



**DEPARTMENT OF DEFENSE
Defense Contract Management Agency**

ANNEX

Nondestructive Testing (NDT)

**Quality Assurance Directorate
CPR: DCMA-QA**

**DCMA-ANX 318-02
July 22, 2014**

Administratively reissued, August 5, 2014

1. PURPOSE. This new Annex:

a. Implements policies as defined in DCMA Instruction (DCMA-INST) 318, “QA Development” (Reference (a)) for Nondestructive Testing (NDT) personnel when requirements are contractually invoked.

b. Outlines required training, qualifications/certifications/recertification for performance of DCMA NDT personnel.

c. Is established in accordance with (IAW) the authority in DoD Directive 5105.64, “Defense Contract Management Agency (DCMA)” (Reference (b)) and all references listed.

2. APPLICABILITY. This Annex applies to all DCMA quality personnel performing NDT activities. Navy Special Emphasis Operation (NSEO) personnel shall refer to DCMA-INST 320, “Navy Special Emphasis Program” (Reference (c)) and Naval Sea Systems Command Technical Representative (NSTR) 99-DCMA, “Naval Nuclear Propulsion Program” (Reference (d)).

3. MANAGERS’ INTERNAL CONTROL PROGRAM. In accordance with DCMA-INST 710, “Managers’ Internal Control Program” (Reference (e)), this Annex is subject to evaluation and testing. The process flowcharts are located at Appendix A.

4. RELEASABILITY – UNLIMITED. This Annex is approved for public release.

5. PLAS CODES.

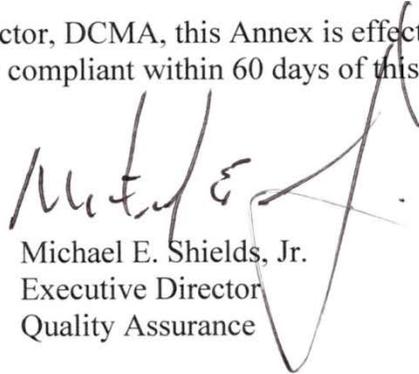
- 085A – Contract Technical Review (Identify NDT Requirements)
- 085B – Risk Assessment
- 085C – Perform Surveillance (Accomplish Data Collection and Analysis)
- 085D – Corrective Action
- 085E – Product Acceptance and Release
- 085F – Other Activity
- NSEO identified 068 PLAS Codes (for use by all DCMA)
 - AB68 – Perform/Support NSEO NDT Penetrant (PT) Requirements
 - AC68 – Perform/Support NSEO NDT Magnetic Particle (MT) Requirements

July 22, 2014

- AD68 – Perform/Support NSEO NDT Radiographic (RT) Requirements (includes Digital RT)
- AE68 – Perform/Support NSEO NDT Ultrasonic (UT) Requirements (includes Phased Array UT)
- AG68 – Perform/Support NSEO NDT Eddy Current (ET) Requirements
- AJ68 – Exotic NDT Methods (other NDT methods, see paragraph 3.1.1(2))

6. POLICY RESOURCE WEB PAGE. <https://home.dcma.mil/Policy/318-02r>

7. EFFECTIVE DATE. By order of the Director, DCMA, this Annex is effective July 22, 2104, and all applicable activities shall be fully compliant within 60 days of this date.



