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Figure 13-3. Nuclear Generation Organization Structure

Figure 13-4. Catawba Nuclear Station Organizational Structure

Figure 13-5. Deleted Per 1995 Update

Figure 13-6. "At the Controls" Definition

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13.0 Conduct of Operations

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13.1 Organizational Structure

13.1.1 Corporate Organization

Applicable portions of the corporate structure of Duke Energy Corporation are shown in Figure 13-1, and Figure 13-3.

HISTORICAL INFORMATION ITALICIZED BELOW NOT REQUIRED TO BE REVISED

13.1.1.1 *Corporate Functions, Responsibilities and Authorities*

Duke Energy Corporation has 100 years of experience in the design, construction, and operation of electric generating stations. As of 2003, Duke's generation capacity in the Duke Power service area was 19,375 MWe. Duke operated eight conventional steam-electric stations with a 34% share of this total capacity, three nuclear steam-electric stations with a 36% share; and 31 hydroelectric stations, eight pumped storage units, and combustion turbine units accounting for the remaining 30% share.

Company involvement in nuclear power began in the early 1950's with various personnel receiving nuclear training. Selected personnel have been involved full time in nuclear projects since the mid-1950's. Duke participated in the Carolinas-Virginia Nuclear Power Associates (CVNPA), which resulted in a 17,000 kWe nuclear steam-electric unit at Parr, South Carolina. This unit, the Carolinas-Virginia Tube Reactor (CVTR), produced electricity over the period 1963 to 1967 as part of a five-year operating research program. Duke's three unit Oconee Nuclear Station began operation in 1973, the two unit McGuire Nuclear Station began operation in 1981, and the two unit Catawba Nuclear Station began operation in 1984. As a result of these and other assignments, many engineering personnel in the Duke organization have had prior nuclear experience as well as extensive experience in the power field.

During construction of Catawba Nuclear Station, various departments within the Company have responsibility for design, construction, quality assurance and operation of each nuclear station. Duke contracts with a nuclear steam supply system (NSSS) vendor for the design and manufacture of the complete NSSS. The NSSS vendor also provides technical consultation in areas such as construction, testing, startup and initial fuel loading.

Corporate functions, responsibilities and authorities for quality assurance are addressed in Topical Report, Quality Assurance Program Description DUKE-QAPD.

The President and Chief Executive Officer has overall responsibility for Design, Construction, Operation and Decommissioning of generation and transmission facilities.

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Reporting to the President and Chief Executive Officer is the Group Executive responsible for nuclear operations, nuclear development and nuclear decommissioning, and project management. Reporting to the Group Executive is the Chief Nuclear Officer (CNO) who has the overall authority and responsibility for Nuclear Generation which includes the operation of the nuclear sites.

HISTORICAL INFORMATION ITALICIZED BELOW NOT REQUIRED TO BE REVISED

13.1.1.2 *Organization for Design and Construction*

During the construction phase of Duke's Nuclear stations, separate organizations were maintained for design and construction. Effective November 1, 1991, Duke no longer

maintained separate organizations for nuclear plant design and construction. Both functions were in one Department which was then called the Nuclear Generation Department.

13.1.2 Operating Organization

13.1.2.1 Nuclear Generation Department Organization

Refer to the Topical Report, Duke-QAPD.

The Duke Energy Nuclear Generation Department Organization is shown on Figure 13-3.

13.1.2.2 Nuclear Site

13.1.2.2.1 Site Organization

The nuclear site organization centralizes the resources for safe and efficient nuclear plant operations under a vice president at the nuclear station.

The Vice President of Catawba Nuclear Station has the responsibility for overall plant nuclear safety as established by Technical Specifications. The site staff is fully capable and equipped to handle all situations involving safety of the station and public. The Nuclear site organization is shown on Figure 13-4.

As established by the Duke Quality Assurance Program Topical Report, Duke-QAPD, anyone involved in quality activities in the Duke organization has the authority and responsibility to stop work if they discover deficiencies in quality.

13.1.2.2.2 Personnel Functions, Responsibilities and Authorities

The functions and responsibilities of key site supervisory staff are described in the succeeding paragraphs.

(a) Plant Manager

The Plant Manager reports to the Vice President, Catawba Nuclear Station and has direct responsibility for operating the station in a safe, reliable and efficient manner. The Plant Manager is responsible for protection of the station staff and the general public from radiation exposure and/or any other consequences of an accident at the station and bears the responsibility for compliance with the facility operating license.

