

Part II

3. Quality Assurance Agency Qualifications and Quality Assurance Tasks

3.1 Scope

This section defines the appropriate qualifications for organizations and individuals performing Quality Assurance (QA) of steel construction, the systems to be used, and the tasks to be performed by those Quality Assurance firms and individuals.

3.2 Evaluation of Quality Assurance Agencies

The firm or agency responsible for the Quality Assurance function, whether an independent testing laboratory or an individual, must be capable of performing the work, and should be evaluated and approved by the Owner, with the assistance of the Engineer or other qualified designated design professional, regarding the capability to perform such functions. The Building Official may also have requirements regarding the qualification of firms or individuals who will be performing the work. The level of expertise and experience necessary to perform such functions depends upon the specific role of the Inspector, namely as a Special Inspector, Welding Inspector, or NDT (nondestructive testing) technician.

3.3 Quality Assurance Agency Qualifications

The submittal of the Quality Assurance Agency's qualifications should be required. The submittal should include:

- qualifications of QA Agency's management and QA personnel designated for the project,
- QA Agency's written inspection procedures manual, and operations Quality Control manual (Written Practice),
- qualification records for Inspector and NDT technicians designated for the project, and
- QA Agency's NDT procedures, equipment calibration records, and personnel training records.

The review of QA Agency qualifications should be performed in a timely manner.

Each agency performing welding-related Quality Assurance should employ an individual qualified as an ASNT NDT Level III for the type of Nondestructive Testing to be performed. This individual should specify and oversee equipment calibration, inspection procedures, personnel certification, and training for the project.

3.3.1 Testing Laboratory Accreditation Programs

There are several accreditation programs available to independent testing laboratories to demonstrate, to third parties, the expertise of the QA Agencies in a particular field. Such programs include:

3.3.1.1 National Voluntary Laboratory Accreditation Program (NVLAP)

NVLAP is administered by the National Institute of Standards and Technology (NIST), and accredits public and private laboratories based upon evaluation of their technical qualifications and competence, following *ISO/IEC Guide 25, General Requirements for Accreditation of Laboratories*, and *ISO 9002*. Laboratories are reviewed in the following areas: accommodation and environment, calibration and test methods, certificates and reports, complaints, equipment and reference material, handling of calibration and test items, measurement traceability and calibration, organization and management, outside support services, personnel, quality system, audit and review, records, and subcontracting. Fields of accreditation include Construction Material Testing, and Fasteners and Metals.

Commentary: Fewer than 20 agencies are currently accredited for Construction Material under the NVLAP.

3.3.1.2 American Association for Laboratory Accreditation (A2LA)

A2LA is a membership organization that offers accreditation in a variety of fields, including Construction Material and Nondestructive Testing. A2LA follows *ISO/IEC Guide 25* in its accreditation process.

Commentary: Approximately 100 agencies are accredited for Construction Material under A2LA.

3.3.1.3 International Conference of Building Officials Evaluation Services, Inc. (ICBO ES)

ICBO ES conducts evaluations and issues reports on a variety of material and services, including Testing Laboratories (268). Specific areas of testing are listed in bi-monthly Evaluation Reports listings. However, published reports for Testing Laboratories are not made available.

3.3.1.4 Building Officials and Code Administrators Evaluation Services, Inc. (BOCA-ES)

BOCA-ES conducts evaluations and issues reports on a variety of material and services, including Testing Laboratories (Section 01410) and Inspection Services (Section 01420). Testing Laboratories are typically facilities performing product testing such as physical testing or fire testing. Inspection Services are typically firms providing product manufacturers with QC services, although some firms offer jobsite services.

3.3.1.5 Southern Building Code Congress International, Public Safety Testing, and Evaluation Services, Inc. (SBCCI PST & ESI)

SBCCI PST & ESI conducts evaluations and issues reports on a variety of materials and services, including “Testing Laboratories” and “Quality Assurance and/or Inspection Agencies.” Inspection Services are typically firms providing product manufacturers with QC services, although some firms offer jobsite services.

3.3.1.6 National Evaluation Service (NES)

NES, operated jointly by BOCA and SBCCI, conducts evaluations and issues reports on a variety of materials and services, including “Testing Laboratories” and “Compliance Assurance and/or Inspection Agencies”. National Evaluation Reports are identified as NER-TL for a “Testing Laboratory”, and NER-QA for a “Compliance Assurance and/or Inspection Agency”. Inspection Services are typically firms providing product manufacturers with QC services, although some firms offer jobsite services.