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TABLE OF CONTENTS

REFERENCES.....4

CHAPTER 1 – POLICY

 1.1. Policy5

CHAPTER 2 – ROLES AND RESPONSIBILITIES

 2.1. Agency NDT Program Board6

 2.2. Contract Management Office (CMO) Commanders/Directors.....6

 2.3. Quality Assurance (QA) Directors.....6

 2.4. QA First Level Supervisor (FLS)6

 2.5. CMO NDT Examiners7

 2.6. NDT Specialist.....8

 2.7. NDT QAR Personnel8

CHAPTER 3 – PROCEDURES

 3.1. NDT Methods9

 3.2. Qualification, Certification, and Recertification of NDT Personnel9

TABLES

 Table 1. Process Review Training Courses9

 Table 2. NDT Training Hours.....10

APPENDIX

 Appendix A. Nondestructive Testing Process Flowchart13

GLOSSARY

 Acronyms15

REFERENCES

- (a) DCMA-INST 318, "QA Development," February 11, 2014
- (b) DoD Directive 5105.64, "Defense Contract Management Agency (DCMA)," January 10, 2013
- (c) DCMA-INST 320, "Navy Special Emphasis Program (NSEP)," October 24, 2013
- (d) NSTR-99-DCMA, "Naval Nuclear Propulsion Program, Qualification and Monitoring Requirements for Defense Contract Management Agency Non-Destructive Test Personnel" (For NSEO CMO Only)
- (e) DCMA-INST 710, "Managers' Internal Control Program," April 21, 2014
- (f) DCMA-INST ~~315 1206~~, "First Level Supervisory Review," ~~January 31, 2013~~ **July 24, 2014**

CHAPTER 1

POLICY

1.1. POLICY. It is DCMA policy that:

1.1.1. Quality assurance (QA) personnel performing Government contract quality assurance (GCQA) of NDT products (product examination) are required to be certified and QA personnel only performing process reviews to be qualified per the requirements of this Annex.

1.1.2. An Agency NDT Program Board must be established by the Executive Director, QA.

1.1.2.1. The Board will consist of members from headquarters (HQ) QA Directorate, Operations QA Directorate, NSEO, International Directorate, Special Programs Directorate, and a member from each of the three Regions (Western, Central, Eastern).

1.1.2.2. The NDT Program Board will be chaired by the representative from HQ. Representatives from Operations, each of the three Regions, International, Special Programs, and Aircraft Integrated Maintenance Operations (AIMO) shall be certified NDT examiners. Representatives from HQ and NSEO may or may not be NDT examiners.

CHAPTER 2

ROLES AND RESPONSIBILITIES

2.1. AGENCY NDT PROGRAM BOARD. The NDT Program Board is responsible for the following:

- Management and implementation of this Annex
- NDT training to include course management, course schedules
- Training materials and equipment to include calibration and inventory
- Information forums
- Initial certifications/re-certifications of examiners
- Tools management to include certification maintenance and support material

2.2. CONTRACT MANAGEMENT OFFICE (CMO) COMMANDERS/DIRECTORS. Commanders/Directors of primary CMOs shall:

2.2.1. Designate, in writing, a CMO NDT examiner. When there is a need for multiple examiners within a CMO, a lead NDT examiner shall be identified.

2.2.2. Ensure the NSEO CMO mission training group leader will be the point of contact for all NDT matters pertaining to NSEO CMO and will assign actions to the NSEO NDT examiners based on availability and the nature of the task or support required.

2.3. QUALITY ASSURANCE (QA) DIRECTORS. QA Directors shall:

2.3.1. Manage ~~and supervise~~ the designated CMO NDT examiner(s).

2.3.2. Be responsible for the implementation and execution of this Annex within their CMO.

2.4. QA FIRST LEVEL SUPERVISOR (FLS). The QA FLS shall:

2.4.1. Validate personnel are trained and qualified or certified in the NDT methods for their assigned position.

2.4.2. Coordinate all training requests for NDT training with the designated CMO NDT examiner prior to approval/disapproval of NDT training requests. Keystones/interns must be approved by HQ NDT program management prior to attending NDT specialist training.

2.4.3. Validate their team has adequate NDT certified personnel to meet position and program requirements for the facilities and contracts under their cognizance.

2.4.4. Request NDT specialist/examiner support for personnel who are not certified in the NDT method/techniques necessary for compliance with identified contract requirements.

2.4.5. IAW DCMA-INST 315, "First Level Supervisory Review" (Reference (f)), ensure QA personnel perform NDT surveillance activities IAW the applicable GCQA Instruction.

2.4.6. Ensure only those quality assurance specialist assigned GCQA oversight for suppliers performing NDT are approved to attend NDT specialist training.