(b) Operations Manager

The Operations Manager has the responsibility for directing the actual day-to-day operation of the station. In the event of the absence of the Plant Manager, the Operations Manager, if so designated, assumes the responsibilities and authority of the Plant Manager.

(c) Assistant Operations Manager - Shift

The Assistant Operations Manager - Shift is responsible for directing the activities of the on-Shift licensed and non-licensed operating personnel.

(d) Shift Manager

The Shift Manager is the Senior licensed individual responsible for the actual operation of the station on his/her assigned Shift. The Shift Manager oversees the activities of the operators on his/her Shift and is cognizant of all maintenance activity being performed while on duty. The

Shift Manager on duty has both the authority and the obligation to shut down a unit if, in his/her opinion, conditions warrant this action.

(e) Control Room Supervisor (CRS)

The Control Room Supervisor assists the Shift Manager in operation of the station on his/her assigned Shift. The Control Room Supervisor on duty has both the authority and the obligation to shut down a unit if, in his/her opinion, conditions warrant this action.

(f) Shift Technical Advisor (STA)

The Shift Technical Advisor supports the Operations Shift Manager and Control Room Supervisor in diagnosing and mitigating plant abnormal conditions to ensure a safe overall plant status.

(g) Reactor Operator

A Reactor Operator is responsible for the actual operation of a Unit on his/her assigned Shift. The Reactor Operator has both the authority and obligation to shut down a unit if, in his/her opinion, conditions warrant this action.

(h) Nuclear Equipment Operator

A Nuclear Equipment Operator is responsible for the operation of equipment outside of the Control Room.

(i) Radiation Protection Manager

The Radiation Protection Manager has the responsibility for conducting the radiation protection program. Duties include the training of personnel in use of equipment, control of radiation exposure of personnel, continuous determination of the radiological status of the station, surveillance of radioactive waste disposal operations, conducting the radiological environmental monitoring program and maintaining all required records. The Radiation Protection Manager has direct access to the Plant Manager in matters concerning any phase of radiological protection. The Radiation Protection Manager also has direct support as required from the Nuclear General Office Radiation Protection Manager and his/her staff.

(j) Chemistry Manager

The Chemistry Manager is responsible for overall chemistry and radiochemistry requirements, with special emphasis on primary and secondary system water chemistry.

(k) Maintenance Manager

The Maintenance Manager has responsibility for maintenance of mechanical equipment, electrical equipment, instrumentation, controls, and computers.

(l) Work Management Manager

The Work Management Manager manages the station's efforts to support Catawba's Nuclear Station's operational and outage activities through the coordination, development, shift and outage management of a timely and effective integrated station schedule.

(m) Organizational Effectiveness Director

The Organizational Effectiveness Director is responsible for directing the activities of Regulatory Affairs, Performance Improvement, Emergency Planning and Procedures. The INPO Coordinator function is also part of the Organizational Effectiveness group.

(n) Regulatory Affairs

The Regulatory Affairs lead has responsibility for coordinating station interfaces with regulatory agencies and for providing review of appropriate station technical matters.

(o) Engineering General Manager

The Engineering General Manager is a senior leader for the site and is the site single point of contact for site engineering issues as well as having many other ancillary site duties. Some site engineering activities include: Design Engineering, Component Engineering - Mechanical Systems, and Electrical & Reactor Systems. The site Engineering General Manager reports directly to the Vice President Catawba Nuclear Station.

(p) Training Manager

The Site Training Manager is responsible for implementation and oversight of the training programs for site personnel. The Site Training Division provides the analysis, design, development, implementation, and evaluation of training and qualifications programs in support of personnel performing work in the nuclear station. Furthermore, the Site Training Division ensures station training programs meet or exceed all facility licensing, UFSAR, Nuclear Policy or regulatory requirements.

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(q) Site Services Group Manager

The Site Services Group Manager is responsible for the maintenance of all commercial facilities at the Catawba Site. This includes coordination of any vendor contractors required to support maintenance of the commercial facilities.

13.1.2.3 Shift Crew Composition

For Station Operations, Shift Crew requirements are presented in Technical Specification Chapter 5 and in Selected Licensee Commitment 16.13-4.

13.1.2.4 Nuclear General Office Organization

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The organization chart is shown on Figure 13-3. The functions and responsibilities are described in the Topical Report, Duke-QAPD.

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13.1.3 Qualifications of Station Personnel

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Deleted Paragraph(s) per 2016 update.

Deleted Paragraph(s) per 2018 update.

