behalf of the employer.

2.9.1. The AFSC NDI Program Manager will be designated per AFI 63-140 AFMCSUP and will be responsible for developing, administering, and maintaining the training and qualification program for the Center, and developing and maintaining all necessary NDI policy that may impact the NDI operations within the Center.

2.9.2. The ALC NDI Program Manager is the Responsible Level 3 at each Complex. The ALC NDI Program Manager will be designated per AFI 63-140 AFMCSUP and will be responsible for developing, administering, and maintaining the training and qualification program for all levels of NDI certification, and will develop, provide or approve training on specific procedures or equipment.

2.10. Satellite Facilities.

2.10.1. An ALC NDI Program Manager may become responsible for the training, testing, and certification of inspectors located at satellite facilities not located at the Complex's main operating base.

2.10.2. Due to the restrictions of travel to complete the training, testing, and certification, and the size of the operation, some of the requirements of this written practice will be different. These differences will be marked as Satellite Facilities Only. These requirements cannot be utilized for Complex inspectors.

2.10.3. Current Satellite Facilities are those managed by OO-ALC and include the 309th Aerospace Maintenance and Regeneration Group, located at Davis Monthan Air Force Base (AFB), 575th Aircraft Maintenance Squadron, located at Randolph AFB, and the 583rd Missile Maintenance Squadron, located at Vandenberg AFB.

2.11. On-The-Job Training (OJT). Hands-on training that uses prepared guides, evaluation worksheets, technical data and other materials to provide practical instruction on tasks in the job environment.

2.11.1. OJT will be performed as part of the training program for each inspector for each method certification is sought.

2.11.2. OJT will be accomplished by performing the NDI Training Guides. As outlined below.

2.11.2.1. The AFSC NDI Training Guides templates for each method will be maintained by the AFSC NDI Program Manager and are located on the AFSC NDI PM sharepoint, ENSI - AFSC Training Guides Templates - All Documents (dps.mil).

2.11.2.2. The Qualification Official(s) or the ALC NDI Program Manager will tailor the NDI Training Guides for each method based on the AFSC NDI Training Guides templates. Material can be referenced from T.O. 33B-1-1, T.O. 33B-1-2, local Process Orders, military or industry specifications or material as outlined in this instruction.

2.11.2.3. The NDI Training Guides will be designed to cover the full range of methods and techniques that the inspector can reasonably be assumed to perform and will be maintained by each ALC NDI Program Manager.

2.11.2.4. OJT will be provided by a designated Level 2 On-The-Job Training (OJT) provider or a Level 3 certified in that method.

2.11.2.5. The OJT provider will meet the requirements in this instruction.

Chapter 3

QUALIFICATION AND CERTIFICATION LEVELS

3.1. Levels of Qualification. There are seven levels of NDI personnel qualification; Trainee, Level 1, Level 2; Level 3; Instructor; Qualification Official, and Quality Inspector. Initial qualification can only be granted after successful completion of all the training, experience, and examination requirements identified by this Instruction for the particular NDI method.

3.1.1. Trainee. A trainee is an individual who has been designated as a trainee and is actively participating in training for an NDI method and is not certified. Trainees will obtain work experience only under the direct supervision of a Level 2 OJT provider or a Level 3 for that method. Trainees will not independently conduct tests, make, accept or reject decisions, or perform any other NDI functions. Trainees may perform process control checks in accordance with (IAW) T.O. 33B-1-1, T.O. 33B-1-2, or commercial specifications provided they have received training on all process control checks they perform and the training is documented.

3.1.2. Level 1. The use of Level 1 inspectors for production is prohibited.

3.1.2.1. In the case that workload necessitates the need to utilize Level 1 inspectors, a waiver request to this prohibition may be made (IAW the opening paragraph of this instruction) to the ALC NDI Program Manager as the waiver authority.

3.1.2.1.1. The waiver will be on a case-by-case basis for each Level 1 performing production inspections.

3.1.2.1.2. The waiver request will contain the justification and define the workload that the Level 1 will be inspecting. The ALC NDI Program Manager will review and determine if the workload is compatible for the inspector's skill set prior to being permitted to begin inspecting.

3.1.2.1.3. Approval for a Level 1 to perform production inspections will be documented in the inspectors certification folder along with the waiver request detailing workload.

3.1.2.1.4. Level 1 inspectors cannot be used for inspections on components managed under integrity programs such as Aircraft Structural Integrity Program, Propulsion Structural Integrity, Mechanical Systems Integrity Program, Landing Gear Integrity Program, or components designated as flight critical, safety critical, fracture critical, critical safety items, or otherwise noted as high risk. This requirement cannot be waived.

3.1.2.1.5. Requirements in technical data, process orders, and work control documents, etc., or otherwise defined in this instruction that specifically require the use of Level 2 inspectors cannot be waived.

3.1.2.2. Level 1's will continue to accrue experience hours. All Level 2 hour requirements in **Table 5.1** shall be met with OJT provided by a designated OJT provider. OJE may not be used to satisfy the hour requirements towards a Level 2. The ALC NDI Program Manager or designee will perform and document an annual review to ensure inspector is progressing towards the Level 2. There will be no recertification for Level 1 inspectors. The candidate shall test for and become a Level 2 prior to the expiration requirement or the inspectors Level 1 certification will be revoked and candidate will not eligible for further certification in that method.

3.1.2.3. Level 1 personnel, in the method in which certified will:

3.1.2.3.1. Be familiar with and qualified in all techniques in that method as defined for each specific maintenance group (MXG) shop.

3.1.2.3.2. Be able to follow work instructions.

3.1.2.3.3. Have the skills and knowledge to process parts, document results and perform equipment standardization IAW approved procedures.

3.1.2.3.4. Have the skills and knowledge to carry out any necessary preparation of parts before or after inspection IAW approved procedures.

3.1.2.3.5. Have the skills and knowledge to conduct system performance checks IAW with applicable process standards.

3.1.2.3.6. Receive guidance or supervision from a certified Level 2 or Level 3 in the method.

3.1.2.3.7. With approval of the ALC NDI Program Manager, may perform interpretations and evaluations of specific product(s) or product forms(s) for acceptance or rejections IAW approved procedures. The ALC NDI Program Manager or designee is responsible for determining and documenting the procedures that a Level 1 may perform.

3.1.3. Level 2. Level 2 personnel, in the method in which certified will:

3.1.3.1. Be familiar with and qualified in all techniques in that method as defined for each specific MXG shop.

3.1.3.2. Have the skills and knowledge to set up and calibrate equipment, conduct tests, interpret, evaluate, and document results in accordance with approved procedures.

3.1.3.3. Have the skills and knowledge to conduct system performance checks IAW the applicable process standard.

3.1.3.4. Be thoroughly familiar with the scope and limitations of the method in which certified, and be capable of directing the work of trainees. Upon becoming a designated Level 2 OJT Trainer, provide OJT to trainee and Level 2 personnel as directed.

3.1.3.5. Be familiar with the codes, standards, T.O.s, TCTOs, etc., that pertain to the method of inspection and product being evaluated.

3.1.3.6. Will be able to develop prototype procedures via AFTO Form 242, when required, which must be validated, verified and approved by the ALC NDI Program Manager or designated Level 3 prior to use.

3.1.3.7. Have a basic knowledge of relevant product manufacturing and inspection technology as well as a basic knowledge of aircraft or vehicle maintenance, including an operational understanding of industry and AF specifications, codes, and standards.

3.1.4. Level 3. Level 3 personnel, in the method in which certified will:

3.1.4.1. Have the skills and knowledge to interpret codes, standards, and other contractual documents that control the NDI method(s) and products used by the employer.

3.1.4.2. Be capable of assuming technical responsibility for NDI facilities and staff.

3.1.4.3. Be capable of selecting the method and technique for specific inspection.

3.1.4.4. Review NDI procedures and work instructions for technical adequacy. Final approval rests with the ALC NDI Program Manager.

3.1.4.5. Be capable of developing, validating and verifying NDI procedures and work instructions. The Level 3 who develops a new procedure is the procedure SME and is responsible for providing initial training. This may include Level 2 OJT providers and for reporting satisfactory completion of this training to the supervisor for initial task certification.

3.1.4.6. Have a general knowledge of other NDI methods, manufacturing and inspection technologies used by the employer.

3.1.4.7. Have a basic knowledge of weapon system maintenance.

3.1.4.8. Be capable of providing or directing training and examination of personnel.

3.1.4.9. When required by the written practice, be capable of auditing outside agencies to ensure the requirements of the written practice are met.

3.1.4.10. Qualification for Level 3 in the inspection methods covered by this AFSCI may be provided by an outside (third party) agency. The ALC NDI Program Manager will identify and approve outside agencies. The ALC NDI Program Manager will be the certifying official for all NDI Level 3 personnel.

3.1.4.11. Level 3s are prohibited from performing production activities, i.e. processing, interpretation, evaluation, acceptance or rejection of products, unless specifically authorized by the ALC NDI Program Manager. When Level 3 duties will include processing, evaluation and interpretation of results, acceptance or rejection of products, qualification and certification shall be in accordance with Level 1 and 2 practical exam requirements in this instruction.

3.1.5. Qualification Official (QO). Qualification Officials are Level 3's that have been designated in writing by the ALC NDI Program Manager. Only QOs can administer the practical examination and qualify/certify NDI personnel at any Level in the method in which certification is sought.