3.3.1.7 American Welding Society (AWS)

The AWS offers an accreditation program for testing laboratories that wish to conduct AWS Certified Welder Program tests. AWS does not evaluate inspection services beyond the scope of welding personnel testing.

3.3.1.8 American Council of Independent Laboratories (ACIL)

ACIL is a membership organization of approximately 350 firms in various disciplines, operating approximately 1500 facilities. No accreditation program is currently offered.

3.3.2 Alternatives to Certification

The Owner and Owner’s representative may refer to the following ASTM standards for guidelines and assistance in evaluating inspection and testing agencies.

- ASTM E329 - *Standard Specification for Agencies Engaged in the Testing and/or Inspection of Material Used in Construction*
- ASTM E543 - *Standard Practice for Agencies Performing Nondestructive Testing*
- ASTM E548 - *Standard Guide for General Criteria Used for Evaluating Laboratory Competence*
- ASTM E994 - *Standard Guide for Laboratory Accreditation Systems*
- ASTM E1212 - *Standard Practice for Establishment and Maintenance of Quality Control Systems for Nondestructive Testing Agencies*
- ASTM E1359 - *Standard Guide for Surveying Nondestructive Testing Agencies*

Figure 3-1 is a checklist that may be used in the evaluation of Quality Assurance agencies.

3.4 Written Practice

3.4.1 Written Practice for Quality Assurance Agencies

The Quality Assurance Agency should maintain a Written Practice for the selection and administration of inspection personnel. The Agency's Written Practice should describe the training, experience and examination requirements for qualification and certification of inspection personnel.

The Written Practice should describe the Agency's procedures for determining the acceptability of the structure in accordance with the applicable codes, standards, specifications and procedures, including general inspection, material controls, visual welding inspection, and bolting inspection.

3.4.2 Written Practice for Nondestructive Testing Agencies

The NDT Agency should maintain a Written Practice for the control and administration of NDT personnel training, examination and certification. The Agency's Written Practice should describe the training, experience and examination requirements for each level of certification. The Agency's written practice should describe the responsibility of each level of certification for determining the acceptability of material and weldments in accordance with the applicable codes, standards, specifications and procedures.

Commentary - The NDT Agency's Written Practice should be based upon either of two documents: ASNT Recommended Practice No. SNT-TC-1A (1996), Personnel Qualification and Certification in Nondestructive Testing; or ANSI/ASNT CP-189-95, ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel.

3.5 Qualification of Inspection Personnel

Inspectors responsible for acceptance or rejection of material and workmanship shall be qualified to perform such inspection whether acting in a QC or QA role. The necessary level of expertise of the individual inspector depends upon the specific inspection role assigned and the complexity of the project. Inspectors are selected by the Agency responsible for the work, although the Engineer has the authority to verify the qualification of welding inspectors (*AWS D1.1* Section 6.1.4.5), and the Building Official has the right of approval of inspectors (*IBC* Section 1704.1).

The Inspector may use assistants who are formally designated, made aware of their assigned responsibility and the acceptance criteria, and work under the direct supervision and monitoring of a qualified Inspector.

General Welding Inspector qualifications are defined by *AWS D1.1* in Section 6.1.4. For nondestructive testing, *ANSI/ASNT CP-189* defines the education, skills, training, knowledge, and experience required for personnel to perform properly to a specified NDT Level. *ASNT SNT-TC-1A* defines the demonstrated skill, demonstrated knowledge, documented training, and documented experience required for personnel to perform properly the duties of a specific job.

AWS defines certification as the act of determining, verifying, and attesting in writing to the qualification of personnel in accordance with specified requirements. *ASNT* defines certification in *ANSI/ASNT CP-189* as written testimony that an individual has met the applicable requirements of the standard; *ASNT* defines certification in *ASNT SNT-TC-1A* as written testimony of qualification.

3.5.1 Special Inspector Qualification and Certification

The requirements for qualification of the Special Inspector must be established by the organization responsible for the Special Inspection, whether the Owner or the Owner's representative. The qualifications and selection of the Special Inspector must be approved by the Building Official, as a part of the issuance of the building permit (*IBC* Section 1704.1.1). The Special Inspector may be either an individual or a firm. If a firm, the individuals performing the Special Inspection function should meet the minimum qualifications to perform such work as established by the Quality Assurance Plan.

The Owner, the Owner's designated representative, or the Building Official may require the Special Inspector to maintain certification by an outside agency, such as International Conference of Building Officials/International Code Conference (ICBO/ICC), American Welding Society (AWS), or another independent accreditation agency.