13.1.3.1 Minimum Qualification Requirements

The qualifications of personnel in the site organization, except for the radiation protection manager and licensed operators, are in accordance with Section 4 of ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel". The qualifications of the radiation protection manager are in accordance with Regulatory Guide 1.8, September 1975. The education and experience eligibility requirements for licensed operators are in accordance with the guidelines outlined by the National Academy for Nuclear Training (NANT), which have been

found acceptable by the Nuclear Regulatory Commission for meeting 10 CFR 55.31 and have been incorporated into applicable station training procedures. Replacement personnel for positions at the station are fully trained and qualified to fill their appointed positions . Qualifications of key site personnel are available for inspection on-site. Reference Technical Specification 5.3.1.

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13.2 Training

13.2.1 General Program Description

The Fleet Training Program is designed to prepare initial and replacement station personnel for safe, reliable, and efficient operation of the nuclear facility. The program is intended to meet or exceed all INPO accreditation objectives/criteria and regulatory requirements.

Training is analyzed, designed, developed, implemented, and evaluated in accordance with the systematic approach to training. Employees are provided with formal training to establish the knowledge foundation and on-the-job training to develop work performance skills. Continuing training is provided as required to maintain competency in these knowledge and skill components and to provide further employee development.

Appropriate training for personnel with various training and experience levels is provided by the site Training division. The level at which an employee enters the training and qualification system for a particular area is determined by an assessment of the employee's experience, skills, and qualifications.

The site vice-president has accountability for training and qualification of site personnel.

13.2.1.1 Regulatory Requirements

The applicable portions of the NRC regulations, regulatory guides, and reports listed below will be used in providing guidance in plant staffing and training.

1. 10CFR Part 50, "Licensing of Production and Utilization Facilities"
2. 10CFR Part 55, "Operators Licenses", including Appendix A
3. 10CFR Part 19, "Notices, Instructions, and Reports to Workers: Inspections
4. Regulatory Guide 1.8, "Personnel Selection and Training"
5. NRC "Operator Licensing Guide", NUREG-0094, July, 1976
6. "Utility Staffing and Training for Nuclear Power", WASH- 1130, USAEC, Revised 1973
7. NUREG-0654, "TMI-Related Requirements for New Operating Licenses"
8. Regulatory Guide 8.8, "Information Relevant to Maintaining Occupational Radiation Exposure As Low As Reasonably Achievable(Nuclear Power Reactor)"
9. Regulatory Guide 8.13, "Instructions Concerning Prenatal Radiation Exposure"
10. NUREG-0737, "Clarification of TMI Action Plan Requirements"
11. Deleted per 2016 update.

13.2.2 Program Content Description

Station assigned personnel may be trained and qualified through participation in prescribed parts of the Fleet Training Program, General Employee Training(GET), and Employee Development/Management- Supervisory Training.

13.2.2.1 General Employee Training

General Employee Training (GET) encompasses those Quality Assurance, radiation protection, safety, security, emergency and administrative procedures, and other topics established by station management and applicable regulations. Continuing training is conducted in these areas as necessary to maintain employee competency. All persons under the supervision of station management must participate in GET; however, certain station support personnel, depending on their normal work assignment, may not participate in all topics. Temporary maintenance and service personnel receive GET to the extent necessary to assure safe execution of their duties. Certain portions of GET may be included in a New Employee Orientation Program.

13.2.2.1.1 Fire Brigade Training

The primary purpose of the Fire Brigade Training Program is to develop a group of station employees skilled in fire prevention, fire fighting techniques, and emergency response. They are trained and equipped to function as a team for the fighting of fires. The station fire brigade organization is intended to be self-sufficient with respect to fire fighting activities.

The Fire Brigade Training Program provides for initial training of all new fire brigade members, quarterly classroom training and drills, annual practical training, and leadership training for fire brigade leaders.

Training is discussed in CNS-1435-00.00.0006.

13.2.2.2 Technical Training

Technical training is designed, developed, and implemented to assist station employees in gaining an understanding of applicable fundamentals, procedures, and practices; and in developing manipulative skills necessary to perform assigned work in a competent manner. Technical training consists of the following three segments:

- Initial Training
- On-the-Job Training
- Continuing Training

13.2.2.2.1 Initial Job Training

Initial job training is designed to provide knowledge of the fundamentals, basic principles and procedures involved in work in which an employee is assigned. This training may consist of, but is not limited to, live lectures, taped and filmed lectures, computer-assisted instruction, guided self-study, demonstrations, laboratories and workshops, on-the-job training, and where applicable, simulator training.

Certain new employees or employees transferred from other department locations may be partially qualified by reason of previous applicable training and/or expertise. The extent of further training for these employees is determined by applicable regulations, performance in review sessions, comprehensive examinations, or other techniques designed to identify the employee's present level of ability.

