Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

May 15, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Zion Station Units 1 and 2
Response to NRC Request for
Information for Quality
Assurance Program - Upgrade Review
NRC Docket Nos. 50-295 and 50-304

Reference (a): April 8, 1980 letter from A. Schwencer
to D. L. Peoples

Dear Mr. Denton:

Reference (a) requested Commonwealth Edison Company to provide information for the NRC Staff to perform a QA Program - Upgrade Review for Zion Station. Commonwealth Edison's response to that request is contained in Attachment 1 to this letter.

Please address any questions that you might have concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this transmittal are provided for your use.

Very truly yours,

D. L. Peoples
Director of
Nuclear Licensing

DLP:WFN:rap

attachment

cc: Document Management Branch (NRC)

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NRC Docket Nos. 50-295
50-304

ATTACHMENT 1

Commonwealth Edison Company Response

to

NRC Staff Request For Information

for

Zion Station Units 1 and 2
Quality Assurance Program - Upgrade Review

May 15, 1980

RESPONSES TO NRC's 27 QUESTIONS REGARDING COMMONWEALTH EDISON COMPANY QUALITY ASSURANCE PROGRAM FOR ZION UNITS 1 & 2

Question #1

Extent to which structures, systems, components, and activities under control of QA Program include items and activities addressed in Reg. Guide 1.26, 1.29, and 10CFR50, Appendix A.

Response

Structures, systems, components, and activities under the control of the QA Program include the Quality Group Classifications of Reg. Guide 1.26, the Seismic Design Classifications of Reg. Guide 1.29, and the Design Criteria of 10CFR50 Appendix A to the extent that this criteria is included in the original specifications of the structures, systems, etc. of Zion Station.

Modifications to existing systems or new systems are required to meet the requirements of Reg. Guide 1.26, and 1.29 and 10CFR50 Appendix A to the extent that it is practicable. This decision is made by the Station Nuclear Engineering Department (SNED). Quality Assurance then monitors the engineering and installation to ensure that all provisions of the specification are met.

Question #2

Identify the organization(s) responsible for the review, documented concurrence, issuance, and maintenance of the list in item 1 and describe QA involvement in these activities.

Response

Station Nuclear Engineering Department (SNED) has the overall responsibility to review, document concurrence, issue and maintain equipment lists identifying safety-related items. SNED is assigned the responsibility to provide complete listings of components, piping, instruments, and wiring diagrams to identify safety-related items for use in procurements, maintenance, repair and modifications and for ordering spare parts and materials. Input from the NSS Supplier and the Architect Engineer is used in compiling the listing, but SNED is responsible for the ultimate determinations. Quality Assurance reviews the initial list as to its concurrence with the FSAR and revisions thereto as to being complete, correct and acceptable. In addition, as an on-going function, procurement documentation for parts, materials, components, equipment, items, etc. for the Station are reviewed by Quality Assurance to assure safety- and ASME Code-related indications and requirements are properly provided. Also, work packages for maintenance and modifications are reviewed by Quality Control and Quality Assurance to verify the work and items are properly identified as safety- or Code-related, that a safety evaluation for each respective modification has been performed to establish whether the work and, in turn, the equipment and other items are to be classified and identified as safety- and/or Code-related and that each such modification is reviewed and approved by On-Site Review and approved in accordance with other approval requirements. Any newly identified items as safety-related are added to the listing by the Technical Staff as an on-going function. Then periodically, SNED is requested to revise the list by the Technical Staff Supervisor. (A detailed description of the quality program which was developed to provide a more detailed explanation of the Corporate Quality Assurance Program requirements for day-to-day use covering maintenance and modification activities at our operating nuclear stations to control requirements is provided in our Station Quality Assurance Program and is included herein to further explain the total system for control of all safety-related and ASME Section III, Division 1 items and work.)

Question #3

Identify the organization(s) responsible for determining whether or not spare and replacement parts affect safety and describe the criteria for this determination.

Response

Station Nuclear Engineering Department has the basic responsibility for identifying the structures, systems and components that are safety-related in a documented listing. On a day-to-day basis, Operating, Maintenance and Technical Staff personnel have the responsibility for identifying and verifying work and items that are safety-related. Quality Control personnel verify and Quality Assurance has the responsibility to assure, work, components, etc., are properly identified. Functional spare and replacement parts plus materials of structures, components, equipment and systems listed as safety-related are designated as safety-related. The basic criteria for determining what is safety-related is that those items that could have impact on the health and safety of the public are classified as safety-related. As for reliability-related, the items are accordingly classified where trouble with a component or item could affect safety or cause a degradation in power output of the plant.

Question #4

Describe how personnel involved in QA and plant operations, maintenance, and modifications differentiate between those items (including spare and replacement parts) that affect safety and fall under the control of the QA program and those that do not.

Response

In addition to the listing which identifies in detail safety-related items, members of the Quality Assurance Department, as do the station personnel involved in plant operations, maintenance and modifications, have available to them copies of the component lists, instrument lists and valve lists. These lists include all such items in the plant. Those items which are safety-related are indicated on such lists. In addition, one-line diagrams of the plant are available to such personnel and indicate which portions of the piping systems are safety-related. As required by Quality Procedures, Quality Control and Quality Assurance review and release by signature acceptable work packages prior to work commencing; procurements are also reviewed and similarly signed-off prior to an order being placed with a vendor or contractor to assure quality and other requirements are included. Also, work and items that are not identified as safety-related but could have affect on plant reliability and safety if something went wrong are classified as reliability-related by Operating, Maintenance and Technical Staff personnel, verified by Quality Control and assured by Quality Assurance on a case-by-case basis and fall under the control of the Corporate Quality Assurance Program.

Question #5

Describe in detail how each of the following controls is applied to activities including shutdown, startup, emergency actions, maintenance, and modifications:

(a) Independent inspection, verification, and surveillance (Tech Specs and QA) activities including those performed by the QA organization.

Response

Unit startups and shutdowns are performed in accordance with detailed procedures by licensed reactor operators. Included in these procedures are checklists, forms, and surveillance tests which are completed and constitute the documentation of performance of these written procedures. The startup or shutdown are directed and observed by Senior Reactor Operators who review required documentation, authorize proceeding from hold points, and verify compliance to the procedures. Inspection during these activities includes management verification of valve lineups on safety related systems and surveillance test activities.

Emergency procedures are generally without forms or checklists. Compliance to these procedures is verified through direction and observation by Senior Reactor Operators.

Quality Assurance personnel selectively observe these operating activities directly through their surveillance of valve lineup on safety related systems and of test activities. A more comprehensive verification of startup and shutdown activities takes place after the fact through review of station logs, checklists, forms, and reports. Audit of adherence to technical specification and procedure adherence is required by the technical specification and these audits are conducted by Station QA personnel as well as off-site Quality Assurance personnel. Procedure adherence surveillances and audits are conducted by Station Quality Assurance personnel by directly observing operating activities. Off-Site Audits verify procedure adherence by examination of operating records.

Maintenance and modification activities are verified by Maintenance Department or Station Construction Department supervisors who confirm compliance to procedures and completion of required documentation. Inspection of these activities is by Station Quality Control and by Contractor Quality Control personnel.

Quality Control personnel may establish hold points at their discretion during critical points of the maintenance or modification activities. Station Quality Assurance may likewise establish hold points at their discretion involving these activities. Station Quality Assurance personnel also verify and assure all requirements are fulfilled.

