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CHAPTER 13.0

CONDUCT OF OPERATIONS

13.1 ORGANIZATION STRUCTURE OF APPLICANT

Union Electric Company exists as a legal entity that holds the Callaway Plant Operating License, NPF-30. Union Electric Company is a wholly-owned subsidiary of Ameren Corporation and conducts business under the name Ameren Missouri. Ameren Corporation has the ultimate responsibility for all Ameren Missouri power generating plants. Ameren Missouri is responsible for all plant operations at the Callaway Plant and provides a staff of Nuclear Generation personnel that either conduct these operations or provide support services for operation. The Ameren Missouri Nuclear Generation organization maintains or provides the experience and technical competence required to operate the Callaway Plant and to protect the public health and safety. Organizational titles “Nuclear Division,” “Nuclear Function,” “Nuclear Business Line” and “Nuclear Segment” as used in written procedures, policies, and instructions are equivalent to the organizational title “Nuclear Generation” used in the FSAR and the OQAM.

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

13.1.1.1 Design and Operating Responsibilities

The design and operating responsibilities of Ameren Missouri Nuclear Generation personnel can be divided into three categories: design and construction activities (project phase), preoperational activities, and technical support for operation.

Project design, construction, and preoperational activities are complete. Callaway Plant received a full power Operating License on October 18, 1984. The sections describing these activities have been deleted due to the historical status of their content.

13.1.1.1.1 Technical Support for Operations

The Nuclear Engineering Department provides technical services and backup support for Callaway Plant. Other functions within Ameren Missouri and other departments within Nuclear Generation assist this department upon request by providing technical services and backup support within their area of expertise. Technical support for the operating organization was available prior to the initial start-up testing program and continues throughout the life of the plant.

The Nuclear Engineering Department has personnel who are competent in technical matters related to plant safety. This expertise includes many engineering and scientific disciplines. In the event these Departments are not qualified to deal with a specific problem, the services of qualified individuals from other functions within Ameren Missouri, other departments within Nuclear Generation, or an outside consultant are engaged. For example, major contractors, such as the NSSS or turbine generator

manufacturer, provide technical support when equipment modifications or special maintenance problems are being considered. Special studies, such as environmental monitoring, may be contracted to qualified consultants.

The special capabilities available within Ameren Missouri are listed below:

1. Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical and material, and instrumentation and controls engineering;

2. Plant chemistry;

3. Radiation protection and environmental support;

4. Fueling and refueling operations support;

5. Maintenance support;

6. Licensing;

7. Nuclear Oversight, audit and surveillance.

In addition, Callaway Plant is a member of an industry consortium of plants known as Strategic Teaming and Resource Sharing (STARS) Alliance LLC. This alliance supports member nuclear stations in efforts to achieve excellence in nuclear power plant operations by conducting activities through cooperative efforts and by collaboratively sharing technical expertise, resources and operating experience.

13.1.1.2 Organizational Arrangement

13.1.1.2.1 Management and Technical Support

The Ameren corporate management of Ameren Missouri is ultimately responsible for execution of all activities and functions for all Ameren Missouri power generating plants. Ameren Corporation and its subsidiaries provide support and expertise to Callaway Plant as requested by Nuclear Generation. This may include directing activities related to the planning of transmission facilities or operation of transmission facilities; providing the support of qualified engineers, technicians, and equipment necessary to maintain Callaway Plant relays, plant battery testing, and other plant activities; providing support for system protection issues and high voltage design for the Callaway Plant switchyard; providing engineering, technical support and other support services when requested; providing support for activities related to the procurement of systems and components for Callaway Plant; and activities related to the dissemination of information to investors, the general public, and the news media.

Responsibility for implementation of nuclear plant design, technical aspects of procurement, construction, nuclear fuel cycle activities, operations, and quality

assurance is assigned to organizational groups within Ameren Missouri Nuclear Generation or is within the oversight of Ameren Missouri Nuclear Generation management. Nuclear Generation organizational charts are given in Figures 13.1-1, 13.1-2, 13.1-3. The senior management for Callaway Plant assures that operations, maintenance, and support activities are in accordance with the operating license issued by the NRC, other applicable federal, state, and local laws, and established Ameren Missouri procedures. Senior management assures a high level of quality is achieved in all aspects of plant operations and support activities through an effective management control system and an organization selected and trained to meet these objectives.