Initial job training and qualification programs are developed for operations, maintenance, and technical services non-exempt classifications. Training for each program is grouped into logical blocks or modules and presented in such a manner that specific behavioral objectives are accomplished. Trainee progress may be evaluated using written examinations, oral or practical tests. Depending on the regulatory requirements, an individual's needs, or plant operating conditions, allowances are made to suit the specific situation.

An accredited training program is maintained using a systematic approach in the following areas:

1. Non-licensed Operators
2. Reactor Operators
3. Senior Reactor Operators
4. Shift Manager
5. Shift Technical Advisors
6. Continuing Training for Licensed Personnel
7. Instrument & Control Technicians & Supervisors
8. Electrical Maintenance Technicians & Supervisors
9. Mechanical Maintenance Technicians & Supervisors
10. Radiation Protection Technicians
11. Chemistry Technicians
12. Engineering Support Personnel

13.2.2.2.2 On-the-Job Training and Qualifications

On-the-job training is a systematic method of providing the required job-related skills and knowledge for a position. This training is conducted in the work environment by qualified OJT trainers and evaluated by qualified evaluators as part of the overall qualification process. Applicable tasks and related procedures make up the on-the-job training/evaluation program for each technical area which is designed to supplement and complement training received through formal classroom, laboratory, and/or simulator training. The objective of the program is to assure the trainee's ability to independently perform job tasks as described in the task descriptions and the Qualification Cards.

13.2.2.2.3 Continuing Training

Continuing training is any training not provided as initial training or qualification and basic training which maintains and improves job-related knowledge and skills. Topics may include the following:

1. Plant systems and component changes
2. OJT/Qualification program retraining
3. Procedures and directives training
4. Operating experience program documents review to include industry and in-house operating experience
5. Continuing training required by regulation (Emergency Plan Training, etc.)
6. General Employee, special, administrative, vendor, and/or advanced training topics supporting tasks which are elective in nature
7. Training identified to resolve deficiencies (task-based) or to reinforce seldom-used knowledge skills
8. Refresher training on initial training topics
9. Pre-job instruction, mock-up training, walk-throughs, etc. that are structured.

Continuing training and requalification training may overlap to some degree in definition; however, requalification or retraining refers to specific training designed for maintaining competency.

Continuing training may consist of formal and informal components. Each section's continuing training program should be developed from a systematic approach, using information from job performance and safe operation as a basis for determining the content of continuing training. Continuing training may be offered, as needed, on any of the topics or programs listed in Section 13.2.2.2.3.

Once the objectives for continuing training have been established, the methods for conducting the training may vary. The method selected must provide clear evidence of objective accomplishment and consistency in delivery.

13.2.2.2.3.1 Operator Requalification Training

Licensed Operator Requalification training is designed based upon a systematic approach to training to maintain and demonstrate continued competence of all licensed operators. The training is described in applicable Fleet Training Procedures. The program received initial accreditation from the accrediting board of the National Academy for Nuclear Training on November 20, 1986. Certification of the training programs was made to the NRC in Mr. H.B. Tucker's letters, dated 5/18/87 and 9/11/87. Accreditation renewal has occurred on a routine basis set by INPO since the date of the initial accreditation.

13.2.2.3 Employee Development/Management Supervisory Training

Employee Development Management/Supervisory Training may consist of various classes for different management personnel levels. An individual's training will depend on the position description and nomination by management.

13.2.3 Operator License Training

Duke Energy reactor operator and senior reactor operator training programs are based on a systematic approach to training, as defined by 10CFR55.4. Additionally, the reactor operator and senior reactor operator training programs received their initial accreditation from the accrediting board of the National Academy for Nuclear Training on November 20, 1986. Certification of these training programs was made to the NRC in Mr. H.B. Tucker's letters, date 5/18/87 and 9/11/87. Accreditation renewal of these programs has occurred on a routine basis set by INPO since the date of the initial accreditation.

13.2.4 Training Program Evaluations

Training and qualification activities are monitored by designated station personnel, with assistance from Nuclear General Office personnel. In addition, trainees, supervisors, and vendors may provide input concerning training program effectiveness. Methods utilized to obtain this information include surveys, questionnaires, observation, performance assessments, staff evaluations, training program effectiveness measures, etc. Classes are routinely evaluated at a frequency sufficient to determine program effectiveness. Evaluation information may be collected from, but is not limited to, the following:

1. verification of program objectives as related to job duties for which intended;
2. on-going and periodic self-assessments
3. testing to determine student accomplishment of objectives

4. student evaluation of instruction
5. supervisor evaluation of the trainee's performance after training on-the-job
6. supervisor evaluations of instruction

The performance and competence of licensed reactor operators and senior reactor operators is evaluated as described in the applicable fleet Training procedures.