3.5.1.1 ICBO Certified Special Inspector for Structural Steel and Welding

ICBO maintains a certification program for inspectors of steel-framed structures. This program consists of a test of an inspector's knowledge of the steel and special inspection related sections of the *Uniform Building Code*, *AISC Specification for Structural Steel Buildings*, *AISC Manual of Steel Construction*, *AWS D1.1, D1.3 and D1.4 Structural Welding Codes*, *AWS A2.4 Standard Symbols for Welding, Brazing and Nondestructive Testing*, and the inspector's ability to read and interpret structural steel erection drawings. No experience is required to take the test or to receive certification.

Commentary: Building Officials may elect to take certification exams relative to their respective model building code. Such exams cover the broad extent of the entire code, and may not deal with the specific provisions and inspection procedures or issues directly related to steel construction. Additional education and training relative to steel construction and inspection is generally needed.

3.5.2 Welding Inspector Qualification and Certification

Visual welding inspection personnel shall be qualified in accordance with *AWS D1.1*, Section 6.1.4. The basis of qualification should be specified in the Quality Assurance Plan. Acceptable qualification bases under *AWS D1.1* are:

- current or previous certification as an AWS Certified Welding Inspector (CWI) in accordance with the provisions of *AWS QC1, Standard for AWS Certification of Welding Inspectors*, or
- current or previous qualification by the Canadian Welding Bureau (CWB) to the requirements of the Canadian Standard Association (CSA) Standard W178.2, *Certification of Welding Inspectors*, or
- an engineer or technician who, by training or experience, or both, in metals fabrication, inspection and testing, is competent to perform inspection work.

The qualification of an inspector remains in effect indefinitely, provided the inspector remains active in the inspection of welded steel fabrication, or unless there is a specific reason to question the inspector's ability.

Although AWS *DI.1* allows inspector qualification without the CWI certification, it is recommended that the welding inspection personnel for critical welding be AWS QC1 certified (or previously certified) by experience and written examination.

All Welding Inspectors must have adequate visual acuity, documented by vision testing performed within the past three years. See AWS *DI.1*, Section 6.1.4.4.

Commentary: The American Welding Society offers certification to welding inspectors in the form of Certified Welding Inspectors, Certified Associate Welding Inspectors, and Certified Senior Welding Inspectors. ANSI/AWS QC-1-96, Standard for AWS Certification of Welding Inspectors, governs the requirements and testing of such inspectors, including experience level. The CWI examination tests the inspector's knowledge of welding processes, welding procedures, welder qualification, destructive testing, nondestructive testing, terms, definitions, symbols, reports, records, safety and responsibilities. Although assumed to be competent to inspect welded construction, the AWS Certified Welding Inspector may not have the background or expertise in other areas of steel construction such as general fabrication and erection, bolted connections, steel bar joists, and metal decks, and additional education and training relative to these areas may be needed to perform inspections of those elements.

It should also be verified that the AWS Certified Welding Inspector is familiar with the AWS DI.1 Structural Welding Code. It is permitted to take the AWS examinations using AWS DI.1, American Petroleum Institute (API) 1104 Welding of Pipelines and Related Facilities, or American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, and the required welding inspection experience may be in any area of welding.

AWS DI.1 does not recognize the AWS Certified Associate Welding Inspector (CAWI) as qualified to perform the work solely based upon this certification. Typically, a CAWI has passed the same accreditation examination as the CWI, but has less experience, with two years minimum experience rather than five years, in the field of welding inspection. A CAWI may also have the required experience, but may not have achieved the test score required for CWI status, but adequate for CAWI status. A CAWI could be considered qualified under the third condition listed above. The Senior Certified Welding Inspector is a relatively new program offered by the AWS, and this recent certification option has not been specifically included in the DI.1 code. A SCWI should at present be considered the equivalent of a CWI.

3.5.3 NDT Personnel Qualification and Certification

Certification of all levels of NDT personnel is the responsibility of the employer of the NDT technician. The certification of NDT personnel should be administered by an ASNT NDT Level III in the specific area of NDT.

Commentary: The term “ASNT NDT Level III” identifies individuals who have taken and passed a specific examination administered by ASNT. It is also possible to be “self-certified” as an NDT Level III under the SNT-TC-1A Recommended Practice. Such individuals are not permitted to use the acronym “ASNT” prior to “NDT Level III”.