Response (cont.)

Where required, pre-operational testing and other testing involving maintenance or modification to safety related operational equipment is conducted by the Operating Department personnel or Technical Staff personnel. Station Quality Control and Quality Assurance verify test results are acceptable and sign the work or modification package documentation to indicate their concurrence.

Question #5

(b) Documented results of the independent inspections, verifications, and surveillance activities are filed and maintained for future reference and audit purposes.

Response

The results of inspections, verifications, and surveillance activities required by the technical specifications are filed in accordance with station procedures and maintained in accordance with the technical specification requirements.

Quality Assurance Department audits the implementation of station record maintenance procedures, and records in storage themselves. (For additional details, see Section 9. of the attached Station Quality Assurance Program which applies to our operating nuclear stations.)

Records of Quality Assurance Department Audits and Surveillances are maintained at the station in accordance with station procedures. These records are also maintained at the General Office in hard copy form for approximately two years before they are microfilmed and forwarded to the Company Archives.

Question #5

(c) Independent evaluation and verification of documented results of activities to assure that they are acceptable prior to releasing a structure, system, or component for operation or prior to proceeding to the next procedural step.

Response

Startup, shutdown, or emergency procedure implementation is performed by licensed operators under the direction of licensed senior operators. Hold points exist in the startup and shutdown procedures. Independent evaluation or verification and approval of a senior licensed supervisor is required before proceeding beyond these hold points.

Response (cont.)

For maintenance and modification work packages, test of the equipment and hold points are specified prior to authorization to begin the work. Independent inspection hold points established for or by Quality Control or Quality Assurance personnel are required to be performed before proceeding to the next step of the work activity. Work may not proceed beyond a designated hold point until witnessed, signed-off or formally waived by the individual who established the hold point. After completion of the maintenance or modification work and sign-off release by Quality Control indicating satisfactory completion of the work, the Maintenance group responsible will perform the testing specified in the maintenance or modification work package, or the item will be turned over to the Operations Department for testing. If the results of the tests are acceptable, the equipment is authorized for operation by the Operating Assistant Superintendent or Operating Engineer.

Modifications involving new equipment or systems may be subjected to Pre-Operational Testing by the Operations Department and supervised by an engineer from the Technical Staff. This equipment will be similarly authorized for operation when the shift supervisor accepts the results of the test.

(For additional details, see Section 4.1.2 of the attached Station Quality Assurance Program which applies to our nuclear operating stations.)

Question #5

(d) Utilization of procedures at the area where the activity is being carried out and followed step-by-step rather than performing the activity by memory without the procedure at hand.

Response

Essentially all operations activities are governed by procedures. The first line supervisors have the prime responsibility to ensure that correct procedures are followed. Quality Assurance Department verifies this through routine surveillance activity and audits of procedure adherence. Detailed activities such as startup or shutdown are accomplished using a record form which allows checkoff of each major activity. These forms are used at the operating station by the licensed operator implementing the procedure. In addition, many activities in support of the startup or shutdown such as surveillance testing are accomplished with procedure in hand. Emergency operating procedures are also at the operating station. These procedures, although detailed, are not in a checkoff list format because technical

Response (Continued)

support is utilized during an emergency from senior licensed personnel to evaluate conditions and direct the operator through the event.

The work planners in the Maintenance Department review all work requests for maintenance and make the determination as to what work instructions are needed. Similar decisions are made for modifications. Quality Control and Quality Assurance each review maintenance/modification work packages prior to the start of work and determine whether procedures are required or not from their point of view. Any differences involving the proposed work must be resolved between QC/QA and the working department before the work is approved by Quality Assurance and is authorized to proceed by Maintenance.

Quality Control and Quality Assurance may establish hold points to verify and ensure the work is being accomplished according to the requirements. Each safety- or Code-related or reliability-related maintenance or modification work package is reviewed by Quality Control and Quality Assurance at the completion of the work to ensure that all requirements are met and that documentation is complete.

Also, Quality Assurance examines work designated as craft capability to verify this is acceptable. (For additional details, see Section 4. of the attached Station Quality Assurance Program which applies to our nuclear operating stations.)

Question #5

(e) Utilization of checklists which delineate each important action to take place, with space provided to document that the action has been completed.

Response

Operating procedures were written in conformance to ANS 3.2 which requires checklists for complex activities. Checklists are included in the startup, shutdown, and to a limited degree, in emergency procedures. All of these procedures are reviewed by the station On-Site Review Group and approved by the Station Superintendent in accordance with technical specification requirements. The use of checklists is enforced by department supervisors.

Quality Assurance verifies the proper use of checklists during surveillance activities involving procedure adherence, audits of procedure adherence, and audit of operating records. For Maintenance and Modification work, the planners determine the need for checklists for these activities and Quality Control and Quality Assurance verify their satisfactory use and implementation.

Question #5

(f) Review and approval of implementing procedures by technically qualified personnel and the QA organization prior to use.

Response

Procedures such as for startup, shutdown, emergency operation, maintenance and modifications are given On-Site Review as required by the Technical Specifications and are authorized for use by the Station Superintendent. On-Site Review Group personnel qualification requirements also are addressed in station procedures. Station Quality Assurance reviews such procedure concurrence with the Corporate Quality Assurance Program.

Procedures used by vendors or on-site contractors are pursuant to the requirements of contract specifications or other procurement documents.

Procedures establish the method of review, evaluation acceptance and distribution of contractor quality instructions and procedures including special process procedures. Contractor procedures required by procurement documents are reviewed initially on-site by Station Construction and by Station Quality Assurance personnel. After on-site comments have been resolved with the contractor, the procedures are transmitted to the Architect Engineer (AE) and SNED for review, resolution and acceptance. Final acceptance from Engineering and then by On-Site Review is the authorization to use the procedures. Vendor procedures are submitted directly to Engineering for acceptance.

Question #6

Describe the requirements and methodology for determining how and to what extent the QA program will be applied to specific items and activities, and describe QA involvement in this area. Specific attention should be given to inspection, verification, and surveillance by the QA organization.

Response

The Quality Assurance Program requires for safety-related items and work Quality Assurance/Quality Control review and approval of all work packages involving maintenance or modifications. Also, procurement documents and changes thereto are required to be reviewed and signed-off as acceptable prior to being issued as Purchase or Change Orders. Receiving Inspections are required to be performed by Station Quality Control and Quality Assurance for all safety- and Code-related procurements with final acceptance required by the Quality Assurance Department. During the review of maintenance/modification packages, Quality Control and Quality Assurance can and do insert hold or witness points for specific inspections during the work. Surveillances are performed and documented by Quality Assurance. (For additional details, see the attached Station Quality Assurance Program which applies to our nuclear operating stations.)

Question #7

Provide the staff size for both the off-site and on-site QA organizational units responsible for implementing the QA program for Zion.

Response

The Quality Assurance Group at Zion consists of four people headed by a Quality Assurance Coordinator. Also, the Quality Assurance Supervisor (Maintenance) is located with the Quality Assurance Group at Zion. He functions from this office and also has responsibility for the quality assurance activities involving maintenance, modification, in-service inspection and Stores activities at Quad Cities Station. During outages, additional Quality Assurance personnel are assigned to Zion as required to cover the work activities.

The off-site Quality Assurance organization which supports the Zion organization includes:

The Director of Quality Assurance (Operating) who directs the quality assurance activities involving operating activities.

