INSPECTION PROCEDURE 35061

IN-DEPTH QA INSPECTION OF PERFORMANCE

PROGRAM APPLICABILITY: 2512

35061-01 INSPECTION OBJECTIVES

To determine whether:

01.01 Site work is being performed in accordance with NRC requirements, SAR commitments and implementing procedures.

01.02 The QA/QC program is functioning in a manner to ensure that requirements and commitments are being met.

01.03 Prompt and effective action is taken to achieve permanent corrective action on significant discrepancies.

Inspection Schedule

May Be Started	Must Be Started	Must Be Completed
.....	Annually	Annually

35061-02 INSPECTION REQUIREMENTS

02.01 Annually, select a safety-related element of the installation relating to two or more of the following general construction activities under way: (1) civil, (2) structural, (3) piping, and (4) electrical/instrumentation. Perform the inspection requirements listed below for the item/activity selected.

a. Field Drawings and Work Procedures

1. For the specific activities and item selected, determine whether the most recent revisions of field drawings, construction specifications, and work procedures are in agreement with the SAR. Compare with system drawings, also, where appropriate.

2. Where the above documents are not in agreement with SAR, determine whether a design change has been properly provided, reviewed, approved, and processed. If such changes have not received final approval, determine whether appropriate controls are in effect.

3. Determine whether work procedures adequately describe critical points and methods of installation as well as inspection and test hold points, to properly reflect design intent.

b. Field Inspection

1. In the activities inspected in Item a above:

(a) Determine whether the equipment (including bolts, nuts, and other fasteners of proper type, size, and material with required identification markings) or system is installed/erected as described by field drawings and construction specifications. Detailed inspection is required and the NRC inspector shall make physical measurements where appropriate and further clarified in the guidance section of this procedure.

(b) Where potential discrepancies are suspected, the NRC inspector shall ask the licensee to make measurements or nondestructive examination to verify compliance. He may arrange, through his supervisor, for independent measurements by others should he feel this necessary in order to verify compliance with specifications.

(c) Where equipment or systems are installed different from the SAR or latest approved field drawings or specifications, determine whether such changes were properly approved and controlled and whether appropriate procedures were followed.

2. Talk with craftsmen and foremen associated with the activities being inspected and determine whether their level of knowledge is adequate to provide the required quality of workmanship. If their knowledge of the work and related procedures appears inadequate, perform the following:

(a) Determine licensee/contractor qualification requirements.

(b) Examine appropriate training and testing records.

(c) If inadequacies are identified, discuss with licensee management.

(d) If craftsmen or foremen are not sufficiently trained or are otherwise incompetent to perform the work properly and the licensee response is inadequate and continued work in this area will adversely affect operational safety, then the inspector shall call his supervisor and discuss the need to stop work.

c. Field Engineer/Engineering Reports

1. For the system or components being inspected, select several contractor and licensee engineer inspection reports for review. The intent here is to determine the impact field engineer inspections have on assuring that work control and the quality of the item are adequate.

2. For the activity or item being inspected, review selected reports of deficiencies that were submitted by field engineers and verify whether nonconformances received proper attention according to procedures. Inspect to verify that proper corrective action has been taken in a timely manner or has been adequately controlled, so that it will be carried out properly.

3. Discuss nonconformances with the individual field engineers involved to determine whether they believe the action taken adequately satisfied their concerns, whether their findings receive adequate attention, and the effect their inspections have in assuring adequate work control.

d. Quality Control

1. QC Inspection Reports

(a) Select QC inspection/surveillance reports pertaining to the same activity or item inspected by a field engineer. (Refer to Item c above.) Determine the adequacy and independence of QC inspection/surveillance activities relative to those conducted by field engineers.

(b) For the area or system being inspected, review selected reports of deficiencies submitted by QC inspectors and determine whether they received proper corrective action.

(c) Determine whether the above QC reports (Items (a) and (b), above) reflect that work and work control are adequate.

(d) Determine if QC inspection/surveillance (monitoring) provides adequate overview coverage of the area(s) being examined.

2. QC Procedures

(a) Review selected QC procedures for the area or activity being inspected. Determine whether procedures, including frequency and timing of inspections, are adequate to properly control the work.

(b) Determine whether inspection procedures and reference documents are adequately detailed to instruct the QC inspector on exactly what he should be looking for (especially acceptance criteria) when making inspections or observing tests.

3. Quality Control Inspectors

(a) Determine the number of QC inspectors provided for coverage of the work, and determine whether the number is adequate for the specified amount of inspection/surveillance.

(b) Discuss inspection/surveillance procedures with QC inspectors selected at random. Have the inspectors describe and demonstrate how they carry out procedural requirements. Where the QC inspector's function requires qualification according to codes, determine whether he has the necessary qualifications to properly inspect the level of work being performed.