13.2.5 Training and Qualification Program Documentation

Training and qualification records are maintained in accordance with fleet procedures.

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The site Training Manager is accountable for the retention and maintenance of training and qualification records as stated in fleet procedures.

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13.3 Emergency Planning

The Radiological Emergency Plan was submitted to the NRC as a separate document at the same time the FSAR was filed. The Radiological Emergency Procedures that implement the Plan are prepared by the individual nuclear power stations and Duke Energy Corporate. These procedures are available for training of personnel and for inspection.

13.3.1 Emergency Plans (III.A.1.1/III.A.2)

Emergency plans involve administrative controls to assure that various actions are taken in the event plant conditions warrant these actions. The Catawba Emergency Plan is a controlled document and the implementing procedures for the Emergency Plan should be designated appropriately for the procedure related function. That is, non-safety procedures may be used for manipulating non-safety related structures, systems, and components (SSCs). Likewise, safety related procedures shall be used when manipulating safety related SSCs. These procedures and the Emergency Plan are subject to the pertinent requirements of the Appendix B Quality Assurance Program.

See UFSAR Section 1.8. (NUREG -0737 TMI-related requirement)

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13.4 Review and Audit

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13.4.1 Onsite Review

The Onsite Review Committee is addressed with the Independent Review function in the description of the Quality Assurance Program referenced in Chapter 17.

13.4.2 Independent Review

The Independent Review function is addressed in the description of the Quality Assurance Program referenced in Chapter 17.

13.4.3 Audit Program

The Audit Program is addressed in the description of the Quality Assurance Program referenced in Chapter 17.

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13.5 Station Procedures

13.5.1 Administrative Procedures

13.5.1.1 Conformance With Regulatory Guides

Regulatory Guide 1.33, Revision 2, "Quality Assurance Program Requirements," and ANSI N18.7-1976, "Standard for Administrative Controls for Nuclear Power Plants", is being used for the preparation of administrative and plant procedures.

13.5.1.2 Preparation of Procedures

The Preparation, Review, and Approval of procedures is performed in accordance with Section 17.3.2.14, Document Control, of the Topical Report, Quality Assurance Program referenced in Chapter 17.

All procedures are prepared by qualified personnel, reviewed as necessary and approved by the responsible implementing Manager or his designee prior to use.

13.5.1.3 Administrative Procedures

Station administrative procedures (Site Directives, RA procedures), Radiation Protection Management Procedures, and Maintenance Management Procedures are written as necessary to control station testing, maintenance, and operating activities. Listed below are several areas for which administrative procedures are written, including principle features:

1. The reactor operator's authority and responsibility: The reactor operator is given the authority to manipulate controls which directly or indirectly affect core reactivity, including a reactor trip if he deems necessary. He is also assigned the responsibility for knowing the limits and setpoints associated with safety-related equipment and systems as specified in the Technical Specifications and designated in the operating procedures.
2. The senior reactor operator's authority and responsibility: The senior reactor operator, in addition to the authorities and responsibilities described for the reactor operator, is given the authority to direct the licensed activities of the reactor operator and ultimately is held responsible for all licensed activities at the station within his control.
3. Activities affecting station operation or operating indications: All station personnel performing functions which may affect unit operation or control room indications are required to notify the Control Operator (licensed reactor operator) prior to initiating such action. Removal of an instrument or component from service requires the permission of the Operations Shift Manager or Nuclear Shift Supervisor (licensed senior reactor operators).
4. Manipulation of facility controls: No one is permitted to manipulate the facility controls who is not a licensed reactor operator or senior reactor operator, except for license trainees operating under the direction of a licensed operator. The licensed operators are required to comply with the requalification program as described in Section 13.2.
5. Responsibility for licensed activities: Responsibility for directing the licensed activities of licensed operators is assigned to individuals with senior reactor operator licenses by virtue of their position within the station organization.
6. Relief of Duties: This procedure provides a detailed checklist of applicable items for shift turnover.