The Quality Assurance Supervisor (Maintenance) who directs the Quality Assurance activities involving maintenance, modification, in-service inspection and Stores activities.

The Quality Assurance Engineer at Station Nuclear Engineering who monitors the Zion project group in Engineering.

Members of the Quality Assurance organization at the General Office who review and approve Quality Assurance programs and revisions thereto for contractors and vendors working at Zion and who provide special technical support such as for welding.

The Nuclear Fuel Inspector who audits design control and manufacturing of the nuclear fuel and control rod mechanisms at vendor facilities plus nuclear fuel receipt inspection and storage at the stations.

The Quality Assurance Coordinator assigned to the Technical Center assure compliance to the instrument calibration program and other technical services involving the nuclear generating plants.

The Training Coordinator in the General Office who schedules and plans the training for members of the Quality Assurance Department.

Response (Continued)

The Director of Quality Assurance for Engineering and Construction who provides direction the the Station on matters affecting construction and engineering activities relative to the Quality Assurance Program.

Other members of the QA Department who periodically audit vendors, suppliers, and contractors working at Zion. The Station Quality Control Group which is the quality inspection group within the Station consists of 8-10 technician inspector type people headed by a Quality Control Supervisor.

Question #8

Describe criteria for determining the on-site QA/QC staff size and the extent of its involvement in plant activities. This description should address the participation of these personnel during shift change and during each shift.

Response

The Quality Control and Quality Assurance on-site staff sizes are determined on the basis of the work scope required to be fulfilled by the Commonwealth Edison Corporate Quality Assurance Program, the Technical Specification and applicable Regulatory Guides. Description of Quality Assurance's involvement in audits, surveillances, reviews and observation of the varied plant operating activities is given in the response to Question #24 herein. Other involvement of the Quality Control and Quality Assurance Staffs in plant activities are covered in most of the responses to the other questions herein as well as in the attached Station Quality Assurance Program which applies to our nuclear operating stations.

Quality Control basically have inspection responsibilities. Quality Control personnel provide support to the Maintenance Department in performing work inspections during all major work activities regardless of the number of shifts worked. Quality Assurance personnel perform inspections or hold point verification as deemed needed. Since most of the plant activities can be audited during the normal day shift, Quality Assurance coverage is provided over backshift activities by surveillances.

Shift turnover by operating personnel is done in accordance with a checklist which is reviewed by shift supervisors. Turnover is periodically observed as part of Quality Assurance surveillances and is subject to routine auditing. Normal shift activities in the operating area are not inspected by Quality Control but are part of the Quality Assurance surveillances.

The Station Quality Control Group involvement include the following functions:

- Reviewing design drawings, specifications and Maintenance/Modification work packages for inclusion of applicable technical, inspection and quality requirements;
- Planning and establishing receiving and installation inspections;

Response (Continued)

- Reviewing station requests for purchase to assure inclusion of quality and other requirements;
- Providing quality engineering support;
- Collecting and processing inspection data for procurements and plant fabrication;
- Performing receiving inspections for ASME Code and safety-related and reliability-related incoming materials and items to determine compliance with procurement requirements;
- Performing inspections of fabrication, installation and operations activities;
- Verifying nonconformances are properly dispositioned;
- And, having nondestructive examination performed as required.

The Quality Assurance Groups involvement include, but are not limited to, the following:

- Planning, scheduling, performing and coordinating audits and surveillances to approved schedules;
- Reviewing and approving all ASME Code, and safety-related and reliability-related maintenance and modification work packages that necessary quality hold points and other requirements are provided for prior to any work being authorized to proceed;
- Verifying and approving that all requirements of each work package and the associated documentation are satisfactorily completed;
- Verifying and approving receipt inspections of ASME and safety-related and reliability-related (including fire protection) materials and items to assure procurement requirements have been satisfied;
- Reviewing, monitoring and verifying operating activities to assure requirements are being adhered to as to the Tech Spec, procedures, regulations, etc.;
- Assuring requirements of the Quality Assurance Program are being fulfilled.
- Assuring commitments to NRC are completed;

Response (Continued)

- Assuring all Deviation Reports and associated reporting requirements involving violations, deviations and reportable events are properly carried out and the On-Site and Off-Site Review functions are adequately and properly performed and completed;

- Approving all Discrepancy Report dispositions for Code and safety-related work.

Question #9

Describe provisions which assure that the on-site QA organization attends and participates in daily staff meetings associated with planning the daily work schedules for the operations, maintenance, inservice inspection, tests, and modification. The involvement of the QA organization in these meetings should be to the extent of providing QA/QC input as necessary and keeping current of plant activities so that QA actions for the day can be properly identified and planned.

Response

The Quality Assurance Manager has directed that a Station QA Inspector attend all morning station staff meetings. This has been required since 1974. Daily outage meetings also are attended. Further, Quality Assurance is on the distribution of the outage scheduling list for all work activities. Quality Control inspectors are assigned to the Electrical, Mechanical and Instrument Maintenance Groups to follow and inspect their work activities. Quality Control personnel review the scheduled work activities with the maintenance personnel each day. Quality Control coverage is scheduled for off-shift hours for maintenance activities requiring quality verification.

These inspectors report daily to the Quality Control Supervisor. More significant inspection activities are reported to the administrative and Services Assistant Superintendent by the Quality Control Supervisor.

Lastly, during the work package formulation, Quality Control and Quality Assurance, in addition to the Engineering and Technical Staff technical input regarding inspection and testing, establish inspection and testing requirements as well as witness and hold points.

Question #10

Indicate the educational requirements and number of years of QA and nuclear technical experience required of QA/QC management/supervision.

Response

Manager of Quality Assurance - The educational requirement for this position, as a minimum, is a baccalaureate degree or equivalent in engineering or an equivalent technical discipline. The experience requirements are: (a) broad background and working knowledge of nuclear plant engineering, construction and operating activities within Commonwealth Edison; (b) knowledge of functional interfaces with working organizations inside and outside the Company; (c) demonstrated executive capabilities to achieve goals and objectives in concert with Company policies; (d) knowledge of Quality Assurance regulations, policies, practices and standards, and (e) experience working in Quality Assurance or related activity in reactor, design, construction or operation or in a similar high technology industry.

Director of Quality Assurance - The educational requirement for this position is a baccalaureate degree or equivalent in engineering or an equivalent technical discipline. The experience requirements are: (a) broad background and working knowledge of engineering, construction and operating activities within Commonwealth Edison; (b) knowledge of codes and standards applicable to power plant design, construction, and operation and quality assurance principles; and (c) supervisor and management qualities and capabilities.

Quality Assurance Supervisor (Maintenance) - The educational requirements for this position is either: (1) an Associate degree or equivalent hours of course education in engineering or an equivalent technical discipline; or (2) a high school graduate plus technical course training in power plant maintenance and/or construction. The experience requirements are: (a) broad background and working knowledge of construction and plant operation activities; (b) knowledge of codes and standards applicable to power plant design, construction, modification and maintenance and quality assurance principles; and (c) supervisor qualities and capabilities.

Question #11

Describe in detail the extent of the QA Manager's involvement in the QA related activities at the site relative to operations, maintenance, modifications, and inservice inspection. Of particular interest is the frequency and depth of his participation at the site to assure that his knowledge of the effectiveness of the QA program is current; that he takes the necessary action to verify the plant and QA staff are effectively applying good QA controls; and that all personnel have the proper attitude and are applying the necessary attention to detail.