2.5. CMO NDT EXAMINERS. Where there are multiple examiners within a CMO (such as NSEO (i.e., mission training group leader), International, and large geographic CMOs) these examiners shall support the CMO lead NDT examiner as agreed to by CMO management. The CMO NDT examiner is responsible for the management and implementation of this Annex to include the following:

2.5.1. Utilize Agency supplied NDT database for management of NDT personnel qualification, training, and certification/recertification. This includes establishing recertification schedules and timely notification of affected personnel.

2.5.2. Working with FLS to assure an adequate complement of NDT QA personnel, NDT specialists and examiners exist within the CMO to cover all applicable and required NDT methods.

2.5.3. Coordinate with the FLSs for examiners support in management and implementation of the CMO NDT program.

2.5.4. In coordination with the FLS, ensure qualification, training, and certification/recertification of NDT personnel is limited to personnel whose actual job assignment requires certification/recertification.

2.5.5. In coordination with the NDT Program Board, train, certify, and recertify NDT personnel.

2.5.6. Issue DD Form 1902 cards (Certificate of Qualification) for NDT personnel trained, certified, and recertified.

2.5.7. Perform assessments of NDT personnel performing surveillance.

2.5.8. Assist NDT quality assurance representative (QAR) personnel and NDT specialists to resolve any related NDT issues associated with the performance of NDT surveillance.

2.5.9. Perform visual acuity examinations of CMO NDT personnel and/or identify representatives designated to perform visual acuity examinations.

2.5.10. Representatives designated to perform visual acuity examinations shall be authorized in writing (e-mail as a minimum) by the examiner.

2.5.11. Visual acuity examinations shall be documented on the Visual Acuity Examination Form.

2.5.12. Maintain records of valid visual acuity examination forms.

2.5.13. Track and maintain records associated with any continuous learning attended.

2.5.14. When required to conduct training, will co-instruct with an experienced examiner for a minimum of one training class per method.

2.6. NDT SPECIALIST. NDT specialist shall:

2.6.1. Be trained, certified/recertified IAW the requirements of paragraph 3.2.2.

2.6.2. Be responsible for the performance, documentation of surveillance (i.e., process review, product examination, and/or system audit) and make acceptance/rejection decisions associated with applicable NDT methods.

2.6.3. Perform NDT surveillance in the method for which they are certified at least once with each consecutive 12-month period or certification will be suspended. If the 12-month NDT surveillance requirement is not met, specialists requiring reinstatement shall be given a practical examination in the applicable method(s) per paragraph 3.2.2.3 as determined by the CMO NDT examiner.

2.6.4. NSEO surveillance requirement is at least once every 9 months per NSTR-99-DCMA (Reference (d)).

2.6.5. Provide a copy of corrective action requests (CAR)/product quality deficiency reports (PQDR) generated as a result of NDT surveillances to the assigned CMO NDT examiner.

2.7. NDT QAR PERSONNEL. NDT QAR personnel shall:

2.7.1. Perform process reviews and are responsible for the performance and documentation of process reviews of NDT processes associated with assigned and applicable NDT methods. Under no circumstances will NDT QAR personnel perform product examinations of NDT product or make acceptance/rejection decisions on NDT product. To validate the process review, a product examination will only be accomplished by a certified NDT specialist/examiner in the applicable method.

2.7.2. Be trained per the requirements of paragraphs 3.2.1. and 3.2.2.

2.7.3. Provide a copy of CARs generated as a result of NDT process reviews to the assigned CMO NDT examiner.

CHAPTER 3

PROCEDURES

3.1. NDT METHODS. Common and other NDT methods are listed as follows:

3.1.1. Common Methods:

- Liquid Penetrant (PT)
- Magnetic Particle (MT)
- Eddy Current (ET)
- Radiographic (RT)
- Digital Radiography (DRT)
- Ultrasonic (UT)
- Phase Array Ultrasonic (PAUT)

3.1.2. Other NDT Methods:

- Computed Radiography (CRT)
- Visual Inspection (VT)
- Neutron Radiography (NRT)
- Laser Shearography Inspection (LSI)
- Thermography (IRT)
- Temper Etch (TE)
- Automated Ultrasonic Testing (AUT)