The President and Chief Executive Officer of Ameren Missouri reports directly to the Chairman, President and Chief Executive Officer of Ameren Corporation. The Ameren Missouri senior management involved in the operation of Callaway Plant are shown in Fig. 13.1-1. The President and Chief Executive Officer, Ameren Missouri, provides direction and administrative guidance to the Senior Vice President and Chief Nuclear Officer (SVPC), Ameren Missouri. The Senior Vice President and Chief Nuclear Officer is the individual whose job position corresponds to the specified corporate officer with direct responsibility for Callaway Plant as described in the Technical Specifications. The Senior Vice President and Chief Nuclear Officer maintains responsibility for all plant and support activities. This includes the safe, legal, and efficient operation and maintenance of the Callaway Plant, protecting the health and safety of the public and plant personnel, and the integrity of plant equipment. His responsibilities also include directing activities required to implement the nuclear fuel cycle at Callaway, directing activities concerning operation of the Callaway Plant, formulating the Quality Assurance policy, authorizing and assuring implementation of the Quality Assurance program, establishing policies to support a Safety Conscious Work Environment and providing oversight for the Employee Concerns Program, and coordinating all activities performed by other functions within Ameren Missouri which are related to the Callaway Plant.

The Senior Vice President and Chief Nuclear Officer is directly assisted by the Site Vice President and the Vice President, Engineering. The Director, Nuclear Oversight; the Director, Nuclear Development; and the Employee Concerns Program Manager also report directly to the Senior Vice President and Chief Nuclear Officer.

13.1.1.2.1.1 Nuclear Organization

The Site Vice President provides overall oversight for nuclear operations, maintenance, work management activities, radiation protection, industrial safety, training, and security. The Senior Director, Nuclear Operations; and the Senior Director, Plant Support report directly to the Site Vice President.

The functions of nuclear operations, maintenance, work management, radiation protection, and industrial safety are under the overall supervision of the Senior Director, Nuclear Operations. The Director, Nuclear Operations; the Director, Maintenance; the Director, Work Management; the Director, Radiation Protection and the Manager, Emergency Preparedness report to the Senior Director, Nuclear Operations. The Senior

Director, Nuclear Operations is the individual whose job position corresponds to that identified as “plant manager” in ANSI/ANS-3.1-1978 and the Technical Specifications. The Senior Director, Nuclear Operations and his staff are described in further detail in Section 13.1.2, Operating Organization.

The Senior Director, Plant Support directs plant administrative staff and the plant performance improvement organization. The Senior Director, Plant Support provides direction and administrative guidance to the Director, Training; Manager, Security; Director, Organizational Effectiveness; and Director, Nuclear Projects. The Senior Director, Plant Support functions as the site contact for the corporate Human Resources organization and reports directly to the Site Vice President.

Under the direction of the Director, Training, the Training Department provides support for training activities and for necessary training and qualification programs required for safe, legal, and efficient operation and maintenance of Callaway Plant. The Training Department coordinates the development, preparation and presentation of training programs for Callaway Plant personnel. The Training Department may seek assistance from other departments within Ameren Missouri or outside specialists such as educators and manufacturers. Training is responsible for the content and conduct of the licensed operator training program. The responsibilities include coordinating and supervising the development and administration of the licensed operator training program, ensuring the licensed operator training program is in compliance with the latest revision of applicable regulations or codes, and ensuring the program reflects the latest changes to plant design and procedures. The Director, Training provides overall supervision to a training staff that includes a Manager, Technical Training; Manager, Operations Training; Senior Training Supervisors, Training Supervisors, Supervisors and other staff.

The Manager, Regulatory Affairs has overall responsibility for coordination of the regulatory affairs function, which encompasses Regulatory Affairs and Licensing, Risk Management, and Regulatory Initiatives. One individual from the Regulatory Affairs Department is assigned to the position of Regulatory Affairs Consultant, STARS Alliance. This position functionally reports to the STARS Regulatory Affairs Manager and provides regulatory support for the STARS Alliance.

The Manager, Security oversees security operations. The security staff has overall responsibility for devopment, maintenance, and implementation of the Security Plan. Security operations also include security training. The security staff includes security supervisors and security officers.