3.1.6. On-The-Job Training Provider. Personnel who provide OJT will meet training and experience requirements in this instruction, and shall be designated in writing as an OJT provider. The OJT provider shall document all OJT provided, and the Qualifying Level 3 will ensure all experience submitted for qualification has been provided by a designated OJT provider.

3.1.7. Instructor. An individual qualified and designated in accordance with this instruction, to provide classroom or laboratory training for NDI personnel. Instructors will:

3.1.7.1. Have the skills and knowledge to plan, organize, and present classroom, laboratory, or OJT programs of instruction in accordance with approved course outlines. The instructor is responsible for administration and grading of examinations used to verify student comprehension of training.

3.1.7.2. Be familiar with the codes, standards, and other contractual documents that control the methods utilized.

3.1.7.3. Instructors will be certified Level 3s in the method and will be approved and designated in writing by the ALC NDI Program Manager prior to providing instruction.

3.1.8. Quality Inspector (Quality Assurance Specialist or Auditor (QAS)). Each QAS will initially successfully complete the NDI qualification requirements specified in this document to include formal training, experience hours, and exams for each method in which they will be evaluating. No certifications will be given. The initial qualification requirement is waived if the QAS was previously certified to at least a Level 2 in the method.

3.1.8.1. Copies of all NDI related reviews and reports, including but not limited to personnel evaluations (PEs), quality verification inspections (QVIs), task evaluations, etc., will be forwarded to the ALC NDI Program Manager or designee as requested.

3.2. Additional Requirements. For training and qualification in an NDI method, employees must be assigned to an NDI position (wage grade-3705 job series or general schedule (GS) engineering, engineering technician, or quality assurance specialist series, management and program analyst, etc.) associated with the support of the NDI program (i.e., GS-0802, GS-1910, GS-0343, etc.) and performing duties in the NDI method for which the qualification is requested. Qualification in multiple NDI methods can be held; however, the employee must maintain currency for each method in order to maintain qualification. Inspections are performed using operator knowledge and written guidance in the form of T.O.s, process orders, and industrial practices common to NDI. Personnel performing NDI tasks will maintain a current method certification as required by this written practice.

3.2.1. The use of direct readout instruments by non-NDI (i.e., 3705) personnel is prohibited. Users will be certified in UT for ultrasonic digital thickness gauges and ET for digital conductivity testing units.

3.2.2. The use of part-time inspectors or non-3705 personnel to perform NDI inspections is prohibited.

3.2.2.1. In the case that changes in mission requirements may deem full time NDI inspectors in support of a given workload to be impractical, not cost effective, or necessitates the need for additional inspectors, a waiver to this prohibition may be made (IAW the opening paragraph of this instruction) to the ALC NDI Program Manager as the waiver authority.

3.2.2.1.1. The waiver will be on a case-by-case basis for each part time inspector performing production inspections.

3.2.2.1.2. The waiver request will contain the justification to include workload mix, location, routing, or other constraints, define the workload and length of time for the waiver, the recent work history of the part-time inspector(s) to include the length of time since last inspection(s), recent inspection experience, training, certifications, etc. The ALC NDI Program Manager will review and determine if additional refresher training is needed by the inspector prior to being permitted to begin inspecting.

3.2.2.1.3. Approval for a part time inspector to perform production inspections will be documented in the inspectors certification folder along with the waiver request detailing workload.

Chapter 4

TRAINING REQUIREMENTS

4.1. Training Requirements. Candidates for qualification to Level 2 or Level 3 will complete required formal training to become familiar with the basic principles and practices of the applicable inspection methods and techniques. The training will cover basic principles, products, equipment, operating procedures, techniques, specifications, codes, and instructions. The training will be conducted IAW a detailed course outline approved by the ALC NDI Program Manager IAW NAS 410. Upon initial assignment to an NDI Level 1, Level 2 or Level 3 position, the employee will be referred to the Qualification Official in order to start a training folder. Classroom and OJT conducted under blended learning count as formal training and will be documented on AF 797, *Job Qualification Standard Continuation/Command JQS*. This applies to all NDI methods. OJT conducted under the NDI Training Guides will be accomplished as part of the training requirements. The minimum hour requirements are found in [Table 4.1](#). A qualified instructor will provide all formal classroom training and designated OJT providers or Level 3 will perform all OJT training. OJT can be utilized pending availability of the NDI courses with approval of the Qualifying Official. All completed training will be documented by the method required at the respective ALC. Any NDI method certification requires prior completion of the Introduction to Materials course. Formal classroom training requirements shall be successfully completed prior to the collection of 25% of the required experience hours in a method.

4.1.1. **Minimum Required Formal Training Hours.** The minimum hours for formal training are given in [Table 4.1](#) and [Table 4.2](#) for the specified NDI methods. Level 3 candidates must meet the Level 2 training requirements prior to certification.

Table 4.1. Minimum Formal Training Hours.

| Method | Level 1 | Level 2 with Previous Level 1 Certification | Level 2 without Previous Level 1 Certification |
|--------------------------------------|---------|---|--|
| Liquid Penetrant (PT) | 16 | 16 | 32 |
| Magnetic Particle (MT) | 16 | 16 | 32 |
| Thermography (IRT) | 20 | 40 | 60 |
| Shearography (ST) | 20 | 40 | 60 |
| Eddy Current (ET) | 40 | 40 | 80 |
| Ultrasonic (UT) | 40 | 40 | 80 |
| Radiography (RT) Film or Non-film | 40 | 40 | 80 |
| Radiography (RT) Film & Non-film | 60 | 60 | 120 |

Table 4.2. RT Formal Training Hours for Transition to Film and Non-film.

| Additional Formal Training Hours | | |
|----------------------------------|-----------------|---------|
| Current Level 1 | Current Level 2 | Level 3 |
| 20 | 40 | 40 |

4.1.2. Previous Training. A candidate's training with a previous employer may be accepted only if that training is documented. Training documents from reputable training agencies or previous employers meeting industry standards and presented in a formal format including course outline may be accepted. The Qualification Official or the ALC NDI Program Manager will decide if documentation provided from unknown sources is adequate. The Qualification Official or ALC NDI Program Manager will review all previous training to determine if the training meets requirements for qualification in both number of hours and content. Even if previous training is approved and accepted, all newly assigned candidates will be required to attend the AFMC refresher training. For personnel credited with previous training, or personnel not certified within 12 months of their training, refresher training must be provided. Refresher training may be supplemented with OJT, provided it is documented. All refresher training will cover the following subjects, as a minimum, or as determined by the ALC NDI Program Manager:

- 4.1.2.1. Process control.
- 4.1.2.2. Equipment set up, calibration, operation and standardization.
- 4.1.2.3. Specific operating procedures.
- 4.1.2.4. Applicable techniques.
- 4.1.2.5. Interpretation and evaluation of test or inspection results.
- 4.1.2.6. Safety.
- 4.1.2.7. Applicable codes, standards and specifications.

4.1.3. Equivalent Training.

4.1.3.1. Previous Training. Determining the equivalency of previous training is the responsibility of the Qualification Official or the ALC NDI Program Manager for personnel qualified under other training programs. The full **Table 4.1** minimum training hours will be required. The documentation of the content of previous training must be provided. The Qualification Official or the ALC NDI Program Manager will determine if the content of previous training is equivalent to the content of the AFMC NDI courseware. If the previous training meets the minimum hour requirements of **Table 4.1**, but the content is lacking in certain areas, those areas where the previous training is lacking will be documented and additional training will be accomplished by completing the AFMC method course.

4.1.3.2. Non-AF Training. In the event commercial-off-the-shelf (COTS) training is utilized in lieu of the AFMC courseware, the ALC NDI Program Manager will determine equivalency in accordance with this instruction.

4.1.4. Air Force Training. Air Force Training. Former United States Air Force military personnel who received their formal training while in the NDI career field, Air Force Specialty Code 2A7X2, may be used to satisfy the formal classroom training requirements, provided satisfactory proof of this training has been provided. However, the upgrade training (UGT) is often self-paced so actual determination of hours may be difficult. Determining the equivalency of candidates AF training is the responsibility of the Qualification Official or the ALC NDI Program Manager for personnel qualified under the Air Force Specialty Code 2A7X2 career field. Documentation will include a copy of the AF NDI Schoolhouse training certificate, Career Development Course (CDC), 623's etc. A copy will be placed in the employee's qualification records. Personnel who have completed this schooling will be required to take a general, specific, and practical examination for each applicable method that certification is sought.

4.1.4.1. Personnel who obtained a 7 Level with an Air Force Specialty Code 2A772 certification may be considered to meet the Level 2 formal classroom training requirements due to do the combination of the NDI Schoolhouse training and the twenty-four (24) months of UGT. Documentation may include a copy of the Training Center Certificate from the DoD NDI Schoolhouse, AF Form 623 On-The-Job Training Record, OPNAV 4790/139 NDI Certification Record, Veteran's Military and Education Training (VMET), etc.

4.1.4.2. Other Military Service Training. For those personnel who received training in the Army, Coast Guard, Navy, or Marines, the Qualification Official or the ALC NDI Program Manger shall obtain the course outlines and any other documented training to determine equivalency to AF training.

4.2. Qualification Officials. Qualification Officials must, prior to designation, successfully complete the Qualification Official course, MHPMAS0000400SU.