3.2. QUALIFICATION, CERTIFICATION, AND RECERTIFICATION OF NDT PERSONNEL.

3.2.1. In order to obtain NDT QAR qualification, personnel must:

3.2.1.1. Complete the NDT prerequisite process review core training course NTP100.

3.2.1.2. Complete method specific process review training course(s) for each applicable method(s) as outlined in Table 1, below:

Table 1. Process Review Training Courses

Course #	Course Title	Hours	Delivery
NDTP110	Ultrasonic Process Review	4	DCO Connect, Instructor Led
NDTP111	Magnetic Particle Process Review	4	DCO Connect, Instructor Led
NDTP112	Radiographic Process Review	4	DCO Connect, Instructor Led
NDTP113	Liquid Penetrant Process Review	4	DCO Connect, Instructor Led
NDTP114	Eddy Current Process Review	4	DCO Connect, Instructor Led

NOTE: No visual acuity requirements are established for QA personnel performing process reviews.

3.2.2. In order to obtain NDT specialist certification, personnel must:

3.2.2.1. Be certified in the QA Systems Skill set, the Core Technical Skill set per DCMA-INST 318 (Reference (a)) prior to attending initial NDT specialist training as outlined in paragraph 3.2.2.2.

3.2.2.2. Have initial training which shall consist of instructor-led, classroom training for each applicable method per Table 2. Prior to attending NDT specialist training, the candidate must have a valid visual acuity test performed as outlined in paragraph 3.2.2.7.

Table 2. NDT Training Hours

Method	Hours
Liquid Penetrant	40
Magnetic Particle	40
Eddy Current	80
Radiographic	80
Ultrasonic	80

3.2.2.3. Initial training/certification and recertification requires the completion of a general, specific, and practical examination for each applicable method and shall consist of the following:

3.2.2.3.1. General (2 hours) – open book test which consists of 40 or more theoretical questions. Tests will be controlled by the CMO examiner. Tests can be generated utilizing an Agency developed and controlled question data bank.

3.2.2.3.2. Specific (2 hours) – open book test which consists of 30 or more questions derived from applicable procedures, codes, standards, and specifications. Tests will be controlled by the CMO examiner. Tests can be generated utilizing an Agency developed and controlled question data bank.

3.2.2.3.3. Practical (3 hours) – open book test which consists of the student demonstrating an understanding of the NDT equipment operations and control parameters applicable to a given method and demonstrate the ability to adequately evaluate the performance of an NDT product examination (may be accomplished by electronic media) and determine acceptability. Agency generated and controlled scenarios can be used. Radiographic film or digital images shall be used for the radiographic practical exam.

3.2.2.4. Recertification shall be accomplished every 3 years and must include all 3 examinations (general, specific, and practical). The general and specific examinations shall be as comprehensive as the initial certification examinations. The CMO examiner will notify the FLS and specialist 30 days in advance of certification expiration date that recertification is due. Practical examinations used for recertification shall be administered through electronic media,

documented process review, or hands-on evaluation. Recertification can be accomplished either remotely (via electronic media) or on-site (hands-on practical) at the discretion of the examiner. Recertification shall be accomplished within 30 days after receipt of the recertification exams.

3.2.2.4.1. Certifications will expire if recertification is not accomplished by the certification expiration date. When required, certification extensions will be approved by the assigned Region NDT examiner. Only one extension is granted for a maximum of 6 months from date of original expiration date. Personnel whose certifications expire will need to recertify by taking the general, specific, and practical examinations. NSTR-99-DCMA (Reference (d)) prohibits use of extensions for NSEO personnel.

3.2.2.4.2. Specialists whose certifications expire and do not recertify as NDT specialists, meet the competencies associated with the performance of NDT process reviews and can continue to perform NDT process reviews without additional training as outlined in paragraphs 3.2.1.1. and 3.2.1.2. QA personnel will not perform product examinations in these cases.