(c) Hold discussions with individual QC inspectors privately, either formally or informally, and determine whether they feel their findings receive proper attention according to site and other procedures. Determine their opinion of management's commitments to quality.

e. Nonconforming Items Reports (NCRs)

1. Review selected reports of construction discrepancies for the work being inspected. (The intent here is for a thorough examination of licensee/contractor corrective action.) Corrective action on selected items shall be examined in depth to verify that (a) the action taken corrected the items, (b) the cause of the deficiency was determined, (c) reportability to the NRC was considered, and (d) proper corrective action was instituted to prevent recurrence in the affected and similar areas.

2. Examine the hardware where corrective action was taken and determine whether the repair met requirements.

3. Determine whether the licensee/contractor has an adequate program to detect trends in discrepancies (CDRs and NCRs) and whether the licensee reacts promptly to poor performance to determine the root cause. Determine whether licensee involvement in NCR and CDR followup is adequate.

f. Materials and Equipment

1. Examine selected reports of inspections made by the licensee/contractor of materials (including bolts, nuts and other fasteners) used in the work in progress. Determine if meaningful inspections were made to verify that material (including required identification markings) meets specifications and to what degree the licensee/contractor has inspected or verified performance by the vendor.

2. Verify, on a sampling basis, by physical examination of a purchased item and review of pertinent documents whether the item meets design and purchase order requirements. Determine whether documentation is adequate, based on individual certification or on certificates of conformance properly qualified according to 10 CFR 50 Appendix B, to assure that the item meets design intent.

3. Determine how the licensee is verifying the validity of the certificate of conformance.

g. Audits

1. Have the licensee identify audits and reports to the inspector which will demonstrate that the licensee has conducted audits to verify the effectiveness of the QA/QC program relative to the activity being inspected. From these reports, determine whether licensee audit results indicate that:

   (a) Drawings are in agreement with SAR.

   (b) Installation has been performed according to drawings and specifications.

   (c) Craftsmen are qualified and competent to perform the work they are doing.

   (d) Field engineers' reports are technically accurate.

   (e) QC procedures and inspectors meet requirements.

   (f) CDRs and NCRs are accurate.

   (g) Materials and equipment meet specifications.

2. Examine reports of QA audits by the licensee and by the contractor for the system being inspected. Determine if these audits are meaningful, effective, and reflect quality performance.

3. Examine corrective action taken as a result of audit findings to determine if it is complete and timely.

4. Examine licensee audit reports to determine if there is an effective effort to identify weaknesses in the contractor's QA/QC program and if there is evidence of strong, meaningful corporate corrective action when contractor deficiencies are found.

5. Compare licensee audit findings to the inspector's findings and determine reasons for inconsistency between findings, if inconsistency exists.

02.02 Annually determine if the licensee has implemented procedures and satisfies requirements of 10 CFR Part 21 in the following areas:

a. posting of requisite documents
b. procedures in effect

c. records monitoring

d. management processing of notifications

35061-03 INSPECTION GUIDANCE

General Guidance

a. The intent of this procedure is to determine whether the licensee's system is effectively implemented to ensure a quality product; therefore, it cannot be performed until work on the particular system (e.g., soil compaction, base mat, pipe restraints, pipe welding) is well under way. That the licensee has a system should have been determined prior to start of work. This inspection is to determine that the system is working. Therefore, the result, rather than the method of control, is the guideline.

b. Preplanning is necessary to ensure adequate coverage of the various construction areas. Since the inspection requirements of this IP are required to be conducted annually, scheduling should be such that each major area (civil, structural/mechanical, piping, and electrical/instrumentation) is covered at least once. Where construction progress is relatively slow, it may be appropriate to schedule this IP so that each major area is covered twice during the construction phase.

c. Particular attention should be given to the traceability of material and equipment to prevent the use of incorrect or defective materials, parts and components. The inspector should review 10 CFR 50, Appendix B, Criterion VIII, Identification and Control of Materials, Parts and Components, and applicable codes and specifications. The inspector should verify that measures have been established by the licensee for identification and control of materials, parts, and components, and for traceability to the approved design basis and to the source. The inspector should assure that required identification of the item is maintained by heat number, part number, serial number or other appropriate means, either on the item or on

records traceable to the item as required, and that required markings are on the item.