7. Equipment control: Equipment control is maintained and documented through the use of tags, labels, stamps, status logs or other suitable means.
8. Master surveillance testing schedule: This procedure establishes a master surveillance testing schedule to assure that required testing is performed and evaluated on a timely basis. Surveillance testing is scheduled such that the safety of the station is not dependent on the performance of a structure, system or component which has not been tested within its specified testing interval. The master surveillance testing schedule identifies surveillance and testing requirements, applicable procedures, and required test frequency. Assignment of responsibility for these requirements is also indicated.
9. The following log books are maintained and reviewed by appropriate personnel:
 - a. Reactor Operations Logbook - This document contains significant events during each shift such as reactivity changes, alarms received, abnormal conditions of operation due to auxiliary equipment and all releases of radioactive waste.
 - b. Operations Shift Manager Logbook - This document contains a summary of unit operation for each shift, explaining significant events in greater detail than would be expected in the Reactor Operations Logbook.
10. Temporary Procedures: The use of temporary procedures is discussed in Section 13.5.2.1.3.
11. Fire Protection Procedures: Fire protection procedures are written to address such topics as training of the fire brigade, reporting of fires, and control of fire stops.

A Site Directive is written which requires a reactor operator or senior reactor operator to be present at the controls at all times during the operation of the facility. The area designated "at the controls" is defined by Figure 13-6.

Administrative or special orders of a transient or self canceling nature are issued (and rescinded if necessary) by the use of intrastation memoranda.

The administrative control of maintenance is maintained as follows:

1. In order to assure safe, reliable, and efficient operation, a comprehensive maintenance program for the station's safety-related structures, systems and components is established.
2. The Maintenance Superintendent is responsible for directing the performance of station maintenance activities affecting mechanical equipment. The Maintenance Superintendent is responsible for directing the performance of station maintenance activities affecting instrumentation and electrical equipment.
3. Personnel performing maintenance activities are qualified in accordance with applicable codes and standards, as appropriate.
4. Maintenance is performed in accordance with written procedures which conform to applicable codes, standards, specifications, criteria, etc.
5. Maintenance is scheduled so as not to jeopardize station operation or the safety of a reactor or reactors.
6. Maintenance histories are maintained on station safety-related structures, systems and components.
7. The maintenance program is monitored for effectiveness in accordance with 10CFR50.65 (Maintenance Rule). Process controls and guidance for evaluating SSCs (i.e., selected

safety and non-safety) are defined in EDM-210, Engineering Responsibilities for the Maintenance Rule.

The administrative control of modifications is discussed in Topical Report, DUKE-1A, Quality Assurance Program.

13.5.2 Operating and Maintenance Procedures

13.5.2.1 Operating Procedures

13.5.2.1.1 System Procedures

Operating activities which affect the proper functioning of the station's safety-related systems and components are performed in accordance with approved, written procedures. These procedures are intended to provide a pre-planned method of conducting operations of systems, in order to eliminate errors due to on-the-spot analyses and judgements.

Operating procedures are sufficiently detailed that qualified individuals can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and operating procedures, therefore, contain a degree of flexibility appropriate to the activities for which each is applicable.

Typical activities addressed by operating procedures are:

- Auxiliary Building Ventilation System Operation
- Auxiliary Feedwater System Operation
- Boron Recycle System Operation
- Chemical and Volume Control System Operation
- Component Cooling Water System Operation
- Condensate and Feedwater Systems Operation
- Condenser Circulating Water System Operation
- Containment Ventilation System Operation
- Containment Spray System Operation
- Control Building Ventilation System Operation
- Degasification of the Reactor Coolant System
- Demineralizer Resin Removal and Replacement
- Electrical Systems Operation
- Emergency Diesel Generator Operation
- Failed Fuel Detection and Handling
- Filling and Draining of the Refueling Canal
- Filling, Venting and Draining of the Reactor Coolant System
- Fire Protection Systems Operation
- Instrument Air System Operation
- Nitrogen System Operation
- Natural Circulation Cooldown
- Natural Circulation Cooldown with Steam Void in Vessel
- Nuclear Fuel Control And Accountability
- Nuclear Service Water System Operation
- Oxygen System Operation
- Reactor Coolant Pump Operation
- Receipt, Inspection and Storage of New Fuel
- Recirculated Cooling Water System Operation
- Shutdown Cooling System Operation

- Safety Injection System Operation
- Pool Cooling and Purification System Operation
- Spent Fuel Handling and Shipping
- Steam Generator Secondary Side Operation
- Turbine-Generator Operation
- Unit Operation at Power
- Unit Shutdown
- Unit Startup

13.5.2.1.2 Emergency Procedures

Plant specific emergency procedures are written in accordance with Westinghouse Owner's Group Emergency Response Guidelines. These procedures are based on a sequence of observations and actions, with emphasis placed on operator responses to indications in the Control Room. When immediate operator actions are required to prevent or mitigate the consequences of an emergency situation, procedures require that those actions be implemented at the earliest possible time, even if full knowledge of the emergency situation is not yet available.