Response

A. The Manager of Quality Assurance personally interviews and selects each member of the Quality Assurance Department.

B. The Manager requires each Site QA group to submit comprehensive activities reports to him every two weeks.

C. Site QA personnel are required to develop a set of goals on an annual basis and provide the Manager of QA with a written quarterly progress report on such goals. In addition, the Manager receives a formal oral report of the status of the QA site goals and problems twice during the year (mid and end of year).

D. The Manager visits the station on a routine basis approximately once a month to review and discuss that stations activities, concerns, and problems to give the station specific direction as deemed needed and to pass along significant and pertinent information related to their work. In addition, he makes special visits if specific needs occur.

E. All QA personnel are evaluated annually by the Manager of Quality Assurance and by QA supervisors and directors. Members in the department are advised of their performance and rewarded accordingly.

F. The Manager personally approves all members of the Off-Site Audit teams which independently examine the QA program implementation and adherence at all nuclear sites and stations twice per year.

G. He initiates a QA management audit every two years by an outside consultant. This covers the QA Program implementation and adherence and overall attitudes about QA at all locations.

H. The Manager is personally involved with the preparations for and the actual ASME survey which occurs every three years at each of the operating stations.

Response (cont.)

I. NRC correspondence, station Deviation Reports, On-Site reviews referred to Off-Site Review and Off-Site Reviews are examined by the Manager of Quality Assurance.

J. The station audit schedule and off-site audit plans are approved by the Manager.

K. Each audit and surveillance report from the site is read by the Manager as well as all audit and close-outs of deficiencies and responses. He frequently directs additional action as a result of this review.

L. Approximately monthly, a summary activities report developed from the activity reports received bi-weekly and from surveillance and audit reports from all stations, sites and other locations is sent to top responsible executives and managers.

M. At year end, a comprehensive written report covering activities, problems and concerns for the past year and plans and objectives for the next year is prepared by the Manager of Quality Assurance and submitted to top executives of the Company for their assessment, action and direction. Also, a formal oral presentation covering all Quality Assurance activities and concerns is present each year under the leadership of the Manager of Quality Assurance to the responsible upper management and top executives of the Company for their further assessment, action and possible direction.

N. The Manager of Quality Assurance personally controls all changes to the QA program and to the Quality Procedures which implement it. Changes to the Manual are promptly initiated as a result of changes to the ASME code, various Regulatory requirements, and when experience with the program reveals a need for change.

O. The Manager of Quality Assurance holds at least three Quality Assurance Department meetings per year covering operating station items.

P. The Manager reviews and signs off the in-service NDE inspection procedures.

Q. The Manager is in daily conversation with Quality Assurance upper level supervision regarding activities and problems in the Department.

Question #12

Describe any exceptions or alternatives to the topical report that apply to the Zion Nuclear Station.

Response

There are no exceptions or alternatives to the topical report that apply to Zion Station.

Question #13

Describe in more detail the provisions for controlling and maintaining as-built documents current to the plant configuration and for controlling the use of superceded as-built documents.

Response

Details for controlling and maintaining as-built documents and for controlling the use of superceded as-built documents are covered in Station Procedures for drawing control. Upon completion of modifications to plant systems, the Modification Coordinator confers with cognizant engineering personnel to verify the work has been completed in accordance with the design drawings and that the changes have been agreed to by Engineering. If there are no outstanding changes, the drawings are released to the Station master document file by the Modification Coordinator. (The superceded drawings are removed, stamped "superceded" and placed in the historical file.) If not, the cognizant engineer is required to prepare a Drawing Change Request (DCR) to assure such changes to the drawings are reflected accurately in the final as-built drawings.

Drawings involving proposed plant modifications are retained in the modification pending files apart from the master file under the control of Central File. Where such drawings or as-built drawings having proposed revisions are issued from Central File for information with an automatic 30-day expiration date stamped on it or for inclusion in a modification work package, such drawings are stamped "Revision Pending." Further, the issuance of drawings for work packages is logged in order for Central File to be able to notify the recipient of those drawings that the drawings in his possession have been revised. Also, the Modification Coordinator is notified. This alerts these individuals that they must contact Central File personnel to determine what is the revision and whether it needs to be taken into account in their work circumstances.

Also, satellite working files and Central File drawings having pending revisions are stamped "Revision Pending."

Question #14

Within the indoctrination and training program described on pages 2-4 and 2-5 of the topical report, provide additional clarification relative to the qualification program for onsite and offsite personnel performing activities affecting safety.

Response

A. During indoctrination and as follows on training, Quality Assurance personnel receive training in the items listed below: (This includes onsite and offsite Station associated personnel)

1. Audio Visual Course covering
   a. Development and implementation of an audit plan
   b. Guidance on evaluating Quality Assurance Programs

2. Quality Assurance Program Review and Evaluations

3. Corporate Quality Assurance Program and its implementing Quality Procedures Training as well as on-going program and procedures training.

4. NDE*
   a. Radiography (RT)
   b. Magnetic Particle (MT)
   c. Liquid Penetrant (PT)
   d. Visual Inspection (VT)
   e. Eddy Current

   *With ultimate certification to the requirements of SNT-TC-1A in at least two NDE disciplines required for all Quality Assurance personnel.

5. Audit Training

6. Codes and Standards covering
   a. ASME Code
   b. ANSI Standards
   c. IEEE Standards
   d. Others as applicable

7. Nuclear Steam Supply Systems (PWR or BWR)

8. Welding

9. Radiation Protection

Response

10. Control, storage and handling of hazardous materials

11. Radwaste shipment inspection

12. Environmental Protection requirements

13. Security

B. As specific work requirements necessitate, an individual performing quality assuring and inspection activities having affect on safety would receive additional training, given for the most part by people hired from outside the Company, in one or more of the following areas to qualify the individual for such activities:

1. Crane Inspection
2. Theory and hands-on Welding Training
3. Concrete Inspection and Testing
4. Painting & Coating Inspection
5. Cad-Weld Inspection
6. Receiving Inspection
7. Soils Inspection
8. Simulator (BWR or PWR) Operator Training
   Introductory - for operating station Quality Assurance personnel.

   Comprehensive - equivalent to licensing requirements or licensing -- for Quality Assurance personnel having responsibility over operating activities.
9. Plant Maintenance
10. Turbine Maintenance

Also, personnel are frequently selected for attendance at seminars for special training and to update previous training to current status such as for welding, radwaste shipment, NDE, ASME Code, coatings, special college short courses, etc.

Moreover, refresher training and requalification is performed periodically but at least every two years with most of the areas (above listed items) being scheduled for annual retraining. Training is an on-going activity, carried out by the training coordinator under the direction of the Manager of Quality Assurance. (See Response to Question 15 for additional details.)

Question #15

Describe provisions which assure that acceptance criteria will be established and documented to which individuals will be qualified and that proficiency tests will be given to demonstrate that they meet these criteria. Also address requalification.

Response

Quality Assurance Department has established a system of acceptance criteria for qualification and requalification of its personnel to meet the requirements of ANSI N45.2.6. This system is based on: (1) QA experience; (2) work experience; (3) specialized training and retraining; and (4) satisfactorily meeting test and evaluation requirements. The levels used are based upon the guidelines recommended in ANSI N45.2.6. (See QA Department Memorandum No. 7.)