Nondestructive testing personnel should be qualified under the American Society for Nondestructive Testing, *ANSI/ASNT CP-189, ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel*, or *ASNT Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing*.

Certification of NDT personnel should be based on demonstration of satisfactory qualification in accordance with Sections 4, 5 and 6 of *ANSI/ASNT CP-189*, as modified by the employer's Written Practice, or in accordance with Sections 6, 7 and 8 of *ASNT SNT-TC-1A*. Personnel certifications must be maintained on file by the employer and a copy should be carried by the technician.

Employers may rely upon outside training and testing for NDT personnel for certification, however, the employer should supplement such certification testing with a review of the technician's experience and skill levels. As an example, the technician may have successfully passed the NDT Level II examination for that NDT process as administered by either the AWS or ASNT.

3.5.3.1 NDT Level Requirements

AWS D1.1, Section 6.14.6 requires that nondestructive testing be performed by NDT Level II technicians, or by NDT Level I technicians only when working under the direct supervision of an NDT Level II technician.

Commentary: Inspection by an NDT Level III technician is not recognized, as the NDT Level III may not perform actual testing regularly enough to maintain the special skills required to set up or to conduct the tests. AWS D1.5-96 requires similar qualification, except in the case of Fracture Critical Members. Under AWS D1.5 Section 12.16.1.2, testing of fracture critical members must be done by either a qualified NDT Level II under the supervision of a qualified NDT Level III, or by an ASNT NDT Level III (certified by ASNT examination), unless the Engineer accepts other forms of qualification.

3.5.3.2 Levels of NDT Qualification

ASNT identifies four qualification levels, as defined in *ANSI/ASNT CP-189*:

3.5.3.2.1 Trainee

A person who is not yet certified to any level. Trainees must work with a certified person, under the direction of an NDT Level II or NDT Level III, and should not independently conduct any tests or write a report of test results.

3.5.3.2.2 NDT Level I

An NDT Level I individual should have the skills to properly perform specific calibrations, specific NDT, and with prior written approval of the NDT Level III, perform specific interpretations and evaluations for acceptance or rejection and document the results. The NDT Level I should be able to follow approved nondestructive testing procedures and should receive the necessary guidance or supervision from a certified NDT Level II or NDT Level III individual.

3.5.3.2.3 NDT Level II

An NDT Level II individual should have the skills and knowledge to set up and calibrate equipment, to conduct tests, and to interpret, evaluate, and document results in accordance with procedures approved by an NDT Level III. The Level II should be thoroughly familiar with the scope and limitations of the method to which certified and should be capable of directing the work of trainees and NDT Level I personnel. The NDT Level II should be able to organize and report nondestructive test results.

Commentary: The NDT Level II technician may have taken written and practical tests as administered directly by either the ASNT or the AWS. Such independent testing of the NDT Level II technician is not required of a Level II.

3.5.3.2.4 NDT Level III

An NDT Level III individual should have the skills and knowledge: to establish techniques; to interpret codes, standards, and specifications; to designate the particular technique to be used; and to verify the accuracy of procedures. The individual should also have general familiarity with the other NDT methods. The NDT Level III should be capable of conducting or directing the training and examining of NDT personnel in the methods for which the NDT Level III is qualified.

Commentary: Additional provisions from SNT-TC-1A include: The NDT Level III should be responsible for the NDT operations for which qualified and assigned and should be capable of interpreting and evaluating results in terms of existing codes, standards, and specifications. The NDT Level III should have sufficient practical background in applicable material, fabrication, and product technology to establish techniques and to assist in establishing acceptance criteria when none are otherwise available.

The NDT Level III technician may have taken written and practical tests administered directly by either the ASNT or the AWS. Such independent testing of the NDT Level III technician is not required for an NDT Level III under SNT-TC-1A. Such independent testing of NDT Level III technicians is highly recommended. It is required under CP-189.

3.5.3.3 Recertification of NDT Personnel

Under *ANSI/ASNT CP-189*, NDT Level I and II personnel must be recertified by written and practical examination in accordance with Section 6. Individual certifications expire at the end of three years. NDT Level III personnel must be recertified by the employer every five years by verifying that the individual's ASNT NDT Level III certificate is current in each method for which recertification is sought. Should the ASNT NDT Level III certificate expire prior to the five years, the individual must retest for that certificate.

Under *ASNT SNT-TC-1A*, all levels of NDT personnel should be recertified periodically, with evidence of continuing satisfactory performance, or by re-examination in those portions of the examinations in Section 8 deemed necessary by the employer's NDT Level III. The maximum recommended recertification intervals are three years for Levels I and II, and five years for Level III.