The actions outlined in emergency procedures are based on a conservative course of action to be followed by the operating crew. Written procedures, however, cannot address all contingencies and emergency procedures, therefore, contain a degree of flexibility consistent with the fact that an emergency situation may not follow an anticipated sequence.

Typical emergency procedures (consisting of appropriate subprocedures) are:

- Reactor Trip or Safety Injection
- Critical Safety Function Status Trees
- Loss of All AC Power

13.5.2.1.3 Temporary Operating Procedures

Temporary operating procedures are approved written procedures issued for operating activities which are of a nonrecurring nature. Examples of such uses are: (a) to direct operating activities during special testing or maintenance; (b) to provide guidance in unusual situations not within the scope of normal procedures; (c) to assure orderly and uniform operations for short periods of time when the station, a unit, a structure, a system or a component is performing in a manner not addressed by existing procedures or has been modified or extended in such a manner that portions of existing procedures do not apply.

The format of these procedures includes a purpose, limits and precautions, initial conditions and step-by-step instructions for each mode of operation and necessary enclosures.

Temporary operating procedures are sufficiently detailed that qualified individuals can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and therefore contain a degree of flexibility appropriate to the activities for which each is applicable.

13.5.2.1.4 Annunciator Response Procedures

Annunciator response procedures are written which specify operator actions necessary to respond to an off-normal condition as indicated by an alarm. The format for annunciator response procedures includes alarm setpoints, probable causes, automatic actions, immediate manual actions, supplementary actions, and applicable references.

In order to insure that annunciator response procedures are readily accessible for reference, a positive method is employed to allow their retrieval. Each annunciator panel is designated by a unique and obvious nameplate. All of the annunciator windows within a panel are designated by identifying names. The annunciator response procedures are grouped by panels, then subdivided by annunciator names so that the response procedure for any annunciator may be quickly located.

13.5.2.2 Other Procedures

13.5.2.2.1 Maintenance Procedures

Maintenance of station safety-related structures, systems and components is performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances (for example, skills normally possessed by qualified maintenance personnel may not require detailed step-by-step delineation in a written procedure) which conform to applicable codes, standards, specifications, criteria, etc. Where appropriate sections of related vendor manuals, instructions or approved drawings with acceptable tolerances do not provide adequate guidance to assure the required quality of work, an approved, written maintenance procedure is provided.

Each procedure is sufficiently detailed that qualified workers can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and maintenance procedures, therefore, contain a degree of flexibility appropriate to the activities for which each is applicable.

The Maintenance Superintendent has responsibility for preparation and implementation of maintenance procedures.

13.5.2.2.2 Instrument Procedures

Maintenance, testing, and calibration of station safety-related instruments is performed in accordance with written, approved procedures.

Each procedure is sufficiently detailed that qualified workers can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and therefore contain a degree of flexibility appropriate to the activities for which each is applicable.

The Maintenance Superintendent has responsibility for preparation and implementation of instrument procedures.

13.5.2.2.3 Periodic Test Procedures

Testing conducted on a periodic basis to determine various station parameters and to verify the continuing capability of safety-related structures, systems and components to meet performance requirements is conducted in accordance with approved, written procedures. Periodic test procedures are utilized to perform such testing and are sufficiently detailed that qualified personnel can perform the required functions without direct supervision.

Periodic test procedures are performed by the station's Chemistry, Radiation Protection, Operations, Mechanical, and I&E groups.

13.5.2.2.4 Chemistry Procedures

Chemical and radiochemical activities associated with station safety-related structures, systems, and components are performed in accordance with approved, written procedures and the station chemistry manual.

Each procedure is sufficiently detailed that qualified workers can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and therefore contain a degree of flexibility appropriate to the activities for which each is applicable.

The station's chemistry section has responsibility for preparation and implementation of chemistry procedures.

13.5.2.2.5 Radioactive Waste Management Procedures

Radioactive waste management activities associated with the station's liquid, gaseous, and solid waste systems are performed in accordance with approved, written procedures.

Each procedure is sufficiently detailed that qualified workers can perform the required functions without direct supervision. Written procedures, however, cannot address all contingencies and therefore contain a degree of flexibility appropriate to the activities for which each is applicable.

The station's operations group and chemistry and radiation protection sections have responsibility for preparation and implementation of the radioactive waste management procedures.

13.5.2.2.6 Radiation Protection

Information concerning these procedures is presented in Section 12.5.3.