A point system has been established to equate training to experience for establishing the level of certification and qualification. Consideration includes education, experience, length of training, comprehensiveness and intensity of training received, results of testing received during training, certification resulting from training, and the level of certification achieved. A minimum point system has been established to recognize a combination of education, experience and training for the respective three levels of certification. Minimum points are required for each level. Certification to each level is approved by the Manager of Quality Assurance. In addition, this document is reviewed as to qualification and certification and updated every six months.

As part of specialized training, proficiency tests are administered. The results are documented by the person or the agency responsible for providing the training. This information is maintained in the individual's Quality Assurance Department personnel file.

Certified NDE personnel must be recertified every three years. Otherwise, Quality Assurance personnel are required to be recertified at least every two years. (See Response to Question 16)

Question #16

Describe provisions which assure that a certificate of qualification will be documented and maintained which clearly delineates the specific inspection, examination, test, or special process each person is qualified to perform.

Response

Quality Assurance Department Engineers and Inspectors are qualified and certified on the basis of their education, training and experience, to meet the requirements of ANSI N45.2.6 (see response to question 15 for additional details). Upon completion of training, acceptable documentation indicating training results and accomplishments is required from the training agency or persons responsible for or who conducted the training session.

The Quality Assurance Department maintains a file for each of its personnel listing the training proposed, the dates of completion of the training, specialized training completed, any unscheduled training received and certification and recertification information. Documentation to support the certification information which identifies the specific inspection, examination, test or special process work each specific certified person is qualified to perform is contained in such controlled files. These records support and establish the proficiency level of each Quality Assurance Department personnel.

Question #17

Provide a table which identifies organizational responsibilities for the preparation; documented review, concurrence, and/or approval; and issuance of documents affecting safety. The table should include documents such as operating, maintenance, modification, calibration, fuel handling, testing and inservice inspection procedures and instructions; procurement documents; design change requests and design change notices; work authorizations; drawings; specifications; and nonconformance cause and corrective action report forms. Identify those documents requiring documented review and concurrence by the QA organization prior to use, and describe the depth of QA review. Confirm that the QA organization verifies that quality affecting documents have been prepared, reviewed, and approved in accordance with established procedures.

Response

Table attached. For further clarifications and details see the Station Quality Assurance Program which applies to our operating nuclear stations.

Table for Question 17 Showing Organizational Responsibilities for Documents Affecting Safety

Documents	Prepared By	Documented Review	Concurrence/Approval	Issuance	Documented QA Concurrence
Operating Procedures	Technical Staff Station Operating	On-Site Review (2)	Sta. Superintendent	Station	*
Maintenance/Modification Procedures	Station Maintenance	On-Site Review (2)	Sta. Superintendent	Station	Yes**(1)
Calibration Procedures	Operational Analysis Department Station Maintenance	On-Site Review (2)	Sta. Superintendent	Station	No*
Fuel Handling Procedures	Station Operating	On-Site Review (2)	Sta. Superintendent	Station	No*
Testing Procedures	Technical Staff Station Operating Station Maintenance Vendors	On-Site Review (2)	Sta. Superintendent	Station	Yes - for Maintenance/ Modification No - for Operating. Verify concurrence to Tech. Spec. by surveillance and audit
Inservice Inspection Procedures	Technical Staff Company Lead Level III Examiner Vendor	Manager QA NDE Level III On-Site Review (2)	Sta. Superintendent	Station or Company Lead Level III Examiner	Yes
Procurement	Station	Sta. Quality Control	Station QA/ Stores-Nuclear/ QA-GO	Station	Yes
	SNED	SNED	SNED QA	SNED	Yes
Design Change Requests	Station Construction Technical Staff	SNED/QA	SNED/Quality Assurance	SNED	Yes
Design Change Notices	SNED	SNED	SNED	SNED	No
Work Authorization	Station	QC,QA	Operating Engineer/Maintenance Assist. Superintendent Superintendent	Station	Yes

*Quality Assurance reviews such procedures and revisions thereto on a surveillance or an audit basis to assure concurrence with Quality Assurance Program requirements.

**For additional details see Section 4 of the attached Station Quality Assurance Program which applies to our operating nuclear stations.

Documents	Prepared By	Documented Review	Concurrence/Approval	Issuance	Documented QA Concurrence
Drawings	AE, SNED	SNED	SNED	AE	No (3)
Specifications	AE, SNED	SNED QA - for proper QA Articles	SNED	AE	Yes (3)
Nonconformance (NCR)	Station Construction	QA	SNED	SNED	Yes
Discrepancy Records (DR)	Station	QA/QC	Station Superintendent	Station	Yes
Action Item Record	Station	Station	Station Superintendent	Station	No - Assured by auditing

(1) Quality Control and Quality Assurance perform comprehensive reviews of each work package to verify all necessary requirements are established and included before release for performance of the work and again at the completion of the work to verify and assure all requirements have been satisfactorily completed. Documented Quality Control and Quality Assurance concurrence is required.

(2) Quality Assurance audits On-Site Review and Off-Site Review activities to assure the responsibilities of these two review groups are correctly and completely carried out. Quality Assurance audits on-site review activities to assure station procedures have been prepared, reviewed, approved and issued pursuant to established procedures. During Quality Assurance audits to verify implementation of station procedure, control is again reviewed.

(3) Drawings and specifications are reviewed by Quality Control and Quality Assurance as part of each work package and documented Quality Assurance concurrence results with the approval of the maintenance/modifications procedure which is initiated for each modification.

Question #18

Describe those provisions which assure that in cases where a design or design change is authorized to be released for use prior to verification, a justification for this action is documented and approved by management and the unverified portion of the design output document (and all other design output documents and items based on the unverified data) is identified as such and controlled.

Response

Design or design changes require Station Nuclear Engineering Department review and approval prior to installation. Any further required design changes encountered during a modification installation are controlled by change requests which also require prior engineering approval. Completion of change requests is verified by Quality Assurance.

Question #19

Provide a statement that the procurement of spare and replacement parts is subject to the current QA program controls and to technical requirements equal to or better than the original technical requirements.

Response

The procurement of spare and replacement parts is subject to the current QA Program controls and to technical requirements equal to or better than the original technical requirements.

Question #20

Describe the involvement of the QA organization in the review, concurrence, and control of vendors' nonconformances dispositioned "use as is" or "repair."

Response

Off-site vendor nonconformances which the vendor cannot bring into conformance with procurement documents through its own system are required to be submitted to the CECo Station Nuclear Engineering Department for disposition and acceptance. The Quality Assurance Supervisor or Coordinator for Engineering or his designated representative assures that the corrective action is acceptable and implemented through a review of the documentation.

For Off-site vendor nonconformances, the vendor is required to document them in accordance with its Quality Assurance Program which is reviewed and accepted by Commonwealth Edison. Representatives from the Station Nuclear Engineering Department Quality Control Group or the Quality Assurance Department are regularly assigned to audit the vendor's Quality Assurance Program, and verification that vendor nonconformances are properly documented and resolved is included in such audits. Also, Quality Assurance assures the corrective action for nonconformances are acceptable as part of receipt inspection activities and/or during visits, witness point inspections and source inspections at the vendor plant.

On-site contractors nonconformances are documented as required under the contractor's accepted Quality Assurance Program. CECo Quality Assurance verifies that each nonconformance has been documented and acceptably resolved. Those which cannot be resolved on-site are submitted on a CECo Nonconformance Report to Engineering for resolution. Quality Assurance sign-off indicating acceptance of corrective action is required on the CECo NCR.