The employer's Written Practice should include rules covering the duration of an interruption to service that triggers re-examination and recertification.

3.5.3.4 Suspension of Certification

The employer should suspend an individual's certification if:

- the vision examination interval exceeds one year, with certification reinstated concurrently with passing the vision examination, or
- the individual has not performed the duties in the methods for which certified during the previous twelve months, or
- the individual's performance is determined to be deficient in the method or technique for specific documented reasons, or
- for ASNT NDT Level III personnel, when the ASNT Level III certificate has not been renewed.

3.5.3.5 Revocation of Certification

The employer should revoke an individual's certification when:

- the individual has not performed the duties in the methods for which certified within the past 24 months, or
- for NDT Level III personnel, the ASNT NDT Level III certificate has been revoked, or

- an individual's conduct is deemed by the employer to be, or to have been, unethical or incompetent.

3.6 Inspection Tasks – General

The Quality Assurance Plan should clearly define the roles and responsibilities of Quality Control inspectors, Quality Assurance inspectors, and the other individuals involved in the QA function.

Commentary: The definitions of these roles can directly affect the project structure and associated budgets. To alleviate this dilemma, the Owner must tightly specify the requirements for both the QC and QA programs.

Depending upon the structure of the QC and QA functions for the particular project, the role of the visual inspector may vary considerably. Ideally, the QC Inspector is an employee of the Contractor and answers to a department head who is not connected with production. If this is not the case, an inherent conflict of interest may be present.

The level of involvement required of the QA Agency is highly dependent upon the requirements for the Contractor's QC program. If the Contractor's QC Plan is well organized, has competent inspection and testing personnel, and will be truly independent of production, the outside QA function can be designated to operate as an overseer where random spot inspection and testing will be sufficient. In the opposite case, where the QC department is permitted to be less competent or is managed by production, more thorough QA may be appropriate. In any case, QA must meet the minimum requirements of the building code.

3.7 Special Inspector Tasks

3.7.1 Quality Assurance Plan

The specific tasks of the Special Inspector should be defined in the Quality Assurance Plan and Contract Documents. The Special Inspector may be assigned all QA responsibilities, or may be assigned the task of supervising or monitoring QA performed by specific Welding Inspectors, NDT technicians or other Inspectors. Special Inspection may also include monitoring QC inspection performed by the Contractor.

Commentary: See IBC Section 1704 for specific tasks assigned to the Special Inspector.

3.7.2 Material

The Special Inspector should ascertain that all materials comply with the Contract Documents, by mill and product certifications, by testing, or by both.

3.7.3 Contractor's QC Program

The Special Inspector may be assigned the task of evaluating the Contractor's QC program and its effectiveness. If so assigned, the Special Inspector should verify that the fabricator is properly implementing the fabrication and Quality Control procedures outlined.

Requirements for Special Inspection of the fabricator's Quality Control Program are waived when the fabricator maintains an agreement with an approved independent inspection or quality control agency to conduct periodic in-plant inspections at the fabricator's plant, at a frequency that will ensure the fabricator's conformance to the requirements of the inspection agency's approved Quality Control program.

3.7.4 Inspector Qualifications

The Special Inspector should verify the qualifications of the QC and QA Inspectors and the NDT technicians.

3.7.5 Steel Frame

The Special Inspector should inspect the steel frame to verify compliance with the details shown on the approved construction documents, such as bracing, stiffening, and member locations, and the joint details at each connection.

3.7.6 Welding and Bolting

The Special Inspector should verify that all fabrication and erection, including welding and bolting, is performed in accordance with the Contract Documents.

3.7.7 Records

All individuals performing Special Inspection, regardless of classification, should keep written records of the inspections performed. Copies of these records should be distributed to the parties designated in the Quality Assurance Plan. Documents reporting nonconformance should be distributed to the Owner, Engineer, Contractor and Building Official as specified in the Plan. Records documenting correction of nonconformance should be distributed to the same parties as those receiving reports of nonconformance.

3.7.8 Reports

Upon completion of the Special Inspector's tasks, the Special Inspector shall issue a written report stating that all work inspected under the Inspector's charge is in accordance with the approved Construction Documents and meets the applicable codes and specifications, and that instances of nonconformance have been corrected to the satisfaction of the Engineer or other persons in responsible charge.

