

# NRC INSPECTION MANUAL

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## INSPECTION PROCEDURE 92050

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### REVIEW OF QUALITY ASSURANCE FOR EXTENDED CONSTRUCTION DELAY

PROGRAM APPLICABILITY: 2515

#### 92050-01 INSPECTION OBJECTIVES

This section is used to determine whether:

- a. Quality assurance policies, plans, instructions, and procedures for extended construction delay activities have been established.
- b. Extended construction delay activities are being accomplished in accordance with NRC requirements and licensee commitments.
- c. Quality records reflect work accomplishment consistent with NRC requirements and licensee commitments.
- d. Licensee has an adequate work force with facilities available to support limited activity.

#### Inspection Schedule

<u>Inspection</u>	<u>May Be Started</u>	<u>Must Be Started</u>	<u>Must Be</u>
Initial	- - - - -	Upon notification of	- - - - - -
Subsequent	- - - - -	Every 6 months	- - - - -

#### 92050-02 INSPECTION REQUIREMENTS

02.01 Quality Assurance Procedures. For each organization with QA (including QC) responsibilities relative to a facility's extended construction delay activities, determine whether quality assurance policies, plans, instructions, and procedures have been established and determine adequacy of QA plan developed for these activities in the following areas:

- a. Organizational Structure and QA Personnel

1. Organizational structure and functional relationships.

2. Qualifications, responsibilities, and duties of QA personnel.
3. Indoctrination/training program for QA personnel.
4. Assignment of remedial action authority.

b. Audits/Surveillances

1. Audit procedures and/or checklists.
2. Scope and purpose of audits to be performed.
3. Frequency (or schedule) of audits, audit criteria, basis for re-audit, management review and assessment, corrective action, documentation of results of audits, management review, and followup of corrective action.
4. Surveillance (monitoring) of activities.

c. Identification and Status of Material, Components, and Structures

1. Identification and disposition of material, components and structures covered by the facility's QA program for standby status during construction, both on-site and off-site.
2. Control and review of deviations from previously established requirements, including design and field changes.
3. Status of tests and inspection performed when construction was suspended.
4. A current list has been developed to identify the location, storage level, and preventive maintenance requirements of all safety-related equipment and materials.

d. Work and Inspection Procedures

1. Procedures are established and approved before use, including special layup procedures, both on-site and off-site.
2. Procedures are complete and controlled, and those performing QA and QC inspection activities have available to them the most recent approved version of the procedures.
3. Work and inspection activities are performed by qualified personnel using approved procedures.

e. Corrective Action

1. Procedures established for identification and correction of conditions adverse to quality.

2. Procedures established to preclude repetition of activities adverse to quality.

f. Document Control

1. Appropriate identification/listing and control of the aggregate collection of QA (including QC) instructions and procedures for use during the extended construction delay.
2. Procedures established to ensure only current procedures are available for use.
3. Control and retention of quality-related records, especially those generated by contractors and consultants during extended construction delay.

g. Access Control

1. Construction site security procedures are being followed.
2. Control of materials and equipment to prevent unauthorized use or alteration.

02.02 Observation of Work. Select four representative safety-related items that are stored/retained at the site and if applicable, an appropriate sample at off-site locations. Observe work in progress and or complete work, and determine whether applicable requirements and activities, as delineated by work and inspection procedures, are being or have been met in the following areas:

a. Availability, Use, and Control of Procedures

1. Readily available to personnel doing the work.
2. Current approved issue being used.
3. Procedural requirements being followed.
4. Control and distribution of revisions.

b. Protection and Preservation (Where Applicable)

1. Protective coverings and coatings.
2. Internal preservation.
3. Dunnage and other supports.
4. Cleanliness preservation.
5. Weather protection - especially for partially completed concrete structures.
6. Fire protection.

7. Record generation.
8. Rodent protection.
9. Control of ground water.
10. Preventive maintenance requirements established for safety-related activities.

c. Nonconforming Activities and Conditions

1. Record generation and control - as specified.
2. Corrective action - timely and appropriate.

d. Utilization of Inspection Personnel

1. Number and qualifications - commensurate with type and extent of work activities.
2. Performance of assigned duties and responsibilities.

e. Use of Measuring and Test Equipment (Where Applicable)

1. Specified equipment used.
2. Equipment checked and calibrated as specified.

f. QA Audits/Surveillances

1. Scope as specified.
2. Frequency as specified.

g. Site Access Control (to Safety-Related Components)