Question #21

Describe the control for identifying and maintaining identification of items during the operations phase (including maintenance, modification, etc.).

Response

Identification of parts or items require two-part Quality Assured material tags for identification and stay with the items until installed. They become part of the final documentation package for maintenance. For additional clarification and details see Section 4.2 and 11 of the Station Quality Assurance Program which applies to our operating nuclear stations. Modifications by a contractor are done in accordance with its accepted Quality Assurance Program which requires use of status indicators. In all cases, nonconforming items require use of hold tags for control and require disposition acceptable to Quality Assurance.

For operations activities, equipment Out-of-Service tags are utilized to control equipment taken out-of-service for repair, testing and/or inspection. Also, Caution Card tags are used to call attention to special operating and personnel safety considerations.

Question #22

Explain the criteria to be used in determining statistically valid sampling plans when used.

Response

Sampling is rarely utilized and when deemed appropriate and acceptable to be used, the criteria is established by Engineering on a case-by-case basis.

Question #23

Describe the involvement of the QA organization in establishing, implementing, and assuring the effectiveness of the calibration program.

Response

The Operational Analysis Department has overall responsibility for the control and calibration of measuring and test equipment. This includes calibration of working standards for electrical, temperature, pressure and length measurements, calibration and certification of equipment, preparing and maintaining calibration records and establishing schedules for implementing the calibration program. A Quality Assurance Department Coordinator is assigned to the Operational Analysis Department to conduct regular surveillances and scheduled audits to assure implementation of the Quality Assurance Program and approved procedures in performance of the above work by the Operational Analysis Department. Additionally, the QA Coordinator along with an OAD engineer conduct audits of vendors who are performing calibration services. The Quality Assurance Coordinator also reviews all purchase requisitions for work awarded to calibration vendors to assure the vendors are properly approved for such work. The Quality Assurance Coordinator's sign-off is required on such procurement documents.

In addition, the General Office Quality Assurance Department annually conducts audits of the above to assure all aspects regarding calibration are properly implemented.

At the Operating Station, Quality Assurance personnel for Maintenance perform surveillances, and audits on the measuring and test equipment referenced above and of calibration of installed instruments to assure conformance to Technical Specification requirements. (For additional details see Sections 6.3 and 7 of the attached Station Quality Assurance Program which applies to our operating nuclear stations.)

Question #24

Describe the QA organization's involvement in the inspection and surveillance of the operational status of items that affect safety.

Response

Station Quality Assurance personnel have uncontrolled and full access to the control room and other accessible operations areas of the plant. At the start of each work day, a Quality Assurance person covering operating activities tours the control room - walking down the control boards to check the status of equipment, reviewing the alarms and comparing what is seen with that in the operator log book. Also, he checks the computer printout for alarms and trends and compares that information against Technical Specification requirements. Where data appears it might not be normal, he verifies limiting conditions for operations are not exceeded. In addition, he checks the periodic test requirements of the Technical Specification to assure the surveillances were performed and were found to be acceptable. Also, he reviews the night orders and standing orders to see if any special operations or surveillances were required and, in turn, were performed by reviewing the Shift Engineer's log.

Leaving the control room, each day a surveillance of operating activities and conditions in different areas of the plant is done so that all operations areas of the plant are reviewed by Quality Assurance at least once each week. Also, such plant surveillances include checks involving fire protection, personnel safety, housekeeping, security, radiation protection, doors to high radiation areas being secured and radwaste activities plus checks radiation contamination control entrance and exit locations for proper establishment and personnel adherence to radiation protection and access control procedures.

Periodically, reviews are made of the R-Key log, control of access to the containment during outages (Guard functions), the jumper and lift lead log, the out-of-service card board, the caution card log, security equipment operation and the respiratory equipment log. The same routine is performed during backshift surveillances of operating activities. Other activities include review of radiation occurance reports, frequent review of calibration stickers on radiation instruments, observing unit startups and shutdowns and the performance of the periodic tests, frequent observation of radwaste activities plus inspection of every radwaste shipment as the

Response (cont.)

last check prior to release for shipment, review of training programs, review of gaseous release calculations and documentation, review of exposure records of personnel for over exposures, review of water discharge charts and annual operating reports covering water and chemical discharges to the lake and review of NRC Bulletins and Circulars for items that need operations action.

Audits and surveillances of the implementation of administrative procedures for operational logs, out-of-service cards, caution cards, operations activities and adherence to the Technical Specifications pertaining to operations and of the implementation of the Quality Assurance Program are performed so as to be covered each year. Off-site audits conducted by Quality Assurance personnel outside the station cover these items on a two year cycle. Specifically as required by Section 6 of the Zion Technical Specifications Quality Assurance audit the conformance of facility operation to provisions contained within the Technical Specifications and applicable license conditions at least once per year.

Question #25

Describe the involvement of the QA organization in the areas of plant security, radiation control, and fire protection.

Response

Section 6 of Zion Technical Specifications requires Quality Assurance to conduct audits of the Facility Security Plan and Fire Protection Program. These audits and audits of radiation control procedures are conducted on an annual basis. Surveillances of these three areas are done daily on an on-going basis.

Offsite Quality Assurance Audit Teams also annually audit these areas independent of the station QA group.

Audits include the following aspects:

a. Personnel qualifications and training.
b. Security and security equipment checks, radiation protection surveys, chemistry results, survey instrument calibration, Radiation Occurrence Reports, Plant radiation monitoring instrumentation and fire protection facilities, conditions and tests.
c. Implementation of procedures governing activities in these areas.
d. Examination of station records concerning these areas.

Question #26

Describe those provisions which assure that the QA organization concurs with the disposition of nonconforming items, corrective action, and close out of nonconformance reports.

Response

For operations, Quality Procedures provide detailed instructions and describe responsibilities for documenting and controlling items identified as nonconforming on a Discrepancy Record. Concurrence by Quality Assurance is required and indication by Quality Assurance on the Discrepancy Report of its approval that the evaluation and disposition, disposition completion, and corrective action is acceptable is required. Copies of the DR's pertaining to ASME Section III and safety-related items are also sent to the Station Nuclear Engineering Department for review and acceptance of the disposition. (For additional details, see Section 11. of the attached Station Quality Assurance Program which applies to our operating nuclear stations.)

A Quality Procedure also provides instructions for identifying, and segregating nonconforming items that are found during construction and test. Such items are required to be documented on the Nonconformance Report for Construction and Test (NCR). Quality Assurance is required to review and to indicate its concurrence by signing the Identification and Description, and the Corrective Action sections of the report. Quality Assurance monitors the resolution and closing of all station originated NCR's and assures documented evidence of such closing is forwarded to the Station Nuclear Engineering Manager.

Question #27

Describe the extent that errors, malfunctions, and deficiencies relative to regulations, the FSAR, QA requirements, and specification requirements will be reported on a nonconformance report form.

Response

The Quality Assurance Program requires that all errors, malfunctions, and deficiencies which affect reactor safety be documented.

A Quality Procedure describes responsibilities for identifying, reporting, and documenting deviations and deficiencies, and complying with the requirements of 10CFR Part 21. The procedure applies to deviations and deficiencies involving procedures, administrative controls and materials, equipment, components or parts.

Deviations are categorized as:

a. Reportable Occurrence
b. Technical Specification Violations
c. Events of Potential Public Interest
d. Non-Reportable Occurrences

Quality Procedures also provide instructions and describe responsibilities for documenting and controlling items identified as discrepant during receiving inspections, in the Station storeroom, and during inspection and test.