3.2.2.5. For NDT specialist, consideration can be given for documented equivalent experience and/or training, as determined by Region NDT examiners. Personnel approved by Region examiner are still required to complete the certification examinations per paragraph 3.2.2.3.

3.2.2.6. Grading of examinations shall be as follows:

3.2.2.6.1. The candidate shall achieve a minimum grade of 70 percent on each examination. NSEO Nuclear NDT examinations require a minimum grade of 80 percent on each examination. An average grade of 80 percent for all three examinations is required to be eligible for certification.

3.2.2.6.2. Candidates failing to pass the examinations shall require an appropriate level of retraining as determined and documented by the cognizant examiner. Retraining and re-examination shall be accomplished within 60 days.

3.2.2.6.3. A candidate who fails one of the three examinations shall be re-examined for the failed examination only, if accomplished within 60 days. Re-examinations shall use different written and/or practical examinations. Examinations with no more than 20 percent of identical questions shall be considered different.

3.2.2.7. Visual acuity testing shall be accomplished annually by a certified examiner or a representative designated by an examiner and shall consist of the following:

3.2.2.7.1. Near vision – reading a Jaeger #1 test chart or Ortho-rater #10 at 14 inches, with both eyes, either natural or corrected.

3.2.2.7.2. Color vision – must be capable of distinguishing between colors using the Ishihara Eye Chart or equivalent.

3.2.2.7.3. In the event of eye surgery, eye disease, or eye injury, candidates shall notify the examiner. The visual acuity and color test of the candidate shall be retested per the above requirements.

3.2.2.7.4. Certification(s) is automatically suspended when the annual visual acuity expires. Certification will be reinstated when visual acuity is updated.

3.2.3. NDT examiner certification shall:

3.2.3.1. Be performed by HQ for initial and re-certification per the requirements of paragraph 3.2.2.3. If mandated by customer requirements, such as NSEO, initial certification and subsequent recertification examinations shall be performed by a third-party Agency certified examiner.

3.2.3.2. Have a minimum of 300 hours of documented experience in the applicable method as a specialist prior to attending examiner certification as outlined herein.