The Manager, Emergency Prepardness has overall responsibility for the development and maintenance of the Emergency Preparedness Program. This includes onsite and offsite emergency preparedness, coordination of the Plant Radiological Emergency Response Plan with State and local emergency plans, and the planning and execution of emergency drills and emergency plan exercises. Emergency Preparedness staff includes emergency response coordinators and other emergency preparedness personnel.

13.1.1.2.1.2 Nuclear Engineering Organization

The Vice President, Engineering reports to the Senior Vice President and Chief Nuclear Officer and is directly responsible for all engineering activities for Callaway Plant and provides supervision of Nuclear Engineering and other technical support activities. This includes responsibility for design of plant systems during operations and includes review of plant design features and preparation of specifications for procurement of materials and equipment. The Vice President, Engineering provides overall guidance over the Nuclear Engineering functions of engineering systems, engineering design, engineering projects and engineering programs.

The Vice President, Engineering is the individual whose job position corresponds to that identified as “Engineer-In- Charge” in ANSI/ANS-3.1-1978. The Director, Engineering Systems; the Director, Engineering Design & Projects; the Director, Engineering Programs; and the Manager, Regulatory Affairs report to the Vice President, Engineering.

Nuclear Engineering Directors provide guidance to staffs of supervising engineers, engineers, and other technical personnel whose primary purpose is to provide technical support to the operation of Callaway Plant. This support includes, but is not limited to, design, modification, configuration control, system and equipment performance, reliability, testing, technical programs administration, incore fuel management, reactor design and radiological engineering, nuclear safety analysis and contractor support.

The Director, Engineering Systems provides oversight for an Engineering Fix It Now (EFIN) team, electrical/computer systems, Balance of Plant systems, and NSSS systems. The Fire Marshall reports to the Supervising Engineer, Balance of Plant Systems, who reports directly to the Director, Engineering Systems.

The Director, Engineering Design & Projects provides oversight for Reactor/Safety Analysis, mechanical/civil design, electrical and Instrument & Control (I&C) design, and configuration management. The Supervising Engineer, Reactor/Safety Analysis is a member of the Engineering Design Department and is the individual who meets the requirements for Supervising Reactor Engineer discussed in Section 13.1.1.3.1. Reactor Engineering provides support in the area of nuclear engineering which includes direction of the analysis of reactor flux data and refueling operations, incore fuel management and maintaining special nuclear material accountability.

The Director, Engineering Design & Projects also provides oversight for mechanical projects, construction/major modifications and electrical projects.

The Director, Engineering Programs provides oversight for performance engineering, plant engineering programs technical training, and equipment reliability that focuses on day-to-day equipment and operational issues.

The Director, Nuclear Projects provides oversight for nuclear fuel procurement.

The Director, Nuclear Projects (Fukushima) provides oversight for construction project management and mechanical engineering projects.

13.1.1.2.2 Nuclear Oversight Organization

The Nuclear Oversight (NOS) Organization is responsible for the quality assurance activities of Nuclear Generation as well as Quality Control inspection/testing activities to support plant operation, maintenance, and outages.

The Director, Nuclear Oversight reports directly to the Senior Vice President and Chief Nuclear Officer. The Director, Nuclear Oversight is responsible for assuring the Operational Quality Assurance Program is being effectively implemented for operating activities; directing the overall Quality Assurance Program including Program development, maintenance, and verification of implementation; and providing a constant independent overview of nuclear plant safety.

The qualifications of the Director, NOS are at least equivalent to those specified in ANSI/ ANS 3.1 - 1978, "Selection and Training to Nuclear Power Plant Personnel," Sections 4.2.4 and 4.4.5.

The Director, Nuclear Oversight provides technical direction and administrative guidance to supervisors and a Quality Control Supervisor. The supervisors and the Quality Control Supervisor direct Nuclear Oversight staff. The primary duties are to assure implementation of the Operational Quality Assurance Program and to perform additional duties which include:

a. General quality assurance indoctrination and training for Nuclear Generation, as requested;

b. Maintenance of the Operating Quality Assurance Manual (OQAM);

c. Coordinating the development of audit schedules;

d. Audit, surveillance and evaluation of Nuclear Generation suppliers;

The Quality Control Supervisor is responsible for the development and implementation of an inspection program to support maintenance and modification of safety-related components and systems as described in the Operational Quality Assurance Program. The qualifications of the Quality Control Supervisor are provided in Section 13.1.3.1.