Another Quality Procedure provides instructions for identifying, segregating, and reporting nonconformances and segregating nonconforming items that are found during construction and test.

Deviation Reports are reported to NRC on the basis of the requirement of the Technical Specifications. NCR and Discrepancy Reports require Quality Assurance concurrence with the final disposition. Quality Assurance personnel receive copies of Deviation Reports (DR) from the station. Should there be a weakness in the (DR) report from the Quality Assurance's viewpoint, Offsite Review is requested to consider Quality Assurance's concerns as part of its review.

Quality Assurance Department Memorandum

Personnel Qualification and Certification Program for Personnel to Meet the Intent of ANSI N45.2.6.

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Quality Assurance Engineers and Inspectors shall be qualified and certified, on the basis of training and experience, to adequately demonstrate their qualification to perform their assigned duties. To this end, the Quality Assurance Department has established a system for qualification of its personnel to meet the requirements of ANSI N45.2.6. |4

This system is based upon 1) Q.A. experience, 2) work experience and 3) specialized training and retraining in those functions listed in Attachments #1, #2 & #3. The Levels used are based upon the guidelines recommended in ANSI N45.2.6. In addition, this Memorandum recognizes levels of formal education, such as Associate's and Master's Degrees. |4

The experience requirements of ANSI N45.2.6 can be fulfilled and supplemented by point allowance for specialized training related to Quality Assurance and Quality Control as listed herein, such as: receiving inspection, testing, nondestructive testing, auditing, welding, Codes and Standards training, Radiation Protection & Safety, etc. The attached list of courses currently offered by the Q.A. Department is identified with point allowance (See Attachment #1). Other Special courses and points allowed can be added to augment the experience requirements upon approval of the Manager of Quality Assurance. |4

The point system is established to equate specialized training to experience. Considerations include length of training, difficulty of training received, testing received during training, certification resulting from the training and the level of certification achieved. Each point earned by the individual to be certified generally reduces the experience required for certification, by two months. That is, one (1) point equals two (2) months experience or two (2) months experience can be equated to one (1) point.

The minimum point system, has been developed to recognize a combination of experience and training to achieve certification. Minimum points are required for each Level. These minimum requirements are explained in Attachment #2 and shall be used as the basis for certification. Please note that for certification to Level II or III, a minimum of six (6) training points is required regardless of education or experience levels achieved. Also note that for Level II and Level III, maximum credit for experience has been established.

In addition, for those individuals with formal education beyond High School, credit has been established which recognizes actual hours of College completed, and is different for semester-hours and quarter-hours. Individuals with quarter-hour credits shall earn one (1) year of credit for each 42 to 50 quarter-hours completed. Individuals from semester-hour colleges shall earn one (1) year of credit for each 28 to 32 semester-hours completed. The application of formal education toward satisfaction of minimum experience and training requirements is explained in Att. #2. Also, an additional point of credit shall be granted for a "Registered Professional Engineer". The total points required for certification shall remain the same for all levels as described in Attachment 2.

A compilation of the points awarded each certified person shall be maintained showing current status of persons certified under this Personnel Qualification and Certification Program. Certification to each Level shall be approved by the Manager of Quality Assurance or his designee. Such certification shall be included in the individual's QA personnel file. The Certification form shall be as in Attachment 3, Rev. 1 dated 11/1/77.

The physical capabilities and responsibilities for Inspection, Examination and Testing Personnel certified under this memorandum shall be as outlined below. The scope of responsibility of the respective certification levels shall be as provided in ANSI N45.2.6. | 4

Each person so certified shall be capable of performing his assigned tasks. Characteristics that should be considered are: (1) natural or corrected near-distance acuity such that the J-1 letters on the Jaeger's test (or equivalent type test) can be read; color vision where required in the performance of his duties; and other medical requirements for the physical demands of performing the required activities (such as heart or circulatory conditions) as appropriate. These requirements shall be met at the time of initial certification and thereafter approximately annually. Documentation of such examination will be maintained.

Levels shall be established based upon: 1) Quality Assurance experience, 2) work experience, 3) the point system previously described and 4) upon the criteria for each level as outlined below. Use of the following criteria for certification will be based upon the judgement of qualified Edison Management. | 4

When a person has achieved the minimum points or requirements for certification to his initial level, or any new level; certification to that level will be at the discretion of management and will be based upon their judgement as to the level of capability demonstrated by the individual to be certified.

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At times, an examination may deemed appropriate by Edison Management to further demonstrate the capabilities of any individual for certification. Such examination prior to certification is not a requirement of the program. Also, for certification to specific or special inspections, qualifications which must be met shall be established and these qualifications shall be entered in the space provided on the form used to justify certification.

A Level I person shall have experience or training in the performance of the inspections and tests that he is required to perform. He shall be familiar with tools/and or equipment to be used. He shall be familiar with inspection and measuring equipment calibration and control methods and shall be capable of verifying by observation that the equipment is in proper working order.

A Level II person shall have experience and training in the performance of required inspections and tests and in the evaluation and reporting of the results of said inspections and tests. He shall be capable of supervising or maintaining surveillance over the inspections and tests performed by others and of establishing, by observation, the validity of calibrations of the equipment used. He shall have proficiency in planning and supervising test set-ups and in determining the validity of test results.

A Level III person shall have broad experience and formal training in the performance of inspections and tests and shall be educated through formal courses of study in the principles and techniques of the inspections and tests that are to be performed. He shall be capable of planning and supervising inspections and tests, reviewing and approving procedures and evaluating the adequacy of activities to accomplish objectives. He shall be capable of organizing and reporting results and of certifying the validity of results.

Personnel certifications, as provided herein, qualify the person to perform the related functions at all the Company sites and stations, however, indoctrination will be done as required by N45.2.6 when an individual is assigned to a site or station, even though the individual was at another similar location. 4

Personnel performing nondestructive testing functions shall be certified to meet the requirements of SNT-TC-1A. Levels of certification under SNT-TC-1A are seperate certification indicators and are not related to the certifications under this Memorandum. 4

Personnel certified under this program shall be recertified within two years from the date of their last certification. Certification records shall be updated approximately on a simi-annual basis.

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This document includes Memorandum No. 7 and Attachments One, Two and Three.

W J Rhewoski 1-31-80
Manager of Quality Assurance

ATTACHMENT 1

Special Training Point System

	Course	Points	Maximum Points
1.	Radiography		
	A. Level I	2	
	B. Level II	3	5
2.	Magnetic Particle		
	A. Level I	1	
	B. Level II	1	2
3.	Liquid Penetrant		
	A. Level I	1	
	B. Level II	1	2
4.	Ultrasonics		
	A. Level I	2	
	B. Level II	3	5
5.	Eddy Current		
	A. Level I	2	
	B. Level II	2	4
6.	Visual Inspection	1	1
7.	Audit Training	1	1
8.	Welding		
	A. 1 Day Course	1	
	B. Week Course	3	4
9.	Concrete		
	A. Portland (1 Week)	3	
	B. Walsh (1 Day)	1	4
10.	Soils (1 Day)	1	1
11.	NSSS		
	A. BWR (1 Day)	1	
	B. PWR (1 Day)	1	2
12.	Simulator		
	A. G.E.Co. (1 Week)	2	
	B. W.E. Corp. (1 Week)	2	4