4.3. OJT Trainer Training. Level 2 and Level 3's who are designated OJT providers and will conduct OJT will successfully complete the AFMC SOJT Trainer Course (command course number CTEMAS0000500VS) or Complex Training Manager approved equivalent.

4.4. First Level (Immediate) Supervisor Training. First level supervisors of NDI production personnel will successfully complete the AFMC NDI Level 2 classroom training for each method supervised. Any newly appointed NDI supervisor will successfully complete the required training within one year of appointment. The training requirement is waived for each method in which the supervisor was previously certified to at least a Level 2 prior to being promoted to supervisor. Supervisors are also responsible for ensuring employees receive the training necessary to enable performance of all tasks within their area of responsibility. Supervisors should review automated listings for accuracy and completeness and to ensure employees are scheduled for requalification prior to reaching "overdue" status.

4.5. Quality Inspector (Quality Assurance Specialist or Auditor (QAS)). Each QAS will initially complete the NDI qualification requirements specified in this document for each method in which they will be evaluating. No certifications will be given. The initial qualification requirement is waived if the QAS was previously certified to at least a Level 2 in the method.

4.6. Instructors. Instructors providing formal classroom training will successfully accomplish the following training:

4.6.1. In addition to the skill and knowledge in the NDI method, instructors must attend the following courses (Education and Training Management System (ETMS) course number in parenthesis) or an equivalent approved by the respective training manager:

4.6.1.1. AFMC Comprehensive Principles of Instruction (PoI) (CHPPER0002226SU, J4AIP3S2X1 EF3A, or J7AZTTXXXOP1A). Alternate Basics of Instruction (BoI) is considered equivalent.

4.6.1.2. The ALC NDI PM will ensure that successful class completion is forwarded to the appropriate local ALC/OB training office.

4.6.1.3. If the instructor has not completed Introduction to Materials (CTEMAS0001000SU), then the instructor will be required to attend prior to instructing the class.

4.6.2. Other Instructors. Upon approval of, and designation by, the ALC NDI Program Manager, other instructors from outside the Complex (i.e. Air Force Life Cycle Management Center (AFLCMC) Level 3's) may provide classroom training in the event sufficient resources are unavailable. It is the responsibility of the ALC NDI Program Manager to ensure instructors have sufficient knowledge and skill to provide instruction. Instructors will have completed the PoI course, or acceptable equivalent, and be familiar with the material prior to teaching any NDI class.

4.6.3. Contract Training. Off-base or contractor supplied training may be utilized after the ALC NDI Program Manager or designee has determined equivalency and upon the approval of the ALC NDI Program Manager.

4.6.3.1. Level 3 training in the inspection methods covered by this Instruction may be provided by an outside (third party) agency. The ALC NDI Program Manager will approve outside agencies.

4.7. Task Specific Training. When the ALC NDI Program Manager and/or cognizant system engineers determine the need for task specific training due to the complexity, or criticality of an inspection, training shall be developed in accordance with [Attachment 2](#).

4.8. Training Course Development. IAW AFI 36-2650_AFMCSUP, *Maintenance Training*, the Courseware Manager will develop all training courses, with the assistance of the appropriate NDI SMEs and will ensure Instructional System Development (ISD) compliance.

4.8.1. Training courses will be developed per AFI 21-101 using recommended training outlines in American National Standards Institute/American Society for Nondestructive Testing (ANSI/ASNT®) CP-105, *Topical Outlines for Qualification of Nondestructive Testing Personnel*, and the material in T.O. 33B-1-1, 33B-1-2, ASNT® Study Guides, or other commercial material. Requests for training course development will be submitted to the ALC Courseware Manager. All training materials will be coordinated through the ALC NDI Program Manager for review and approval prior to use.

4.8.2. Classroom training will cover basic principles, product examples, AF standardized equipment examples, general operating procedures and techniques, general specifications, codes, safety, process control and instructions. For training courses provided by outside agencies including COTS training, the ALC NDI Program Manager will review course content and approve material in advance of training. The training will also be approved by the ALC Training Manager as an equivalent prerequisite for certification.

4.9. Standardized Courses. AFMC has created standardized formal NDI classroom courseware. These courses are the required formal classroom training. The course numbers are as follows:

- 4.9.1. Introduction to Materials (CTEMAS0001000SU)
- 4.9.2. PT (CTEMAS0000100SU), Level 1/2
- 4.9.3. MT (CTEMAS0000200SU), Level 1/2
- 4.9.4. ET (CTEMAS0000103SU), Level 1/2
- 4.9.5. UT (CTEMAS0000300SU), Level 1/2
- 4.9.6. RT (CTEMAS0000400SU), Level 1/2
- 4.9.7. RT Non-Film (CTEMAS0000402SU), Level 1/2
- 4.9.8. ST Level 2 (072201), Level 3 (073301) Vendor: Laser Technology Incorporated
- 4.9.9. IRT (CTEMAS0001600SU) Level 1/2

4.10. Refresher Courses. Refresher courses numbers are as follows:

- 4.10.1. PT (CTEMAS0000110SU), Level 2 Refresher
- 4.10.2. MT (CTEMAS0000210SU), Level 2 Refresher
- 4.10.3. ET (CTEMAS0000104SU), Level 2 Refresher
- 4.10.4. UT (CTEMAS0000301SU), Level 2 Refresher
- 4.10.5. RT (CTEMAS0000401SU), Level 2 Refresher
- 4.10.6. ST (CTEMAS0001501SU), Level 2 Refresher
- 4.10.7. IRT (CTEMAS0001601SU), Level 2 Refresher

4.11. New/Emerging Methods. For methods not listed in 1.2, the ALC NDI Program Manager will establish the minimum formal training hours. When determining training hours for new/emerging methods, the minimum hours shall be based on the requirements for a similar method as listed in [Table 4.1](#).

Chapter 5

EXPERIENCE REQUIREMENTS

5.1. Experience Requirements. Candidates for NDI qualification will have sufficient practical knowledge, skills, and abilities to assure that they are capable of performing the duties of the level for which certification is sought. Experience meeting the requirements for specific Level 2 qualifications will be documented as required in this instruction. Experience meeting the requirements for specific Level 3 qualifications will be documented as required IAW this instruction. Minimum experience requirements for the applicable Level are in [Table 5.1](#) and [Table 5.2](#). Minimum experience requirements for Level 3 are in [Table 5.3](#).

Table 5.1. Minimum Experience Requirements.

| Method | Experience Time in Hours | | |
|------------------------------------|------------------------------|---|---|
| | Level 1 (Trainee experience) | Level 2 with previous Level 1 Certification | Level 2 without previous Level 1 Certification* |
| Liquid Penetrant (PT) | 130 | 270 | 400 |
| Magnetic Particle (MT) | 130 | 400 | 530 |
| Thermography (IRT) | 200 | 400 | 600 |
| Shearography (ST) | 200 | 600 | 800 |
| Eddy Current (ET) | 200 | 600 | 800 |
| Ultrasonic (UT) | 200 | 600 | 800 |
| Radiography (RT) Film or Non-Film | 200 | 600 | 800 |
| Radiography (RT) Film & Non-Film** | 220 | 780 | 1000 |

*Training hours for all new NDI employees' direct qualification to Level 2.
 Note: The ALC NDI Program Manager is responsible for establishing training requirements for emerging methods not covered by this AFSCI. These training requirements will be coordinated with the AFSC NDI Program Manager to ensure continuity across AFSC.

Table 5.2. RT Experience Requirements for Transition to Film and Non-film.

| Additional Minimum Experience Time in Hours | | | |
|---|---------|--|---------|
| Level 1 | Level 2 | Current Level 1 to Level 2 Film & Non-film | Level 3 |
| 20 | 200 | 800 | 240 |

Table 5.3. Minimum Experience Requirements for Level 3 in Common Methods.

| College or University | NDI Experience |
|---|----------------|
| None | 4 years |
| Two years of engineering or science study at a technical school, college, or university | 2 years |
| 3-4 year science or engineering undergraduate degree | 1 year |
| NOTE: Additional experience requirements for current certified Level 3 radiography personnel transitioning to either film or non-film radiography are 240 hours with guidance or supervision from an examiner, instructor, or outside agency. | |

5.2. Experience. Experience for Level 1 or Level 2 candidates shall be consistent with the duties and responsibilities of the organization and meet training requirements. Candidates for qualification will complete the OJT requirements of [Table 5.1](#) and [Table 5.2](#), as applicable. A maximum of 80% of shift length for any day up to and including a 12 hour day may be counted as experience hours. For example, 6.4 hours of experience in an 8 hour day.

5.2.1. All experience obtained by Trainees for qualification shall be in accordance with the applicable OJT programs and obtained under the direct supervision of and in the presence of a designated Level 2 OJT Provider or a Level 3 in the applicable method.

5.2.2. The Level 3 or Qualification Official will determine and document the equivalency of work experience.

5.2.3. OJT obtained towards qualification in the same NDI method is to be broken into two parts. This consists of mandatory OJT in each technique within a given method and the remaining OJT experience in the method as required in [Table 5.1](#). or [Table 5.2](#). The mandatory OJT may amount to only a portion of the minimum [Table 5.1](#) experience required.