13.1.1.3 Qualifications of Engineering Personnel

The Nuclear Engineering and Regulatory Affairs Departments provide technical support for the Callaway Plant and have the necessary overall nuclear background to determine when to call consultants and contractors for dealing with complex problems beyond the scope of Ameren Missouri expertise.

The Vice President, Engineering is also designated the "Engineer-In-Charge" and meets the qualifications of ANSI/ANS-3.1-1978.

13.1.1.3.1 Qualifications of Nuclear Engineering Staff Personnel

The Nuclear Engineering technical staff includes personnel with formal training or experience in one or more categories as required to satisfy the disciplines summarized herein:

a. Reactor Physics - Engineering graduate with completed qualifications in the reactor discipline.

b. Electrical Design - Engineering graduate with completed qualifications in electrical design or application.

c. Structural Design - Engineering graduate with completed qualifications in structural design or related fields.

d. Mechanical and Fluid Systems - Engineering graduate with completed qualifications in mechanical design and/or power plant application.

e. Metallurgy and Material Science - Engineering graduate in metallurgy, material science, non-destructive examination, inservice inspection, or related fields. This expertise may be drawn from other AmerenUE Functions or may be provided by outside consultants.

f. Engineers and Engineering Specialists - Engineers and other Engineering Specialists report to Supervising Engineers and provide technical support commensurate with their expertise in the areas of operation, fire protection, testing, maintenance, and design of plant equipment. They direct and monitor the testing, inspection and maintenance of plant equipment and systems, and prepare and review procedures covering those activities on safety-related equipment. They develop designs and provide design verifications. Where applicable, they perform analyses of reactor core flux profiles to ensure compliance with Technical Specifications and other applicable regulations.

g. Supervising Reactor Engineer - A graduate with a baccalaureate or higher degree in engineering or the physical sciences. Experience includes a total of four years experience or graduate degree and three years experience, of which two years shall be nuclear power plant experience. The experience shall be in such areas as reactor physics, core measurements, core heat transfer, and core physics testing programs. Successful completion of a reactor engineering training program (such as the 12 week concentrated programs offered by NSSS Vendors) may be considered as one year nuclear power plant experience.

A Lead Reactor Engineer may be assigned to assist and mentor the Supervising Reactor Engineer if the Supervising Engineer does not meet the experience requirements above. A Lead Reactor Engineer can be either a Consulting or Principal Reactor Engineer.

h. Fire Protection Engineer - A graduate with a baccalauruate or higher degree in engineering and meets eligibility requirements set by the Society of Fire Protection Engineers.

i. Quality Control Inspectors ISI/NDE - High School graduate with the minimum qualification/certification requirements established by the American Society of Nondestructive Testing.

j. Nuclear Safety Analysis - Engineering graduate with at least three years of experience in nuclear plant engineering or operation and familiarity with license requirements.

13.1.1.3.2 Qualifications of Regulatory Affairs Personnel

The qualifications of the Manager, Regulatory Affairs shall be those specified in ANSI/ ANS 3.1-1978. If the Manager, Regulatory Affairs does not meet the qualifications, one of his direct reports shall meet ANSI/ANS 3.1-1978.

The technical staff of the Manager, Regulatory Affairs includes department personnel and may be supplemented by personnel from other Ameren subsidiaries or by consultants. The technical staff of the Manager, Regulatory Affairs, as supplemented, includes personnel with formal training or experience in one or more categories as required to satisfy the disciplines summarized herein:

a. Licensing - Engineering graduate with at least three years of experience in nuclear plant engineering or operation and familiarity with license requirements.

b. Probabilistic Risk Assessment (PRA) - Engineering graduate with at least three years of experience in PRA or nuclear plant engineering and familiarity with PRA. A Supervising Engineer is required to have a Bachelor of Science Degree in Engineering and work experience of four or more years in nuclear power plant PRA.

c. Health Physics/Chemistry - Engineering/Chemistry or Health Physics graduate with training in the field of health physics or chemistry and with at least one year experience in health physics or chemistry.

d. Environmental Science - Engineering or science graduate with at least one year of experience in environmental studies, and familiarity with decommissioning fund activities.