The inspector should note markings on material and equipment and verify that the markings represent material and equipment as specified by the design drawings and specifications. In the case of fasteners, compliance with the applicable material specification (e.g., ASTM or ASME material and grade) should be verified by required markings on bolts and nuts and certified material test reports or certificates of conformance as required by the applicable procurement drawings and specifications and/or by the applicable codes and specifications. In the case of vendor-supplied equipment assemblies containing fasteners, samples should be inspected to verify compliance with approved vendor drawings and specifications and other information such as materials used for equipment qualification tests and/or analyses. Caution should be exercised to ensure that the required markings on material and equipment, including fasteners, not only exist but that the markings indicate the correct material and grade as specified.

d. Where sample size, in Section 02 of this IP, is not specific, the inspector should select a sample size that provides meaningful results. If problem areas are identified, increased sample size may be necessary to determine acceptability.

03.01 Specific Guidance

a. Inspection Requirement 02.01b.1. Currently, the inspector's authority to require a licensee to repeat a nondestructive examination (NDE) is somewhat limited unless he has cause for concern. Therefore, for the present, requests should be limited to minor NDE (MT, PT) torquing, measurements, etc., unless he can show reason to doubt validity of tests. Should he have difficulty in getting licensee agreement on any test he should contact his supervisor.

It is anticipated that independent verification through required repeat tests witnessed by the inspector, through performance by inspectors, or through performance by NRC contractors, will be considerably expanded in the near future.

Until such time, however, the inspector should not accept any condition which he finds suspect, but should call his supervisor if satisfactory arrangements for retest cannot be made with the licensee.

b. Inspection Requirement 02.01b.2. This part of the inspection is based on 10 CFR 50, Appendix B, Criterion II, which applies directly to those who perform the work. Poor workmanship findings should be cited against Criterion II.

For any job where a substantial amount of work has been performed, the fact that the licensee final QC acceptance inspection has not been made will not be accepted as justification for repeated examples of improper workmanship.

c. Inspection Requirement 02.01b2(c). Concerning the adequacy of work control, the inspector must make this judgment based on his own experience and shall not be satisfied with inadequate performance simply because it satisfies the licensee or contractor requirements.

There may be no specific requirements in the licensee's program concerning engineers' reports of inspection or field activities; however, engineers' findings should be on a higher professional level and should be examined.

The NRC inspector should be alert to determine that the handling of a QC inspector's negative findings is not degraded by an engineer's findings in the same area.

Although the engineer's inspection may not be required by Appendix B, nonconformances identified in this manner must be controlled or discussed in the QA program.

d. Inspection Requirement 02.01d2. The QC procedure and inspector's review is not intended to examine organization, QC training records, etc. The intent is to determine whether there is an adequate number of competent people to do the job, that the job is being done well, and that management responds correctly to negative findings by the inspectors.

e. Inspection Requirement 02.01e1. It is the NRC intent that if proper corrective action is not being taken to thoroughly repair poor workmanship and to take adequate corrective action to prevent recurrence, the work not be allowed to continue. Although the NRC inspector does not have authority to stop work on a construction site, he may get work to stop in discussions with licensee management. Also, if he finds work proceeding in a manner he believes to be irresponsible, he should discuss the matter with his own supervisor immediately.

f. Inspection Requirement 02.01f. If certificates of conformance are used on equipment selected for inspections, there must be sufficient documentation at the site to meet the requirements of 10 CFR 50, Appendix B, Criterion VII.

g. Inspection Requirement 02.01g4. A very important part of this inspection is to determine whether strong corrective action is taken to correct program weaknesses that permit problems to happen and, more important, to allow similar problems to recur. It may be necessary to continue this inspection at licensee and contractor corporate offices in order to determine whether positive action is being taken to detect and correct weaknesses.

h. Inspection Requirement 02.02. The completion of IP 36100, 10 CFR Part 21 Inspection, must be performed at the time of initial construction activities. The annual review is a limited inspection review to determine that the requirements are being implemented.

35061-04 REFERENCES

04.01 General

10 CFR 50, Appendix A - General Design Criteria for Nuclear Power Plants

10 CFR 50, Appendix B - Quality Assurance for Nuclear Power Plants

Facility SAR

04.02 NRC Regulatory Guides

Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)" (ANSI N45.2)

Regulatory Guide 1.29, "Seismic Design Classification"

Regulatory Guide 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment" (ANSI N45.2.4/IEEE 336)

Regulatory Guide 1.38, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants" (ANSI N45.2.2)

Regulatory Guide 1.39, "Housekeeping Requirements for Water-Cooled Nuclear Power Plants" (ANSI N45.2.3)

Regulatory Guide 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel" (ANSI N45.2.6)

Regulatory Guide 1.88, "Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records" (ANSI N45.2.9)

Regulatory Guide 1.89, "Qualifications of Class 1E Equipment for Nuclear Power Plants" (IEEE 323)

Regulatory Guide 1.123, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (ANSI N45.2.13)

Regulatory Guide 1.144, "Auditing of Quality Assurance Programs for Nuclear Power Plants"

Regulatory Guide 1.146, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (ANSI N45.2.23)

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