5.3. NDI Training Guides. The AFSC NDI Program Manager in AFSC/ENS will develop and maintain NDI Training Guides for each method. The ALC NDI Program Manager, or designee, will modify the method templates in order to tailor training to their specific Complex workload.

5.3.1. The NDI Training Guides will detail the Stages that the trainee must complete. There are four Stages that must successfully complete; 1) Developmental Stage, 2) General Procedures and Process Control, 3) Task Specific Procedures, and 4) Continuing Experience and Observation.

5.3.2. Each Stage has required training activities that must be completed and exit criteria that must be satisfied.

5.3.3. There will be some overlap between the Stages, particularly between Stages 3 and 4.

5.4. Level 3 Experience. Level 3 candidates must meet the minimum experience hour requirements for level 2 certification in the method which certification is sought and the minimum experience requirements of **Table 5.3**. Experience for Level 3 candidates shall be consistent with the duties and responsibilities of the organization and meet training requirements. Duties and responsibilities may be derived from a variety of sources including, but not limited to, education, training, and experience. Experience will include hands-on experience with equipment used in the method. Hands-on experience will include, but not be limited to equipment performance evaluation, familiarization of method/technique theory, equipment set-up, calibration and operation, review of inspection procedures for technical adequacy, be familiar with and able to interpret MIL/AF/Industry codes, standards, specifications, NDI related contractual documents, technical data/procedure development, validation and verification, review and development of NDI training material including examination questions, authoring technical reports, published works, participation in technical meetings, studies of NDI material and interpretation and evaluation of inspection results. This experience shall be documented by the candidate and first line supervisor acceptable to the responsible Level 3. Method of documentation will be determined by the ALC NDI Program Manager, but at a minimum shall include date, method, description of task, and hours.

5.5. Previous Experience. Previous experience obtained from a prior employer may be accepted by the appropriate Qualification Official or ALC NDI Program Manager only if that experience is documented. The Qualification Official or ALC NDI Program Manager will review previous experience and determine if it is acceptable for qualification. Applicants will be tested to determine competence for qualification in a particular method and level.

5.5.1. Employees Transferring within the ALC. Employees transferring from one shop or MXG to another must receive additional OJT and familiarization with equipment and practices used in the new shop. The amount of additional training will be determined by the Qualifying Official or ALC NDI Program Manager through a comparison of the appropriate /OJT outlines in the method.

5.5.2. Equivalent Experience. For personnel qualified under previous revisions of this instruction, Military Standard (MIL-STD)-410, NAS 410, or other recognized qualification program as determined by the ALC NDI Program Manager. The equivalency of their previous experience to the requirements of **Table 5.1** will be determined and documented by the Qualifying Official or ALC NDI Program Manager. The full **Table 5.1** minimum experience hours will be required.

5.5.3. Military Experience. Military inspectors have the responsibility to document their own experience hours. Previous military experience will only be accepted when the appropriate documentation is provided for review. Documentation must include an experience log with the date, method, technique or description of the task, number of hours spent on the task, and a signature of a certified trainer or supervisor. The Qualification Official or ALC NDI Program Manager will determine whether experience hours are sufficient and may require additional experience. For example, if the individual has ultrasonic experience but did not perform any bond testing and bond testing is a technique within the ultrasonic method, then additional hours of bond testing may be required.

5.5.4. OJT Trainer Experience. OJT Trainers will have one year of experience as a Level 2 within the applicable method. Level 3 personnel within the applicable method may also provide OJT. This will not be required for new/emerging methods, but requirements will be established by the ALC NDI Program Manager.

5.5.4.1. OJT Providers will be designated in writing by the First Level Supervisor with concurrence from the ALC NDI Program Manager or Qualification Official. This designation will be placed in the technician's qualification folder to document the OJT provider.

5.5.4.2. For OJT providers who were qualified using previous experience, the ALC NDI Program Manager or Qualification Official will determine if the previous experience meets the one (1) year method experience requirement.

5.6. Job Assignment Rotation. First level supervisors of Level 2 personnel are responsible for ensuring each employee maintains proficiency in each certified method by rotating job assignments.

5.7. New/Emerging Methods. For methods not listed in this instruction, the ALC NDI Program Manager will establish the minimum experience hours.

5.7.1. Level 1 and Level 2. When determining experience hours for new/emerging methods, the minimum hours shall be based on the requirements for a similar method as listed in [Table 5.1](#).

5.7.2. Level 3. The AFSC NDI Program Manager may qualify and certify the first Level 3 in a new/emerging method not listed in this instruction. The minimum requirements for the first Level 3 are detailed in [Table 5.4](#).

Table 5.4. Minimum Hour Requirements for First Level 3, New/Emerging Method.

| College or University | Instruction/ Study | Experience | Other Certifications |
|---|-----------------------|------------|--|
| No engineering or science study at a technical school, college, or university | 80 | 300 | At least one previous Level 3 or two Level 2 |
| Two years of engineering or science study at a technical school, college, or university | 60 | 200 | At least one previous Level 3 or two Level 2 |
| 3-4 years science or engineering undergraduate degree | 40 | 200 | At least one previous Level 2 |

5.8. Documentation. The ALC NDI Program Manager will determine the method of documentation of experience gained towards qualification and who is responsible for documenting experience. Experience will be documented on an DAF Form 797 or other general form, specifying date, method/technique, OJT provider and hours accumulated as a minimum, as determined by the ALC NDI Program Manager.

Chapter 6

EXAMINATIONS

6.1. Examinations. Examinations to verify the physical and technical qualifications of candidates will consist of a physical examination (eye examination), a written general examination, a written specific examination, and a practical proficiency examination. Test questions will be made available to inspectors only during administration of examinations. The Qualification Official or designated test administrator will document the examination results on AFSC Form 74, Nondestructive Inspection Personnel Qualification and Certification Record. All examinations are considered privileged and will be secured. Written examinations will be stored in a secure computer-based testing system, maintained electronically or physically in a secure manner until needed. These will be made available to an auditor if required. The Qualification Official or the ALC NDI Program Manager will determine what portion of the files may be viewed and under what circumstances. The examinations stored in the training records will have a score on them, along with the individual's name and date that the test was taken. These training records will be kept in a locked container. Cell phones and other electronic devices are prohibited while taking all exams.

6.1.1. Vision Examination. The eye examination will assure that the candidate's near vision acuity and color perception meet the requirements of NAS 410. Vision acuity tests will be administered annually and color perception tests will be administered at least every five (5) years. Medically qualified personnel in the local base medical facility authorized by the ALC NDI Program Manager will conduct the vision acuity test and initial color vision test. First level supervisors must schedule an appointment and provide AFSC Form 74, which the candidate must take to the vision examination. A current vision certification is required prior to certification or recertification.

6.1.1.1. Near Vision. Jaeger #1 test chart at not less than 12 inches, 20/25 Snellen at 16 inches +/- 1 inch, or approved equivalent as determined by ALC NDI Program Manager in at least one eye either natural or corrected.

6.1.1.2. Color Perception. Correctly identify a minimum of 10 out of 14 of the standard pseudo isochromatic plate test charts or distinguish between the colors used in the method for which qualification is sought. If a candidate fails this test, the Qualification Official may identify a suitable alternate test with guidance from occupational medicine. The alternate tests may include tests restricted to colors commonly encountered in the method(s) certification is sought. The Qualification Official will provide the ALC NDI Program Manager with a courtesy copy to ensure consistency. Adequacy of color vision after initial examination may also be indicated by successful completion of practical exams administered by the Qualification Official.

6.1.2. General Examination. The general examinations will be a closed book examination. Reference material may be provided upon approval of the ALC NDI Program Manager.

6.1.2.1. Level 1 and Level 2. The general examination will consist of a minimum of 40 questions that cover the cross-section of the applicable method at the appropriate level. The questions will be drawn from material covered by the classroom training, T.O. 33B-1- 1, T.O. 33B-1-2, or other reference material used by the ALC.

6.1.2.2. Level 3. The general examination will consist of a minimum of 40 questions, with a minimum of 20% of the questions covering general knowledge of other NDI methods. Possession of a current \ ASNT® Level 3 or ASNT® Central Certification Program (ACCP) equivalent certificate constitutes satisfactory evidence that the general examination requirement is satisfied. These equivalent ASNT® Level 3 certificates may be from a previous employer. Other outside source Level 3 examinations may be used provided the source is approved by the ALC NDI Program Manager. Outside agency exams will be maintained in the applicable NDI Level 3 certification record for audit review.

6.1.3. Specific Examination. The specific examination will be an open book examination. Reference material may be provided upon approval of the ALC NDI Program Manager.

6.1.3.1. Level 1 and Level 2. The specific examination will consist of a minimum of 30 questions addressing equipment, operating procedures, test techniques, and Air Force and DoD documents that personnel may encounter in their job assignments. Reference materials such as graphs, tables, formulas, specifications, procedures, and codes necessary to complete the examination may be provided with the approval of the ALC NDI Program Manager or designee. The ALC NDI Program Manager or designee will develop the examinations. Questions utilizing such material will require understanding of the information to include interpretation contained therein rather than merely finding its location.

6.1.3.2. Level 3. The specific examination will consist of a minimum of 30 questions. Questions will be drawn from material covered during the individual qualification training and experience programs. Questions utilizing such material will require understanding of the information to include interpretation contained therein rather than merely finding its location.