1. Procedures being followed.
2. Personnel coverage as specified.
3. Protection against unauthorized intrusion.

02.03 Review of Quality Records. Select four representative safety-related items that are stored/retained at the site and have been packaged, protected, and/or preserved for the extended construction delay. Review the pertinent quality-related work and inspection records and determine whether these records are in conformance with established procedures and whether these records reflect work accomplishment consistent with applicable requirements in the following areas:

a. Work Performance Records

1. Type and extent of protection/preservation as specified (initial).
2. Maintenance of specified requirements (continuing).

b. Inspection (QC) Records

1. Inspection/surveillance records current, including other than site locations.
2. Frequency of inspections as specified.
3. Qualifications of inspection/examination personnel.

c. Deficiency/Nonconformance Records

1. Nonconformances adequately identified/described.
2. Records legible, complete, controlled, and readily retrievable.
3. Status of all outstanding nonconformances is provided at the time the delay is announced and the report placed in document control.
4. Corrective action taken in timely manner.

d. Access Control Records

1. Safety-related site access records maintained as specified.
2. Records reviewed by appropriate management personnel.

e. Audit/Surveillance Records

1. Audits/surveillance made to the extent specified and at the frequency specified.
2. Audit/surveillance records maintained and reviewed/approved.

f. Identification and Status Records

1. The list of all safety-related materials, components, and structures, and their disposition is current and controlled.
2. The status of tests and inspection performed when construction was suspended is documented, and these records are controlled.
3. Verify that records are maintained in an adequate document control center with access control. Ensure that a current list of names and corresponding signatures, initials, inspector stamp numbers, craft certification letters, etc., is provided of all personnel having QA record verification responsibility.

## General Guidance

It is the responsibility of the licensee to develop a description of the facility's QA plan for extended construction delay activities to be executed during the period that the facility is in standby status during construction. The determination of the adequacy of this QA plan is generally the responsibility of the regions. If the description of this QA plan is considered to be deficient by the regional inspector during review of the implementing procedures, this matter should be referred to NRR/IQMB for resolution.

The intent is to determine whether the licensee has established (written, reviewed, and approved) adequate implementing plans, instructions and procedures in a timely manner which are in conformance with the established QA plan for this activity. (These documents may be developed by the licensee or development may be delegated to others.) These plans should include provisions to take additional measures if the duration of the construction delay exceeds the time previously established. (Different preservation requirements may be necessary if storage time is significantly increased.) Moreover, special plans/measures would be required if a partial shutdown of construction activities were scheduled.

Quality requirements imposed on the licensee by NRC related to activities important to safety are defined in 10 CFR 50. Specific QA requirements committed to by the licensee are included in the facility's QA plan for facilities in standby status during construction. This QA plan should be reviewed to determine licensee commitments before reviewing the implementing procedures. The implementing procedures should provide assurance that the quality of materials, components and structures (including partially completed structures), both on-site and off-site, will be maintained during the period of construction suspension. An accurate (as-built) record of construction status when work was suspended should be available to provide continuity when construction is resumed.

It is especially important that partially completed structures and installed components receive adequate attention with respect to preservation since it may be difficult to determine the extent of degradation, e.g., the effect of weathering on completed or partially completed foundation structures.

The QA program and implementing procedures for facilities on standby status during construction is not expected to be greatly different from the QA program for construction. Moreover, much of the QA program established for extended construction delay activities is expected to be similar to corresponding activities during construction, e.g., storage, protection, preservation, testing, inspecting, corrective action, documentation and auditing. Special, additional surveillance procedures, however, would be expected.

The magnitude of regional inspection at any particular site, relative to extended construction delay activities, will vary depending upon such factors as: (1) scope of construction activities in progress when construction was suspended, (2) the amount and type of material and components received at the site but

not yet used or installed, (3) site environmental conditions (e.g., temperature extremes and closeness to salt water) and (4) the amount and types of materials and components stored in environmentally controlled buildings (at the site or offsite). Obviously, facilities where construction was less than 5% complete when construction was suspended will require a different scope and frequency of inspection from a facility where over half the construction has been completed. In similar manner, the scope and frequency of continuing inspections will depend also on the above factors. In the case where construction was less than 5% complete when construction was suspended, one or two inspections per year may be sufficient, whereas, if construction were over half completed, inspections as frequent as quarterly may be required.

Provisions to ensure the following merit special attention:

- a. Adequacy of dunnage for materials and components during storage. (Dunnage should be sufficient to avoid contact with ground surfaces.)
- b. Maintenance of weather protection (if required) in the form of canvas or plastic covering. (In most deficient cases, the original protective covering was adequate, but inattention to damage and normal "wear and tear" lead to substandard or unacceptable protection.)
- c. Sites near salt water should receive special attention to assure that protective storage measures consider potential salt water or salt spray damage, in particular, to components of stainless steel.
- d. Maintenance of material identification. (Damage by handling or weather damage frequently makes paper tags illegible.)