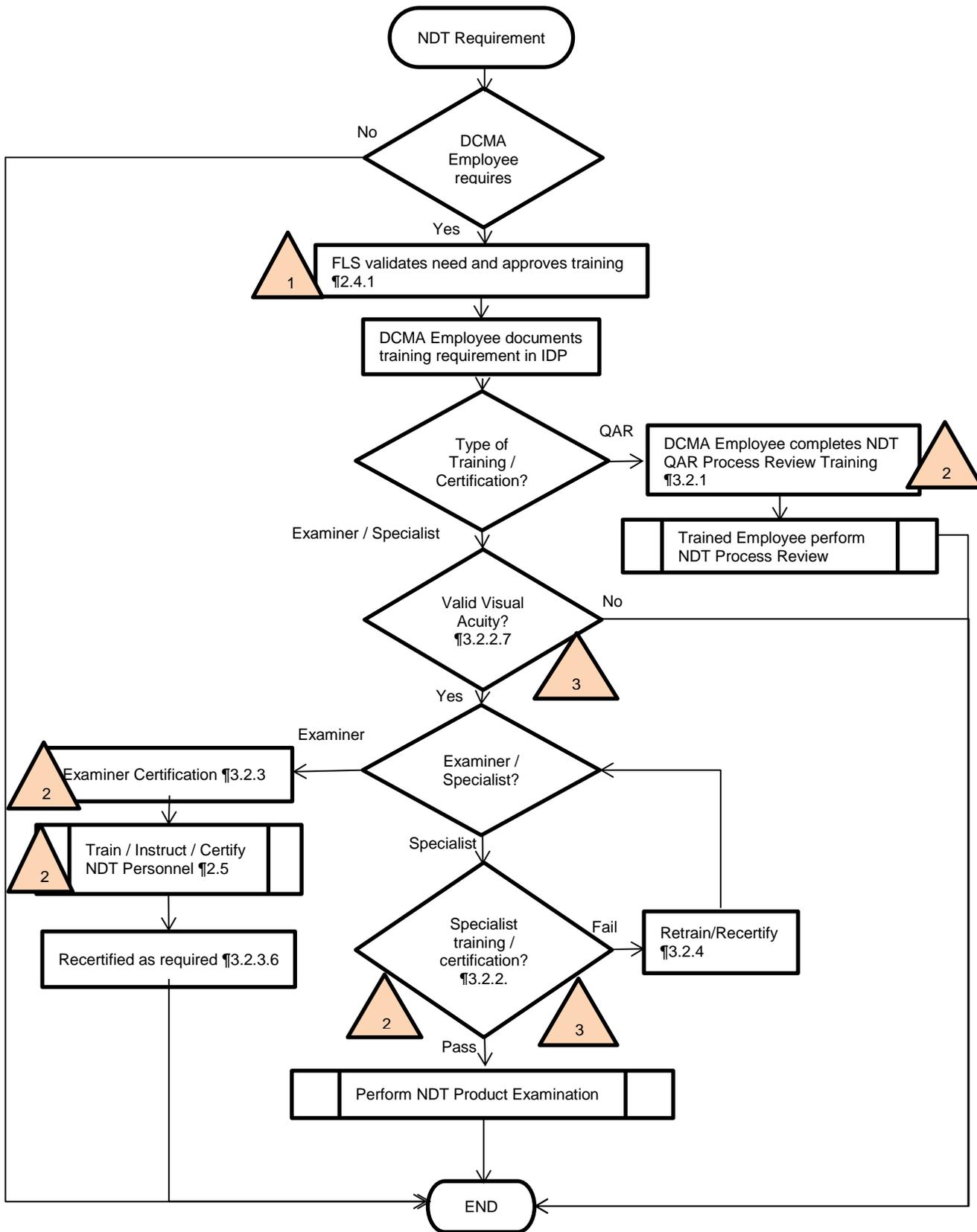
3.2.3.3. Documented equivalent experience for personnel from military or industry will be evaluated for past training and experience by HQ.

3.2.3.4. Personnel with equivalent experience are still required to complete the certification examinations per paragraph 3.2.2.3.

3.2.3.5. Meet visual acuity requirements per paragraph 3.2.2.7.

3.2.3.6. Re-certification shall be at 5-year intervals and shall be as comprehensive as the initial certification examinations.

APPENDIX A - Nondestructive Testing Process Flowchart



**APPENDIX A –
 Nondestructive Testing MICP Key Control Chart**

Key Control Table			
Control	Functional Area	Risk	Possible Controls
1	<ul style="list-style-type: none"> - Review - Approve 	<ul style="list-style-type: none"> - Inaccurate training requirements leading to misuse of funds - Inaccurate training space allocation - Time management issues from inaccurate training requirements 	<ul style="list-style-type: none"> - FLS validates need and approves training
2	<ul style="list-style-type: none"> - Training - Certification 	<ul style="list-style-type: none"> - Inability to complete mission requirement of NDT QAR and specialist duties - Inability to adequately document training for NDT QARs 	<ul style="list-style-type: none"> - NDT QAR PR training - Specialist Training/Certification - Examiner Certification - Training conducted by Examiner
3	<ul style="list-style-type: none"> - Compliance 	<ul style="list-style-type: none"> - Inability to complete mission requirement of NDT QAR and specialists duties - Auditability – documented proof of training 	<ul style="list-style-type: none"> - Visual acuity - Validation of Specialists Training and Certification

GLOSSARY

ACRONYMS

AIMO	Aircraft Integrated Maintenance Operations
CAR	corrective action request
CMO	contract management office
DCMA-INST	DCMA Instruction
FLS	first level supervisor
FLSR	first level supervisory review
GCQA	Government contract quality assurance
HQ	headquarters
IAW	in accordance with
NDT	nondestructive testing
NSEO	Navy Special Emphasis Operations
PLAS	Performance Labor Accounting System
QA	quality assurance
QAR	quality assurance specialist