6.1.4. Practical Exam. The practical examination will consist of a demonstration of proficiency by the candidate in performing inspections in accordance with written procedures typical of those to be accomplished in the performance of their duties. If the candidate is required to demonstrate proficiency in the application of the process as well as interpretation of results, test samples used in the examination may be actual hardware and/or images. If the candidate is only required to interpret the results and not perform the process of generating the results, the test samples may be images such as radiographs, real-time video, printed scans, or waveform images. Written worksheets will be developed and approved by the Level 3 personnel responsible for the applicable method to assure adequate coverage and to assist in the administration and grading of the examination. A continuation sheet may be used if necessary. All test specimens will have all defects documented by the candidate's Level 3 to ensure accuracy of examination. Test specimens may be a portion of a full component and will be representative of parts inspected in the candidate's shop. All test specimens will be kept secured until needed. All certification and re-certification practical exams will be performed using a written procedure for each test specimen being evaluated. One test specimen per technique under a method, and a minimum of two specimens will be evaluated for each NDI method during practical exams. The practical examination records will include documentation of which procedure was used by the inspector.

6.1.4.1. Level 1 and Level 2. The candidate will demonstrate proficiency by inspecting at least one sample per technique. At least two test samples of differing configuration will be evaluated for each method. When only one configuration is to be inspected upon certification, both test samples may be of the same configuration. A minimum of one rejectable test sample will be provided to the candidate for each technique. The individual will interpret, evaluate and document the results of the examination of the test samples. The test samples will be representative of the products encountered by the candidate in the performance of assigned duties. The practical checklist will include proficiency in the use of the procedures and equipment or materials, adherence to procedural details, and the accuracy and completeness of interpretations and evaluation of indications. The Qualification Official or the ALC NDI Program Manager shall establish on the practical checklist the maximum amount of false calls that can be allowed and still pass. Exceeding this limit will result in exam failure regardless of the inspector's performance on the rest of the examination. The general rule of thumb is 10 percent of the inspection areas. For example, if a test specimen has 14 bolt holes, then the maximum false calls would be 1.4 rounded up to 2.

6.1.4.2. Level 3. The candidate will demonstrate proficiency by preparing an NDI procedure appropriate to the AF and customer (i.e., ALC, AFLCMC, Supply Chain, etc.) requirements for the method. The procedure or work instruction will be developed in conjunction with the general and/or specific examination(s) required for certification or recertification, as applicable. A procedure or work instruction developed within the previous 3 months by the candidate may be used with the approval of the ALC NDI Program Manager. If a procedure has not been previously developed, then the candidate, Level 3, and the ALC NDI Program Manager will develop a project for submission. Procedures developed for ACCP certification may be accepted as the Level 3 practical. In addition to the procedure development, the candidate will demonstrate the ability to utilize the equipment referenced in the procedure to include set up, calibration and operation of the equipment. When Level 3 duties will include processing, evaluation and interpretation of results, acceptance or rejection of products, proficiency in performing such tasks shall be demonstrated by a hands-on practical examination equivalent to a Level 2. Procedures developed for a Level 3 practical shall be validated and verified IAW TO 00-5-3 or TO 00-5-15 as applicable.

6.2. Administration. The administration and grading of written examinations (general and specific) may be delegated by the ALC NDI Program Manager to non-certified personnel. The ALC NDI Program Manager will approve any outside agency used to administer any tests.

6.2.1. The administration and grading of practical examinations will only be accomplished by Qualification Officials for the methods in which they are certified.

6.2.2. Under no circumstance can an examination be administered by oneself, or by a subordinate.

6.2.3. Administration by an Outside Agency. When an outside agency is used to administer examinations, the ALC NDI Program Manager will ensure that all individuals involved in the administration of the examinations meet the requirements of this AFSCI and NAS 410. In all cases, the ultimate responsibility for compliance to this instruction will remain with AFSC.

6.3. Grading. The candidate for certification must achieve a minimum grade of 70.0 on the general and specific qualification examinations. The candidate must detect all discontinuities or conditions specified by the Qualification Official or ALC NDI Program Manager during the practical examination, and achieve a minimum score of 70.0 on the remainder of the practical examination. The candidate must have an average score on all three required tests (general, practical, and specific) of no less than 80.0, in order to be eligible for certification. All examination scores will be of equal weight in determining the average score. Scores for third party examinations where grading is pass/fail, such as ACCP, will be scored 80.0. Scores will be rounded to nearest tenth of a point.

6.4. Re-examination. Re-examinations will be conducted as follows.

6.4.1. First Re-examination. A candidate failing a portion of the previous examination will wait a minimum of seven (7) calendar days before attempting re-examination. The seven (7) calendar days will be utilized for refresher training. The QO will notify the candidate's supervisor of the failure and possible reasons for failure for additional training. The candidate's first level supervisor will document all refresher training and a request for first re-examination must be submitted to the ALC NDI PM, QO, or designated alternate/examiner.

6.4.1.1. Training material for general examination failures will include focused retraining in the area(s) identified by the Qualification Official.

6.4.1.2. Training for specific examination failures will include focused retraining in the area(s) identified by the Qualification Official, and can include OJT. Material to be utilized will include T.O.s, Process Orders, work specifications, etc. that the specific examination questions were developed from.

6.4.1.3. Training for practical examination failures will include hands on OJT and self-practice with the equipment and procedures similar to those used on the practical examination.

6.4.1.4. Training will be under the direction of an OJT provider, training lead or Level 3. The additional training will be documented, and will address those areas found deficient in the candidate's skills or knowledge. The candidate's supervisor will be responsible for documenting this training and will ensure training is entered in the individual's certification folder. A copy of this documentation will also be provided to the Qualification Official, prior to re-examination of the candidate. The documentation may be a letter or e-mail from the supervisor. Re-examination will not utilize the same written examinations or test specimens that were used in previous failed examination. Written tests must contain a minimum of 25% new questions not used in the original examination.

6.4.1.5. Requests for re-examination. The first-level supervisor will document and certify in writing that the candidate has received the required training. Training documentation and a request for re-examination must be submitted to the Qualifying Official by the first-level supervisor.

6.4.2. Second re-examination. A candidate who fails any portion of the first re-examination will wait a minimum of thirty (30) calendar days before attempting the second re-examination. The thirty (30) calendar days will be utilized for refresher training. The Qualifying Official will notify the candidate's supervisor of the failure and possible reasons for failure for additional training. The candidate's first level supervisor will document all refresher training and a request for second re-examination must be submitted to the ALC NDI PM, Qualifying Official, or designated alternate/examiner.

6.4.2.1. Training material for general examination failures will include the re-accomplishment of the method formal classroom training.

6.4.2.2. Training for specific examination failures will include focused retraining in the area(s) identified by the Qualification Official, and will include OJT and self-study. Material to be utilized will include T.O.'s, Process Orders, work specifications, etc. that the specific examination questions were developed from.

6.4.2.3. Training for practical examination failures will include hands on OJT and self-practice with the equipment and procedures similar to those used on the practical examination.

6.4.2.4. Training plan and schedule will be under the direction of the Level 3. Training may be provided by a designated Level 2 OJT provider. The additional training will be documented, and will address those areas found deficient in the candidate's skills or knowledge. The trainer will document this training and will ensure training is entered in the individual's certification folder. A copy of this documentation will also be provided to the first level supervisor and the Qualification Official, prior to re-examination of the candidate. The documentation may be a letter or e-mail from the trainer to the first level supervisor and to the Qualifying Official. Re-examination will not utilize the same written examinations or test specimens that were used in previous failed examination. Written tests must contain a minimum of 25% new questions not used in the previous examination.

6.4.2.5. Requests for re-examination. The first-level supervisor will document and certify in writing that the candidate has received the required training. Training documentation and a request for re-examination must be submitted to the Qualifying Official by the first-level supervisor.

6.4.2.6. Failure of the Second re-examination. If the candidate fails any portion of a second re-examination, if previously certified, the certification is revoked and candidate is not eligible for recertification. If the candidate was not previously certified, i.e. initial certification attempt, no other re-examination attempts will be permitted. The Flight level supervisor and the ALC NDI Program Manager and Squadron level supervisor will determine if the candidate should remain in the 3705 skill code or be placed on a performance improvement plan. If the latter is determined, the candidate may apply for initial certification and complete all requirements of this document for initial certification, i.e. new trainee with no prior training or experience.

6.4.3. Candidates failing an examination will be required to only retake that particular examination.

6.4.4. Candidates who achieve a minimum passing score of at least 70.0 on all three examinations for a particular qualification, but who fail to achieve the overall minimum average score of 80.0 on all three examinations, may retake any or all of the required qualification examinations as necessary to achieve the required 80.0 composite with no waiting period required.

6.4.5. Satellite Facilities Only. The wait periods for re-examination of inspectors at satellite facilities may be waived by the ALC NDI Program Manager provided the Qualification Official provides the refresher training prior to re-examination.

6.4.6. Previous Examinations. Examinations used for prior qualification cannot be used for recertification or to extend certification.

Chapter 7

QUALIFICATION, CERTIFICATION, AND RECERTIFICATION

7.1. Qualification.

7.1.1. Training and Experience. Candidates for NDI qualification must first complete the required training and experience as specified in this instruction prior to taking written or practical qualification examinations. The Level 3 or Qualification Official shall review all training and experience requirements to ensure all requirements have been met.