13.1.1.4 Resumes

Resumes of key staff personnel are maintained on file for review and are not included here.

13.1.2 OPERATING ORGANIZATION

13.1.2.1 Plant Organization

The Callaway Plant operating organization reflects the practices of the company in conventional generating plants with increased emphasis on in-plant technical support and training. Also considered was the remote location of the plant relative to the existing Ameren Missouri system and the greater need to be self-sufficient. The plant operating organization chart is shown on Figure 13.1-3.

13.1.2.2 Personnel Functions, Responsibilities, and Authorities

As discussed in 13.1.1.2.1 the Site Vice President reports directly to the Senior Vice President and Chief Nuclear Officer and has overall responsibility for site activities and supervision of plant operations, operations support, and training personnel. The Senior Director, Plant Support and the Senior Director, Nuclear Operations report directly to the Site Vice President. Plant operation under the oversight of the Senior Director, Nuclear Operations is described in this section. The Senior Director, Nuclear Operations is the individual whose job position corresponds to that identified as “plant manager” in ANSI/ ANS-3.1-1978 and Technical Specifications. The Senior Director, Nuclear Operations provides overall guidance for plant operation, maintenance, radiation protection, industrial safety, and work management activities. The Senior Director, Nuclear Operations also directs and chairs the Plant ALARA Review Committee (PARC). The Director, Nuclear Operations; the Director, Maintenance; the Director, Work Management; and the Director, Radiation Protection report to the Senior Director, Nuclear Operations. The Site Vice President and the Senior Director, Nuclear Operations control plant operating activities through the plant staff as described in this section.

13.1.2.2.1 Nuclear Operations Organization

The Director, Nuclear Operations has the primary responsibility for reactor operation and procedure development. He also oversees chemistry and radwaste activities. The Chemistry Department is aligned with the Operations Department in the Operations Organization because both departments operate plant equipment.

13.1.2.2.1.1 Operations Department

The Director, Nuclear Operations directs plant operations through Managers, Operations. Managers, Operations supervise Shift Managers, Operating Supervisors,

and other Operations staff that include Unit Reactor Operators, Operations Technicians, Assistant Operations Technicians, and a procedures group.

The Director, Nuclear Operations reports directly to the Senior Director, Nuclear Operations.

The Director, Nuclear Operations, through the Managers, Operations, directs the operation of all equipment associated with the generation of power. In this effort guidance is provided by the various policies and regulations applicable to safe and reliable operation of this equipment. The responsibility includes directing fuel handling operations, for both new and spent fuel, including the loading of the reactor core and all handling and storage of fuel on site. The Director, Nuclear Operations or Managers, Operations direct the day-to-day operation of all systems associated with the production of electrical power. If in his judgment the equipment is unsafe to operate, he has the authority to have it removed from service. He coordinates the maintenance of adequate records to historically record the operation of the unit. The Director, Nuclear Operations or a Manager, Operations is the individual whose job position corresponds to that identified as “operations manager” in ANSI/ANS 3.1-1978 and Technical Specifications. If the Director, Nuclear Operations or Managers, Operations are unavailable, then the Shift Manager assumes the responsibilities, duties, and authorities.

A staff of personnel with titles of Shift Managers, Operating Supervisors, or Radwaste Operations Supervisors reports to the Director, Nuclear Operations through Managers, Operations. Personnel with the title of Operating Supervisor may be licensed as a senior reactor (SRO). Shift Managers or Operating Supervisors, who perform license activities, shall have an SRO license. Shift Managers, who are licensed as an SRO, carry on-shift management responsibilty for safe operating of the Callaway Plant and fulfill the responsibilities described in the Technical Specifications. A staff of Operating Supervisors, each licensed as an SRO if performing license activities reports to the Shift Manager. The Shift Manager is the SRO who normally is in charge of the Unit Reactor Operators on shift. Normally, the Shift Manager stands watch in the control room, however, he may leave the control room provided the requirements of the Technical Specification for control room manning are met. In the absence of the Senior Director, Nuclear Operations or his designated alternate, the Shift Manager is responsible for all site activities. The Shift Manager shall meet the education, experience, training, and certification requirements for Shift Supervisor set forth in ANSI/ANS 3.1-1981 as endorsed by Regulatory Guide 1.8.