13.5.2.2.7 Plant Security Procedures

Information concerning these procedures is presented in the Station Security Plan.

13.5.2.2.8 Emergency Preparedness Procedures

Information concerning these procedures is presented in Section 13.3.

13.5.2.2.9 Material Control Procedures

Information concerning these procedures is presented in Duke Energy Topical Report, Quality Assurance Program, DUKE-1A.

13.5.2.2.10 Modification Procedures

Information concerning these procedures is presented in Duke Energy Topical Report, Quality Assurance Program, DUKE-1A.

13.5.2.2.11 Fire Protection Procedures

Information concerning these procedures is presented in Section 13.5.1.3.

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13.6 Nuclear Security

The requirements to implement 10 CFR 73.55 through its Commission-approved Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Cyber Security Plan referred to collectively as "Security Plans," describes the comprehensive security program for Catawba Nuclear Station.

13.6.1 Physical Security

A combined Duke Energy Physical Security Plan, Security Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security and Contingency Plan was submitted for the protection of Catawba Nuclear Station against potential acts of radiological sabotage via a determined violent external assault, attack by stealth, or deceptive actions, an internal threat, a land vehicle bomb assault, and waterborne vehicle bomb assault. This information should be withheld from public disclosure pursuant to 10 CFR 73.21.

The general scope of activities encompassed by the Duke Energy Physical Security Plan, Security Training and Qualification Plan, Safeguards Contingency Plan and Independent Spent Fuel Storage Security and Contingency Plan include:

1. Performance Objectives;
2. Performance Evaluation Program;
3. Physical Security Organization;
4. Qualification for Employment in Security;
5. Security Personnel Training;
6. Liaison with Local Law Enforcement;
7. Physical Security Barriers, Posts and Structures;
8. Nuclear Site Access and Control Requirements;
9. Surveillance, Observation and Monitoring for detection of unauthorized intrusion;
10. Security Communications Systems;
11. Response to Security Threats;
12. Review, Evaluation, and audit of the Physical Security Programs;
13. Special Situations Affecting Security;
14. Maintenance, Testing and Calibration of Security Systems and equipment;
15. Compensatory Measures for degraded Physical Barriers and Security Systems;
16. Security Records; and
17. Temporary Suspension of Security Measures.

The Duke Energy Physical Security Plan, Security Training and Qualification Plan, and Safeguards Contingency Plan conforms to the requirements of 10 CFR 50.34(c)(2), (d) and (e), 10 CFR 73.55, and NRC Orders EA-03-086, EA-06-037 and EA-06-137. The Duke Energy Independent Spent Fuel Storage Installation Security and Contingency Plan conforms to the requirements of 10 CFR 72.212 and NRC Order EA-02-104 (McGuire and Oconee) or EA-05-084 (Catawba).

13.6.2 Cyber Security

A separate Duke Energy Cyber Security Plan was submitted for the protection of the Catawba Nuclear Station against potential acts of radiological sabotage via cyber attack to digital computer and communication systems and networks associated with:

1. Safety-related and important to safety functions;
2. Security functions;
3. Emergency preparedness functions, including offsite communications; and
4. Support systems and equipment which if compromised, would adversely impact safety, security, or emergency preparedness functions.

The safety-related and important-to-safety functions, security functions, and emergency preparedness functions including offsite communications are herein referred to as SSEP functions.

In the context of cyber security, systems or equipment that perform important to safety functions include structures, systems, and components (SSCs) in the balance of plant (BOP) that could directly or indirectly affect reactivity at a nuclear power plant and could result in an unplanned reactor shutdown or transient.

The Duke Energy Cyber Security Plan conforms to the requirements of 10 CFR 50.34(c)(2), 10 CFR 73.54 and 10 CFR 73.55.

This information should be withheld from public disclosure pursuant to 10 CFR 2.30(d).

13.6.3 References

1. Letter, from R. Michael Glover, Duke Energy to NRC, "Duke Energy Physical Security Plan, Revision 16," dated April 15, 2010.
2. Letter, from R. Michael Glover, Duke Energy to NRC, "Response to Requested changes Regarding Duke Energy License Amendment Request for Cyber Security Plan," dated August 9, 2011.
3. Letter, from J. Thompson, NRC to Duke Energy, Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendments 262 and 266 for Catawba Nuclear Station, Amendments 264 and 244 for McGuire Nuclear Station and Amendments 378, 380, and 379 for Oconee Nuclear Station regarding Cyber Security Plans based on Nuclear Energy Institute 08-09, Revision 6. Letter dated August 31, 2011.

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