7.1.2. Documentation. Qualification and certification for all Levels will be documented on an AFSC Form 74, Nondestructive Inspection Personnel Qualification and Certification Record. The Qualification Official will complete AFSC Form 74, summarizing all training and experience obtained by the candidate toward fulfillment of qualification requirements, and will attach copies of supporting documentation for training (e.g., Standard Form (SF) 182, *Authorization, Agreement and Certification of Training*, or equal) and OJT (e.g., AF Form 1151, *Training Attendance and Rating*, AF Form 1320a, *Training Chart*, or equal). Documentation for individuals progressing to a higher qualification level shall be submitted to the Qualification Official for entry into the AFSC Form 74.

7.1.3. Eye Examination.

7.1.3.1. For candidates without a current eye examination, the supervisor or training leader will schedule the required eye examination with the Medical Group and provide a copy of the AFSC Form 74, which the candidate must take to the examination. Upon successful completion of the eye exam, the Medical Group will annotate Section II of the AFSC Form 74, providing the original back to the candidate or candidate's supervisor.

7.1.3.2. For candidates who already have a current eye examination, no additional eye examination is necessary beyond the usual near-vision (annual) and color perception exams.

7.1.4. Written Examinations. After successful completion of the near vision and color perception examination (if required), the candidate's supervisor or training leader will schedule the required general and specific written examinations with the QO or the delegated examiner. All examinations may be scheduled at the same time. Candidates for initial qualification in the shop will take the AFSC Form 74 to the written examinations, and the examiner will document the examination results in Section I and file the exam answer sheet in the candidate's qualification folder.

7.1.5. Practical Examination. After successful completion of the written examinations, the candidate's supervisor or training leader will schedule the required practical examination with the Qualification Official. The Qualification Official will document the examination results in Section 1 and file the exam checklist/score sheet in the candidate's qualification file.

7.1.6. Qualification. After successful completion of the practical examination, the Qualification Official will review the AFSC Form 74 and attached supporting documentation to ensure each of the examination scores meets the minimum requirement of 70.0% and that the composite score of the general, specific, and practical qualification examinations meets the required minimum of 80.0%. When the Qualification Official is satisfied that all qualification requirements have been met, the Qualification Official will officially qualify the candidate by signing the AFSC Form 74 in Section I in the “Qualification Approved by” column. The Qualification Official will then file the original completed and signed AFSC Form 74 in the candidate’s official qualification folder. Level 3 qualification in the inspection methods covered by this Instruction may be provided by an outside (third party) agency. The ALC NDI Program Manager will approve outside agencies.

7.2. Certification. Personnel who have successfully completed all qualification requirements herein, will be certified at the Level which certification is sought. Certification will not be granted for personnel who are trainees or quality inspectors.

7.2.1. Certification can be accomplished by either the Qualification Official signing the “Certification Approved by” column or, if approved by the ALC NDI Program Manager, the first line supervisor by signing in the “Certification Approved by” column and annotating the “Date of Certification” column, the “Date Expires” column with the date that is three years from the earliest date of any qualification exam (excluding the vision examinations) used toward the qualification along with the Level of certification and the Method.

7.2.2. Level 3. The respective ALC NDI Program Manager will be the certifying official for all NDI Level 3 methods.

7.2.2.1. If Level 3 training and qualification in the inspection methods covered by this Instruction were provided by an outside (third party) agency the ALC NDI program manager will be the certifying official for all NDI Level 3 personnel.

7.2.3. Loss of Certification. Certification may expire, be suspended, or be revoked. Certification will not be extended to cover temporary duty or leave time.

7.2.3.1. Expiration. Certification will expire when the certification interval has lapsed with no recertification issued or when employment is terminated.

7.2.3.2. Suspension. Certification will be suspended when the periodic vision examinations is overdue; the individual does not perform in the method (technique for Level 1’s) certified for at least six (6) consecutive months; the individual’s performance is found to be deficient (i.e., observed deficiencies or deviations from technical data, valid customer complaints, failure of a recertification examination, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives).

7.2.3.3. Revocation. Certification will be revoked when the individual does not perform in the method certified for at least twelve (12) consecutive months. Certification will be revoked after failure of the second re-examination attempt, or failure of a Level 1 to certify as a Level 2. Certification will also be revoked as determined by the ALC NDI Program Manager if the individual’s conduct is found to be unethical (i.e., committed malpractice or willful neglect), the individual’s performance is found to be incompetent, or the individual has multiple instances of missed cracks.

7.2.4. Reinstatement of Certification.

7.2.4.1. Certifications that have expired may only be reinstated by re-examination to the same requirements for initial qualification.

7.2.4.2. Certifications that have been suspended may be reinstated up to the original certification level and date when the cause for suspension has been corrected. The first-level supervisor will verify the correction to the Qualification Official. The corrective action for certifications suspended due to six (6) consecutive months of non-performance is an annual proficiency review conducted IAW [paragraph 7.4](#) of this document.

7.2.4.3. Certifications that have been revoked due to twelve (12) months of nonperformance can only be reinstated by repeating initial examination requirements for all methods revoked.

7.2.4.4. Certifications that have been revoked after failed second re-examination attempt may only be reinstated by repeating all initial qualification requirements (training, experience, and examination) for that method.

7.2.4.5. As determined by the ALC NDI Program Manager, certifications that have been revoked due to the individual's conduct being unethical (i.e., committed malpractice or willful neglect), incompetent performance, or has multiple instances of poor workmanship such as missed cracks, will not be eligible for certification reinstatement.

7.3. Recertification.

7.3.1. Change in Assignment. NDI personnel who change assignments may be required to recertify if the Qualification Official determines a need due to a significant change in workload or operating procedures.

7.3.2. Quality Inspector (Quality Assurance Specialist or Auditor). Quality Inspectors will requalify by successfully completing the 8-hour refresher Level 2 training requirements shown in [paragraph 4.11](#) (Standardized Courses) for each method originally qualified at intervals not to exceed three years (36 months). If a QAS is transferred between MGs or used as an augmentee in another MG, the ALC NDI Program Manager shall determine if any additional training in the methods they are currently qualified in is necessary.

7.3.3. Level 1 and Level 2 Recertification. There will be no recertification at the Level 1 level. Level 2 personnel must be recertified by written examination at intervals not to exceed three years (36 months).

7.3.3.1. The General Examination may be waived by the Qualification Official or the ALC NDI Program Manager provided that the AFMC standardized refresher training course in the method in which recertification is being sought has been successfully accomplished during the certification period.

7.3.3.2. Level 1 and Level 2 personnel will successfully accomplish an annual proficiency review and vision examinations for certification to remain valid.

7.3.3.3. A current Level 2 certification will be suspended if an individual fails an examination for recertification.

7.3.3.4. The wait periods for examination failures will be the same as those for initial certification.

7.3.4. Level 3 Recertification. Level 3 personnel will be recertified at intervals not to exceed five years (60 months). The Level 3 vision exam will be current. Recertification may be accomplished by either re-examination or by the point credit system identified in NAS 410. Level 3 personnel that allow their certifications to expire for reasons other than the vision examinations will be re-qualified only by complete re-examination (successful completion of general, specific and practical exams equivalent to those required for initial qualification).

7.3.4.1. Recertification by Credit System.

7.3.4.1.1. The application must be received by the ALC NDI Program Manager at least fourteen (14) days, but no more than four (4) months prior to expiration date of the certification.

7.3.4.1.2. The candidate will have been employed in a Level 3 function for a minimum of thirty-six (36) months (at least 12 of which are in the last 24 months) within the previous five years in the method(s) for which recertification is sought. The number of months is cumulative and does not need to be consecutive months. Continuity in the method shall be demonstrated by providing documentation of eight (8) verifiable Level 3 tasks in each method for which recertification is sought during the five year (60 months) period. Candidates will provide objective evidence that they have kept up to date with current NDI technology in the method(s) for which they are seeking recertification by obtaining a minimum of 24 points during the five year period of certification, irrespective of the number of certifications (methods) obtained, by engaging in one or more of the activities listed in NAS 410. The candidate will include tables summarizing this evidence and points allowed/obtained for each element. A list of ALC activities that meet the requirements of each Activity of NAS 410 is available from the ALC NDI Program Manager. If the Level 3 holds more than one method qualifications, all method requalification dates will be synchronized to the earliest recertification date.

7.3.4.1.3. If acceptance or rejection of production hardware is required as part of the Level 3s duties, then an annual proficiency review is required.

7.4. Annual Proficiency Review. Annual Proficiency Review is a documented annual process to verify technical proficiency for each method during the certification cycle for all levels of personnel processing or inspecting hardware. Annual proficiency can be accomplished by any of the following methods as determined by the ALC NDI Program Manager. It is the responsibility of the ALC NDI Program Manager to ensure the proficiency of inspectors in each method for which they are certified. Documentation shall be the responsibility of the PACSS Office to record annual proficiency and denote de-certification if not completed.

7.4.1. Practical Examination, IAW [paragraph 6.1.4](#). Practical Examination.

7.4.2. Practical Examination, IAW [paragraph 6.1.4](#). Practical Examination, with the exception of the requirement for using one rejectable test sample per technique. Any combination of rejectable or non-rejectable test samples may be used per the technique within the method.