Reactor Operators are licensed Reactor Operators and normaly report to the Shift Manager or Control Room Operating Supervisor. They are responsible for routine plant operations and performance of major evolutions at the direction of the Shift Manager. Whenever there is reactor fuel in the vessel, at least one Unit Reactor Operator is in the control room monitoring the status of the unit at the main control board.

Operations Technicians and Radwaste Trainer Operators are roving operators whose duties include manually or remotely changing equipment operating conditions, placing

equipment in service, or securing equipment from service at the direction of the Unit Reactor Operator. These positions provide preparation for reactor operator training.

Radwaste Operations personnel are involved in the operation of radwaste systems and the processing and storage of radioactive waste.

13.1.2.2.1.2 Chemistry Department

Chemistry activities are directed under the supervision of the Manager, Chemistry. The Manager, Chemistry reports to the Director, Nuclear Operations. He supervises and coordinates the chemistry program to maintain the safety of plant personnel and the public while supporting plant operations. Chemistry personnel provide chemical controls and analytical services to protect the integrity of plant fluid systems and to ensure compliance with environmental and hazardous material regulations. This includes responsibility for development, implementation, and direction and coordination of the chemistry, radiochemistry and nonradiological environmental monitoring activities at the Callaway Plant.

The Manager, Chemistry directs a staff that includes supervisors, chemists and/or chemical engineers, chemistry supervisors, and chemistry technicians.

13.1.2.2.2 Radiation Protection Organization

The Director, Radiation Protection reports directly to the Senior Director, Nuclear Operations. He manages the Radiation Protection staff and has responsibility for developing, implementing, and maintaining the Radiation Protection and ALARA programs. The Director, Radiation Protection supervises these programs and Radiation Protection personnel to assure the radiological health and safety of the plant staff and the public. The Director, Radiation Protection has many reponsibilities which include, but are not limited to, the following: providing radiation protection input to facility design and plant operation as a member of the Callaway Plant On-Site Review Committee; following and analyzing trends in radiation work performance of station personnel, contamination and exposure control, job exposures and taking the necessary actions to correct adverse situations and trends; identifying and reviewing causes, concerns and corrective actions of incidents associated with radiation protection; providing radiation protection overview of radioactive waste processing and control; developing, implementing, directing and coordinating radioactive waste shipping activities; providing technical expertise in aspects of radiation protection; interfacing with various plant department supervision to establish and track ALARA goals and determine program success; and approving Radiation Protection procedures. The Director, Radiaiton Protection is the individual whose position is Radiation Protection Manager as described in the Technical Specifications. The Radiation Protection staff includes a Supervising Health Physicist, health physicists, Radiation Protection supervisors, and Radiation Protection technicians.

13.1.2.2.3 Maintenance Organization

The Director, Maintenance reports directly to the Senior Director, Nuclear Operations and is responsible to direct maintenance activities to support plant operation, maintenance and outages. The responsibility includes maintenance work activities in the areas of mechanical maintenance, electrical maintenance, Instruments and Controls (I&C) maintenance, and maintenance support. Each of these areas is directed by a manager.

Maintenance managers supervise maintenance activities in the areas of electrical, mechanical, I&C, and maintenance support. In these areas they are responsible for all maintenance efforts throughout the plant. The managers direct a staff that includes coordinators, procedure writers, supervisors, electricians, I&C technicians, machinists, plant helpers, welders, and insulators. Maintenance supervisors supervise the activities of craft personnel and supervise the performance of preventive and corrective maintenance and surveillance testing. Maintenance personnel perform electrical and mechanical maintenance tasks as assigned. They inspect, repair, maintain and modify plant equipment and perform other work as directed. I&C supervisors supervise the activities of I&C technicians. I&C technicians perform maintenance and surveillance testing in all plant instrumentation and control systems including computers.

A Maintenance Services team focuses on day-to-day equipment and maintenance issues.

13.1.2.2.4 Work Management

The Director, Work Management reports directly to the Senior Director, Nuclear Operations. He is responsible for planning and implementation of outages and planning and scheduling of work activities. The Director, Work Management controls outage activities through a Manager, Work Management Outage. Planning and scheduling activities are controlled through the Manager, Work Management Planning. Work Management activities are supervised by the Manager, Work Management Online.