ATTACHMENT #1

	Course	Points	Maximum Points	
13.	Crane Inspection	1	1	
14.	Cadweld Inspection	1	1	
15.	QA Manual Review	1	1	
16.	ASME Survey (Participation as team member)	3 (Each Survey)	6	
17.	Codes & Standards A. 1 Day Course B. 1 Week Course	1 3	4	
18.	Painting & Coating	1	1	
19.	Registered Professional Engineer	1	1	
20.	Receiving Inspection	1	1	2

ATTACHMENT #2

Certification Requirements for Individuals

with High School

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total
3 months	1	5	6
6 months	3	3	6
9 months	4	2	6
12 months	5	1	6

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Total
6 months	3	21	24
1.0 year	6	18	24
1.5 years	9	15	24
2.0 years	12	12	24
2.5 years	15	9	24
3.0 years	18	6	24

NOTE: For Level II the maximum credit allowed for experience shall be 18 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Total
4.0 years	24	24	48
4.5 years	27	21	48
5.0 years	30	18	48
5.5 years	33	15	48
6.0 years	36	12	48
6.5 years	39	9	48
7.0 years	42	6	48
7.5 years	42	6	48

NOTE: For Level III the maximum credit allowed for experience shall be 42 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with One Year College

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total	4
3 months	2	4	6	
6 months	3	3	6	
9 months	4	2	6	
12 months	5	1	6	

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
6 months	3	18	3	24	
1.0 year	6	15	3	24	
1.5 years	9	12	3	24	
2.0 years	12	9	3	24	
2.5 years	15	6	3	24	

NOTE: For Level II the maximum credit allowed for experience shall be 15 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
3.0 years	18	27	3	48	
3.5 years	21	24	3	48	
4.0 years	24	21	3	48	
4.5 years	27	18	3	48	
5.0 years	30	15	3	48	
5.5 years	33	12	3	48	
6.0 years	36	9	3	48	
6.5 years	39	6	3	48	
7.0 years	39	6	3	48	

NOTE: For Level III the maximum credit allowed for experience shall be 39 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with an Associated Degree (2 years of college)

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total	4
3 months	2	4	6	
6 months	3	3	6	
9 months	4	2	6	
12 months	5	1	6	

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
6 months	3	15	6	24	
1.0 year	6	12	6	24	
1.5 years	9	9	6	24	
2.0 years	12	6	6	24	

NOTE: For Level II the maximum credit allowed for experience shall be 12 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
2.0 years	12	30	6	48	
2.5 years	15	27	6	48	
3.0 years	18	24	6	48	
3.5 years	21	21	6	48	
4.0 years	24	18	6	48	
4.5 years	27	15	6	48	
5.0 years	30	12	6	48	
5.5 years	33	9	6	48	
6.0 years	36	6	6	48	

NOTE: For Level III the maximum credit allowed for experience shall be 36 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with Three Years College

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total	4
3 months	2	4	6	
6 months	3	3	6	
9 months	4	2	6	
12 months	5	1	6	

LEVEL II: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
6 months	3	12	9	24	
1.0 year	6	9	9	24	
1.5 years	9	6	9	24	

NOTE: For Level II, the maximum credit allowed for experience shall be 9 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
1.0 year	6	33	9	48	
1.5 years	9	30	9	48	
2.0 years	12	27	9	48	
2.5 years	15	24	9	48	
3.0 years	18	21	9	48	
3.5 years	21	18	9	48	
4.0 years	24	15	9	48	
4.5 years	27	12	9	48	
5.0 years	30	9	9	48	
5.5 years	33	6	9	48	

NOTE: For Level III, the maximum credit allowed for experience shall be 33 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with a Bachelor's Degree

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total
3 months	2	4	6
6 months	3	3	6
9 months	4	2	6
12 months	5	1	6

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total
6 months	3	9	12	24
1.0 year	6	6	12	24

NOTE: For Level II, the maximum credit allowed for experience shall be 6 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total
1.0 year	6	30	12	48
1.5 years	9	27	12	48
2.0 years	12	24	12	48
2.5 years	15	21	12	48
3.0 years	18	18	12	48
3.5 years	21	15	12	48
4.0 years	24	12	12	48
4.5 years	27	9	12	48
5.0 years	30	6	12	48

NOTE: For Level III, the maximum credit allowed for experience shall be 30 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with Five Years of College

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total	4
3 months	2	4	6	
6 months	3	3	6	
9 months	4	2	6	
12 months	5	1	6	

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
6 months	3	6	15	24	

NOTE: For Level II, the maximum credit allowed for experience shall be 3 points and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
1.0 year	6	27	15	48	
1.5 years	9	24	15	48	
2.0 years	12	21	15	48	
2.5 years	15	18	15	48	
3.0 years	18	15	15	48	
3.5 years	21	12	15	48	
4.0 years	24	9	15	48	
4.5 years	27	6	15	48	

NOTE: For Level III, the maximum credit allowed for experience shall be 27 points and the minimum training points required shall be 6.

ATTACHMENT #2

Certification Requirements for Individuals

with a Master's Degree

or Higher Degree

NOTE: Any combination of experience and training points which total the required minimum, as shown in the examples below, will be used as the basis for certification.

LEVEL I: A minimum of 6 points are required for certification.

QA Experience	Points	Required Training Points	Total	4
3 months	2	4	6	
6 months	3	3	6	
9 months	4	2	6	
12 months	5	1	6	

LEVEL II: A minimum of 24 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
6 months	0	6	18	24	

NOTE: For Level II, the maximum credit allowed for experience shall be zero (0) and the minimum training points required shall be 6.

LEVEL III: A minimum of 48 points are required for certification.

QA Experience	Points	Required Training Points	Education Points	Total	4
1.0 year	6	24	18	48	
1.5 years	9	21	18	48	
2.0 years	12	18	18	48	
2.5 years	15	15	18	48	
3.0 years	18	12	18	48	
3.5 years	21	9	18	48	
4.0 years	24	6	18	48	

NOTE: For Level III, the maximum credit allowed for experience shall be 24 points and the minimum training points required shall be 6.

(Rev. 1, 11-1-77)

ATTACHMENT #3 MEMORANDUM NO. 7

This is to Certify that _____, an employee of Commonwealth Edison, is qualified to be a Level _____ Quality Assurance Inspector based upon the requirements of the Quality Assurance Department Office Memorandum #7 and the guidelines, levels and work scope of ANSI N45.2.6. The basis for Certification is further delineated below. Certification is based either on points or on the criteria established below for special inspection methods.

Highest Level of Education
Educational Background: _____

QA Start Date: _____

QA Experience to Date _____
Other Experience, training or other basis used to Certify:
1 to 5 points

Areas of Qualification:

Basis for Certification

	POINTS		POINTS
Education		PWR	
QA Experience		Codes & Standards	
Radiography		Simulator Training	
Magnetic Particle		Crane Inspection	
Liquid Penetrant		QA Manual Review	
Ultrasonics		ASME Survey	
Eddy Current		Painting & Coatings	
Welding		Visual Inspections	
Concrete		Other Experience:	
Soils		Other Training:	
Audit Training		_____	
BWR		_____	
Registered PE		_____	
		Sub Total	
Sub Total			
		Total	

Rev. Date

1. _____
2. _____
3. _____
4. _____
5. _____

_____ Recommended

_____ Mgr. of Quality Assurance

_____ Certification Date

_____ Date Recertification Req'd

cc: GO Master File
GO Training File
Site Training File
Individual's File