7.4.3. Observation of in-process production work by a QO. Document NDI method/technique, aircraft part or component, inspection equipment used, technical reference, examiner, examinee, date, and pass/fail rating.

7.4.4. Observation of test sample inspection by a QO. Document NDI method/technique, test sample description, inspection equipment used, technical reference, examiner, examinee, date, and pass/fail rating.

7.4.5. QA PE/QVI. The PE requirements are contained in AFSCMAN 21-102, *Depot Maintenance Management*.

Chapter 8

RECORDS AND DOCUMENTATION

8.1. Records and Documentation. Certification records contain Personally Identifiable Information (PII), Privacy Act (PA) information, and Health Insurance Portability and Accountability Act (HIPAA) information. All records will be kept secured and access will be restricted to a need-to-know basis. The following records will be kept by the appropriate organization for as long as an individual's NDI certification is in effect. Records will be available for audit by the facility's customers. The proficiency exam checklist contains a prerequisite section that must be completed for qualification of personnel to specific levels in the specific NDI methods and techniques. The Qualification Official is responsible for the content of the checklists.

8.1.1. Official NDI Certification File Folder shall contain as a minimum:

8.1.1.1. Name of the individual certified.

8.1.1.2. Level and method for which individual is certified will be documented on the inspectors AFSC Form 74.

8.1.1.3. Name and signature of Qualification Official.

8.1.1.4. Results of all qualification examinations, including the latest written tests and test scores from the immediately previous examinations.

8.1.1.5. Date and expiration of current certification(s).

8.1.1.6. History of all previous NDI certifications with current employer.

8.1.1.7. Training history, which identifies source, type of training, dates of training, and course hours and grades (if given after training), and instructor's name.

8.1.1.8. Experience history, both with current and previous employers, which identifies the dates and hours of experience sufficient to justify satisfaction of experience requirements for qualification.

8.1.1.9. Results of eye exam (AFSC Form 74).

8.1.1.10. Extent and documentation of formal education.

8.1.1.11. Correspondence designating instructors, OJT providers, and Level 3 responsible for the qualification program.

8.1.1.12. Approval from the ALC NDI Program Manager for a part time inspectors to perform production inspections. Documentation will also include waiver request detailing workload.

8.1.1.13. Approval from the ALC NDI Program Manager for a Level 1 to perform production inspections. Documentation will also include waiver request detailing workload.

8.2. Experience Record. Maintain a record that identifies ongoing experience in various NDI methods by the trainee/qualified inspector to verify initial qualification and continuing experience. Records may be generated locally or the AF General Form may be utilized.

8.3. Tracking of Qualified Personnel. Accomplish the tracking of qualified personnel using Training Scheduling System (TSS), or the current scheduling or tracking system for Level 1 and Level 2 personnel.

8.3.1. After successful completion of all prerequisites and examination requirements and official qualification of the inspector by the Qualification Official, the applicable MXG's operations or training function will input the qualification into TSS. Only the current level to which personnel are qualified in each method will be tracked. For example, when a technician qualifies to Level 2 from Level 1, the code for Level 1 will be archived but all prerequisites for Level 2 will be tracked in TSS.

8.3.2. The Qualification Official or PAC Manager may at any time review the data in TSS. If any error is found in TSS, a memorandum outlining the discrepancy will be sent to the affected MXG PAC Manager.

8.3.3. Level 3 qualifications may also be tracked in TSS. The official tracking of Level 3 qualifications will be maintained by the ALC NDI Program Manager, regardless of those tracked in TSS. MXG Training Managers are to place a note of equivalency in Section IV for those Level 3s.

8.4. Qualification Status. Qualification status is provided in writing to the employee's supervisor and the MXG PAC Manager. This information is provided to management on a regular basis in order to facilitate scheduling of requalification training, and to provide a list of personnel currently qualified in each NDI method.

8.5. N-Stamps. Once the candidate has completed all qualification requirements, in at least one NDI inspection method, he or she will be issued an N-Stamp. The N-Stamp is used to certify completed NDI work and is the PAC stamp for NDI operations. N-Stamps for all NDI personnel are issued and controlled by their respective group PAC office.

STACEY T. HAWKINS
Lieutenant General, USAF Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

- AFI 21-101, *Aircraft and Equipment Maintenance Management*, 16 January 2020
- AFI 21-101_AFMC Supplement, *Aircraft and Equipment Maintenance Management*, 10 December 2020
- AFSCMAN 21-102, *Depot Maintenance Management*, 05 April 2021
- AFMAN 33-363, *Management of Records*, 12 August 2019
- AFI 36-401, *Civilian Training, Education, and Professional Development*, 31 May 2018
- AFI 36-2650_AFMC SUP, *Maintenance Training*, 17 October 2019
- DAFI 63-140, *Air and Space Equipment Structural Management*, 06 August 2020
- DAFI 63-140_AFMC SUP, *Air and Space Equipment Structural Management*, 15 July 2020
- ANSI/ASNT® CP-105, *Topical Outlines for Qualification of Nondestructive Testing Personnel*, current edition
- NAS 410 Revision 5, *Certification and Qualification of Nondestructive Test Personnel*, September 30, 2020
- T.O. 33B-1-1, *Nondestructive Inspection Methods, Basic Theory*, July 2022
- T.O. 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls*, December 2023
- 5 USC §552, *Public Information; Agency Rules, Opinions, Orders, Records, and Proceedings*, 3 January 2012
- 5 USC §552a, *Records Maintained on Individuals*, 7 January 2011

Adopted Forms

- AF 797, *Job Qualification Standard Continuation/Command*
- AF 847, *Recommendation for Change of Publication*
- AF 1151, *Training Attendance and Rating*
- AF 1320A, *Training Chart*
- AF 1768, *Staff Summary Sheet*
- AFMC Form 202, *Nonconforming Technical Assistance Request and Reply*
- AFSC Form 74, *Nondestructive Inspection Personnel Qualification and Certification Record*
- AFSC Form 561, *Process Order*
- AFTO Form 242, *Nondestructive Inspection Data*
- AFTO Form 252, *Technical Order Publication Change Request*

Standard Form 182, *Authorization, Agreement and Certification of Training*

Abbreviations and Acronyms

ACCP—ASNT® Central Certification Program

AF—Air Force

AFB—Air Force Base

AFI—Air Force Instruction

AFLCMC—Air Force Life Cycle Management Center

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFMCI—Air Force Materiel Command Instruction

AFMCSUP—Air Force Materiel Command Supplement

AFRIMS—Air Force Records Information System

AFSC—Air Force Sustainment Center

AFSCI—Air Force Sustainment Center Instruction

AFSCMAN—Air Force Sustainment Center Manual

AFTO—Air Force Technical Order

ALC—Air Logistics Complex

ANSI—American National Standards Institute

ASTM—American Society for Testing Materials

ASNT®—American Society for Nondestructive Testing

BAC—Boeing Aerospace Corporation

CDC—Career Development Course

CFETP—Career Field Education and Training Plan

COTS—Commercial-Off-The-Shelf

DAF—Department of the Air Force

DoD—Department of Defense

ET—Eddy Current Testing

ETMS—Education and Training Management System

GM—Guidance Memorandum

GS—General Schedule

HT—Holography Testing

IAW—In Accordance With

IOS—Interim Operating Supplements
IRT—Infrared Thermography Testing
MAUS—Mobile Automated Scanner
MT—Magnetic Particle Testing
MXG—Maintenance Group
NANDTB—National Aerospace Nondestructive Testing Board
NAS—National Aerospace Standard
NDI—Nondestructive Inspection
OC-ALC—Oklahoma City Air Logistics Complex
OJE—On-The-Job Experience
OJT—On-The-Job Training
OO-ALC—Ogden Air Logistics Complex
OPR—Office of Primary Responsibility
PAC—Production Acceptance Certification
PE—Personnel Evaluation
PM—Program Manager
PoI—Principals of Instruction
PT—Liquid Penetrant Testing
QAP—Quality Assurance Plan
QAS—Quality Assurance Specialist
QO—Qualification Official
QVI—Quality Verification Inspection
RCC—Resource Control Center
RDS—Records Disposition Schedule
RT—Radiography Testing
SAE—Society of Automotive Engineers
SME—Subject Matter Expert
ST—Shearography Testing
T.O.—Technical Order
TCTO—Time Compliance Technical Order
TSS—Training Scheduling System
USAF—United States Air Force

UT—Ultrasonic Testing

VMET—Veteran’s Military and Education Training

WR-ALC—Warner Robins Air Logistics Complex

Terms

Auditor—An individual who reviews nondestructive inspection (NDI) facilities and general procedures for compliance to NDI technical requirements.

ASNT® Central Certification Program (ACCP)—The ACCP has been developed By ASNT® to improve NDI reliability by providing standardized requirements administered by an accredited certification body. The program will provide prospective employers with NDI personnel that have achieved a high level of performance and competency within the NDI profession.

Blended Learning—BL: Blended learning - An instructional design approach that combines several different instructional delivery methods such as; live events, self-paced learning, collaboration, assessment and performance support materials.

Certification—There are two types of certification: One is certification by the employee of a task on a work control document that a product and service conforms to all government technical data, specifications, safety, and other applicable directives. The other type is the formal documented authorization for an individual to certify and accept responsibility for the conformance of a specific product or service related task under the production Acceptance Certification (PAC) Program. This document refers to the latter of these uses. This certification is accomplished by the first level supervisor or above, with authority over the individual after completion of required training and demonstration of proficiency. Technicians must first be qualified and certified in accordance with this instruction before certification for any NDI PAC task.