Requirements, commitments, and procedures will vary from site to site depending on the status of construction when construction is suspended, the provisions for storage at the site (or offsite), and environmental factors such as temperature variations and atmospheric pollution.

The inspector should use judgment in sample selection for each activity observed. Among other things, sample selection should reflect the importance of the activity to safety. A broad observation of an activity, especially to one fairly familiar with the activity, may well detect unusual conditions which would warrant additional observation and/or evaluation relative to degraded work practices.

Because great variation in construction status and protection/preservation measures that can be expected at different sites, the type and amount of records available for review will vary accordingly. The intent is to review quality records appropriate to the areas in which work and inspection activities are being (or should be) accomplished.

#### Specific Guidance



03.01 Quality Assurance Procedures

- a. The organizational structure described for extended construction delay activities should conform to the description in the QA plan for these activities.

Qualifications, responsibilities, and duties of QA personnel are to be defined sufficiently to assure adequately qualified personnel with appropriate responsibilities. It is usually necessary to review both the organization chart(s) and description of duties and responsibilities to ensure that the "independence and freedom of action" requirements are met.

Whenever extended construction delay activities are in progress at the site, established procedures should identify at least one QA person with authority to stop any activity which does not conform to applicable quality requirements and to require appropriate corrective action. This authority may be delegated and/or go through other organizational components, provided that this authority is not abrogated, delayed, or diminished by this delegation or routing.

- b. A listing of safety-related materials, components, and structures should be available at the site to aid in ensuring that specified protection/preservation requirements are developed and adhered to for all necessary materials, components, and structures. A listing of materials and easily recognizable components by types and/or categories may be sufficient.

It should be noted that storage other than at the site may be used, e.g., near the site or stored by the vendor; or shipments of safety-related material or components may arrive at the site after construction suspension.

Adequate control of quality-related records includes the turnover/retention of contractor and consultant quality records associated with safety-related materials, components and systems.

The licensee's preventive maintenance program should assure that the following activities are performed on a periodic basis:

1. Rotating machinery (pumps, etc.) are periodically turned or exercised to assure the bearings are lubricated.
2. Valves are periodically cycled to prevent deterioration of packing and metal parts in contact (stem to disc, stem to bushing, etc.).
3. Lubricants are periodically changed to prevent excessive moisture uptake.
4. Battery levels are maintained.

5. Desiccants are maintained in instrument cabinets (if appropriate).

- c. Some work and inspection procedures may require the use of test and measuring equipment. If so, ascertain whether provisions are included to ensure that required checks and calibrations are performed as specified.

Determine whether provisions are included to ensure that any special handling and preservation procedures are being followed.

- d. It is important to determine whether manufacturers' recommendations are to be utilized during an extended construction delay. For large components such as electric motors, pumps, and valves, these recommendations are generally adequate. If these recommendations are considered to be the procedure(s) to be utilized, the regional inspector should ascertain whether such activities/conditions are being followed.
- e. During periods of construction inactivity, required quality documentation and corrective action relative to nonconformances tend to be less than required by applicable procedures.
- f. In addition to determining whether access control procedures are being followed, determine whether the physical barriers (e.g., fencing) are as specified in the Safety Analysis Report (SAR).
- g. It is important to determine whether the records indicate that personnel who determine the type and method of protection/preservation means are adequately qualified for this work. Similarly, personnel who assess the adequacy of currently used protective measures should be qualified for this activity.
- h. The contents of the listing of safety-related materials, components, and structures should reflect the previously established basis for considering these items to be safety related. It is not intended that this listing should be a piece-by-piece listing (no identification number should be issued for each item), but rather a listing by categories and types. For example, rebar, aggregate, and weld rod could be identified either by type, size, and batch, or by heat or lot number, etc. Small valves and instrumentation components, on the other hand, may require discrete identification. This listing should be available at the site to ensure that all items important to safety are considered during construction suspension. Moreover, such a listing requires updating. Some components may be returned to the vendor for storage and others may arrive at the site after construction cessation.

92050-04 REFERENCES

QA Plan - the facility plan for standby status during construction

SAR - applicable chapters

Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants

Regulatory Guide 1.58, Qualifications of Nuclear Power Plant Inspection, Examination, and Testing Personnel

Regulatory Guide 1.88, Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records

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