Quality Assurance Agency Evaluation Checklist

Note: This list is adapted from ISO/IEC Guide 25-1990, "General Requirements for the Competence of Calibration and Testing Laboratories," and ASTM E1359, "Standard Guide for Surveying Nondestructive Testing Agencies."

Organization and Management

1. Does the Agency have managerial staff with the authority and resources needed to discharge their duties?
2. Does the Agency have arrangements to ensure that its personnel are free from any commercial, financial and other pressures that might adversely affect the quality of their work?
3. Is the Agency organized in such a way that confidence in its independence of judgement and integrity is maintained at all times?
4. Does the Agency specify and document the responsibility, authority, and interrelation of all personnel who manage, perform or verify work affecting the quality of inspections and tests?
5. Does the agency provide supervision by persons familiar with the inspection disciplines in which it employs inspectors?
6. Does the Agency provide supervision by persons familiar with the test methods and procedures, the objectives of the testing and the assessment of the results?
7. Does the Agency have a technical manager who has overall responsibility for the technical operations?
8. Does the Agency have a quality manager who has responsibility for the quality system and its implementation?
9. Is the quality system reviewed at least once a year by the management to ensure its continuing suitability and effectiveness?
10. When the Agency procures outside services and supplies, does the Agency use only those outside support services and supplies that are of adequate quality?

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Figure 3-1 Quality Assurance Agency Evaluation Checklist

Quality Assurance Agency Evaluation Checklist

Quality Control Manual

1. Does the Agency maintain a Quality Control Manual containing, as a minimum, the following:
 - a. a quality policy statement, including objectives and commitments, by top management,
 - b. the organization and management structure of the Agency,
 - c. the relationship between management, technical operations, support services and the quality system,
 - d. procedures for control and maintenance of documentation,
 - e. job descriptions of key staff and reference to the job descriptions of other staff,
 - f. identification of the Agency's approved signatories,
 - g. the Agency scope of laboratory and field tests,
 - h. the Agency's scope of inspection services,
 - i. arrangements for ensuring that the Agency reviews all new work to ensure that the Agency has the appropriate facilities and resources before commencing such work,
 - j. reference to the test procedures used,
 - k. reference to procedures for calibration, verification and maintenance of equipment,
 - l. list of codes and standards maintained for reference by the Agency, and
 - m. procedures for audit and review?

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Figure 3-1 Quality Assurance Agency Evaluation Checklist (continued)

Quality Assurance Agency Evaluation Checklist

Personnel

1. Does the Agency have sufficient personnel, with the necessary education, training, technical knowledge and experience for their assigned functions?
2. Are records on the relevant qualifications, training, skills and experience of the technical personnel maintained by the laboratory?
3. Is there a written practice for personnel certification?
4. Is there a training program described in the Agency's written practice?
5. Are all personnel certified by examination for all levels of certification in each discipline for which they perform inspection or testing?
6. Are eye examinations required for all inspection and NDT personnel?
7. Are all personnel certifications available for review?
8. Are the minimum American Society for Nondestructive Testing recommendations of ASNT-TC-1A met for all NDT personnel for:
 - a. training hours,
 - b. experience, and
 - c. test questions?
9. Are outside agencies used to train and examine NDT personnel?

Facilities and Equipment

1. Are the facilities, equipment, instructions, and specifications adequate for the type of work to be performed?
2. Are adequate procedures in effect to control the maintenance, calibration, and use of equipment including applicable tools, gages, and other instrumentation?
3. Is equipment (tools, gages, and other instruments) identified to reflect:
 - a. date last calibrated,
 - b. date of next calibration, and
 - c. identification or serial number?

Figure 3-1 Quality Assurance Agency Evaluation Checklist (continued)

Quality Assurance Agency Evaluation Checklist

Project Administration

1. Are contract requirements reviewed to ensure NDT specification compliance with applicable codes, standards and NDT specifications?
2. Are NDT specification or contract requirements passed on to NDT Level I and II personnel by written procedures and instructions approved by an NDT Level III?
3. Are inspection and test results documented and reported as required?
4. Does the Agency have a documented system for uniquely identifying the work to be tested?
5. Are the results of each test, or series of tests, reported accurately, clearly, unambiguously and objectively?
6. Does the Agency have experience with work of similar size and complexity?
7. Does the Agency have sufficient staff with relevant experience and qualifications to meet the needs of the project?
8. Does the Agency have the ability to provide inspection services at offsite fabrication facilities?

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Figure 3-1 Quality Assurance Agency Evaluation Checklist (continued)