Closed Book Examinations—An examination administered without access to reference material, except that provided with or in the examination.

Cognizant NDI Organization—The prime contractor or employer’s organization recognized as being responsible for administering qualification and certification of NDI personnel.

Direct Observation—When the observer is able to come to the immediate aid of the trainee and remains within a distance that permits uninterrupted, unaided visual or verbal contact with the trainee.

Direct Readout Instrument—Direct readout instruments physically display values either as digital readout, or an analog display, such as a scale/pointer configuration. Direct readout instruments do not involve adjusting signal displays such as gates, delays, gain, or phase to obtain measurements.

Documented—The condition of being in written or electronic form.

Emerging Methods—Current or emerging NDI methods that are not listed in the SCOPE section of this instruction. For these methods, the requirements of NAS 410 will apply.

Employer—A government agency employing individuals performing NDI.

Evaluation—A review following interpretation of the indications noted during an NDI inspection, to determine whether they meet specified acceptance criteria, or to determine the significance of the indication.

Examination—Formal, controlled and documented testing conducted IAW a documented written practice to verify the candidate’s knowledge of applicable NDI methods.

Examiner—A Level 3 certified to this AFSCI and designated as a NDI qualification official to administer all or part of the qualification process, excluding vision examination, in the NDI method(s) in which the examiner is certified. The examiner for the written examinations are not required to be certified in that method.

Experience—Actual performance or observation conducted in the work environment resulting in the acquisition of knowledge and skill. This does not include classroom or laboratory training, but does include OJT.

Formal Training—An organized and documented program of learning activities designed to impart the knowledge and skills necessary to be qualified to this standard. Formal training may be a mix of classroom, practical, and programmed self-instruction as approved by the appropriate ALC NDI PM.

General Examination—A written examination addressing the basic principles and theory of an NDI method.

Indication—The response or evidence of a condition resulting from an NDI inspection, which requires interpretation to determine its significance.

Instructor—An individual qualified and designated IAW this standard to provide training for NDI personnel.

Interpretation—The determination of whether indications are relevant or non-relevant.

Method—One of the disciplines of nondestructive inspection (e.g., ultrasonic, radiography) within which different techniques may exist.

National Aerospace Nondestructive Testing Board (NANDTB)—An independent national aerospace organization representing a nation’s aerospace industry chartered by the participating prime contractors, and recognized by the nation’s regulatory agencies; to provide or support NDI qualification and examination services IAW this standard. Such services may include participation in certification.

On-the-Job Training (OJT)—Training in the work environment to gain experience in learning instrument setup; equipment operation; applying the process; and recognition, interpretation, and evaluation of indications under appropriate technical guidance.

Open Book Examination—An examination administered with access to specific reference material that is provided with or referenced in the examination.

Outside Agency—An independent or national body providing training and examination of NDI personnel, or any other NDI services to the requirements of this standard. Consultants and self employed individuals are included in this definition.

Part Time Inspector—Part time inspectors are inspectors who are not 3705 technicians and perform inspections on an irregular or fill-in basis only.

Practical Examination—The examination used to demonstrate an individual’s ability to conduct the NDI method that will be performed for the employer. Questions and answers need not be written, but a checklist must be used, and observations and results must be documented.

Procedure—A written general “how to” instruction for conducting a given process. Procedures are then used to develop work instructions. The AF requires procedures to be part specific with step-by-step guidance for performing an inspection.

Qualification—Demonstrated skills and knowledge, including documented training and experience as specified by this instruction, required for personnel to properly perform the duties of a specific job. Includes a written statement by the employer indicating the level to which the employee has satisfied the requirements of this instruction for knowledge, training, skill and experience as part of the employee’s documentation record.

Qualification Official (QO)—A designated representative approved by the applicable ALC NDI Program Manager with the responsibility and authority to document that an individual meets the applicable requirement of this instruction. The QO evaluates the NDI qualifications of candidates to determine if they are competent in the skill. This includes evaluation of test specimens, written tests and proficiency demonstrations. The QO must be a Level 3 in each NDI method for which they have responsibilities. The QO administers the practical examination and is responsible for the qualification of the inspectors. The QO is the “examiner” referred to in NAS 410.

Responsible Level 3—The responsible Level 3, as defined by NAS 410, is the

ALC NDI Program Manager and is designated with the responsibility and authority to ensure the requirements of this AFSCI are met and to act on behalf of the ALC on NDI program issues.

Specific Examination—The written examination to determine an individual’s understanding of operating procedures, codes, standards, product technology, test techniques, equipment, and specifications for a given method as used by the employer.

Technique—A category within a method; for example, UT immersion testing or UT contact testing. Specific techniques within a method are defined by the cognizant NDI organization, employer, or NANDTB.

Test Sample—A part or image containing one or more known documented natural or artificial discontinuities, flaws, or conditions used in practical examination to demonstrate the candidate’s proficiency in an NDI method. Test samples can refer to actual hardware, fabricated test parts, or, when applicable, images of actual hardware such as radiographs.

Work Instruction—A document detailing the NDI technique and testing parameters to be used for the inspection of specific component, group of parts (e.g., “aluminum extrusion” or “steel brackets”), or assembly. These are sometimes referred to in the industry as “technique sheets” or “work cards.” Such work instructions are based on procedures.

Written—Retrievable electronic or paper copy.

Written Instruction—A procedure detailing the NDI technique, and testing parameters used for the inspection of a specific component, group of parts (e.g., aluminum extrusions or aluminum brackets), or assembly. These are sometimes referred to as technique sheets or data cards. See also Work Instruction above.

Written Practice—A procedure that describes an employer’s requirements and methodology for controlling and administering the NDI personnel qualification and certification process.

Attachment 2

TASK SPECIFIC TRAINING ON SAFETY OF FLIGHT CRITICAL OR COMPLEX NDI PROCEDURES

A2.1. ALC NDI Program Manager and/or the cognizant system engineer:

A2.1.1. Establishes the requirement to perform the task-specific training, based upon the safety of flight criticality or complexity of the inspection, and notifies the ALC NDI Qualification and Training Group Director and Flight Chief concurrently of the training requirement and suspense requirement.

A2.1.2. Develops a training requirements package that provides sufficient data to develop the required training and delivers the training requirements package to the applicable organization.

A2.1.3. Reviews task-specific training materials received from tasked training organization for concurrence.

A2.2. ALC NDI Qualification/Training team:

A2.2.1. Provides heads-up notification (e-mail or phone call) to the Workforce Development Section (ALC/OBH) and appropriate Maintenance Group (MXG) training manager of future training requirements prior to the development of task-specific training.

A2.2.2. Develops training material based on training requirements package. This may include, but is not limited to, test specimens, classroom handouts, PowerPoint slides, inspector task training checklist, and smart book.

A2.2.3. Presents training materials to the ALC NDI program manager and cognizant system engineer for concurrence.

A2.2.4. Presents training materials to ALC/OBH for review and course number assignment.

A2.2.5. Upon receipt of course number, notifies the appropriate MXG training and PAC managers by e-mail.

A2.2.5.1. Maintains the latest copy of course material by task-specific training course number.

A2.2.6. Notifies the appropriate inspection group management (MXG) of the approved course number and task-specific minimum prerequisite requirements and coordinate the training schedule.

A2.2.7. Provides task-specific training to all qualified inspection personnel as scheduled by the appropriate management.

A2.2.8. Uses an inspector checklist during the hands-on training to ensure that each individual aspect of the task-specific training is covered and understood.

A2.2.8.1. Maintains the original inspector checklist in the inspector's NDI training record.

A2.2.8.2. Provides a copy of the completed inspector task training checklist to the inspector. The inspector will carry the inspector checklist to their supervisor.

A2.2.9. Provides notification of successful completion of training course number to appropriate MXG PAC/Training monitor for input into Section 2 of the inspector's Training Scheduling System (TSS)/PAC record and to employee's certifying supervisor for input into Section 3.

A2.3. ALC NDI supervisors:

A2.3.1. Coordinate with appropriate TSS/PAC manager to ensure that the task-specific training course number is placed in the appropriate inspector's PAC record.

A2.3.2. Work with NDI Qualification/Training team to develop the task-specific training schedule.

A2.3.3. Ensure only certified inspectors are scheduled for the required training. File and maintain the task-specific training inspector checklist in the inspector's training records.

A2.3.4. Review inspector's TSS/PAC training folder to ensure the training has been documented prior to assigning an inspector to perform inspections that have been determined to be safety of flight or complex by the ALC NDI program manager and/or cognizant systems engineer.

A2.3.5. Maintain a minimum number of trained personnel to perform task-specific inspections.

A2.4. Installation FSS/FSD (or appropriate training org):

A2.4.1. Reviews new task-specific training materials and provides ALC NDI Qualification and Training team with assigned course number.

A2.4.2. Inputs new course information (i.e., title and number) in the Education and Training Management System.

A2.5. ALC/OBH:

A2.5.1. Reviews new task-specific training materials and forwards to Installation FSS/FSD (or appropriate training org).

A2.5.2. Inputs new course information (i.e., title and number) in the TSS-PAC/electronic training record.