13.1.2.3 Operating Shift Crews

The composition of the operating shift crew is contingent upon the unit operating status. Position titles, license requirements and minimum shift manning for various modes of operation are contained in the Callaway Plant Technical Specifications.

Shift composition committments are further detailed in the text and in Table 5.1 of the Callaway Radiological Emergency Response Plan.

Radiation protection coverage is provided by the Radiation Protection Technician or Assistant Radiation Protection Technician assigned to the shift.

13.1.3 QUALIFICATION REQUIREMENTS OF NUCLEAR PLANT PERSONNEL

13.1.3.1 Minimum Qualification Requirements

The qualification requirements and definition of terms for the positions of Shift Manager, Operating Supervisor, and Reactor Operator, and personnel fulfilling the duties of Shift Technical Advisor meet ANSI/ANS 3.1-1981 as endorsed by Regulatory Guide 1.8, Revision 2 with the same exceptions as contained in the current revision to the Operating Licensing Examiner Standards, NUREG-1021, ES-202. The Director, Radiation Protection meets or exceeds the requirements of Regulatory Guide 1.8, revision 1, September, 1975, as clarified by USNRC HPPOS-020, “Clarification of Regulatory Guide 1.8 on Qualification of Radiation Protection Manager.” For all other positions, the following qualification requirements meet or exceed the intent of the requirements set forth in ANSI/ANS 3.1-1978, “American National Standard for Selection and Training of Nuclear Power Plant Personnel.” These qualifications assure fulfillment of the requirements of Regulatory Guide 1.8, "Personnel Selection and Training". Qualification shall be met prior to performing a task covered by the associated requirement.

The position of Operations Technician is equivalent to “Equipment Operator” as an individual whose job responsibilities correspond to the operator/technician position described in ANSI/ANS 3.1-1978 and in the Technical Specifications. This includes the position of Assistant Operations Technician.

For the positions of Shift Manager, Operating Supervisor, and Reactor Operator, the ANSI/ANS 3.1-1981 (as endorsed by Regulatory Guide 1.8, Revision 2) definitions of terms apply. For all other positions, the ANSI/ANS 3.1-1978 definitions of the terms "experience" and "nuclear power plant experience" apply. The definition of "power plant experience" as used by this section is "experience" as defined by ANSI/ANS 3.1-1978, gained at a plant used to produce electric power, process steam or space heating.

13.1.3.1.1 Senior Director, Nuclear Operations

1. A total of ten years of power plant experience, of which a minimum of three years is nuclear power plant experience. A maximum of four years of the remaining seven years may be fulfilled by academic training in engineering or scientific field associated with power plants on a one-for-one basis.

2. Meet one of the following special requirements:

   a. Hold a current NRC Senior Reactor Operator (SRO) License,

   b. Have held a NRC License on a similar (PWR) unit, or

   c. Have satisfactorily completed plant specific training to a level equivalent to SRO knowledge.

3. A baccalaureate or higher degree in engineering or a scientific field associated with the power industry.

If the Director, Nuclear Operations meets the above experience requirements, the experience requirements for the Senior Director, Nuclear Operations may be reduced such that only one of his ten years of experience need be nuclear power plant experience, he need not meet any of the special requirements, and he need not have a baccalaureate or higher degree in an engineering or scientific field associated with the power industry.

13.1.3.1.2 Director, Nuclear Operations

1. A total of eight years of responsible power plant experience, of which a minimum of three years shall be nuclear power plant experience. A maximum of two years of the power plant experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one basis.

2. Either the Director, Nuclear Operations or a Manager, Operations must hold a current NRC SRO License

3. High school education or equivalent.

13.1.3.1.3 Manager, Operations

1. A total of eight years of responsible power plant experience, of which a minimum of three years shall be nuclear power plant experience. A maximum of two years of the power plant experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one basis.

2. Either the Director, Nuclear Operations or a Manager, Operations must hold a current NRC SRO License.

3. High school education or equivalent.

13.1.3.1.4 Shift Manager

1. Shift Managers shall meet or exceed the qualifications of ANSI/ANS 3.1-1981, as endorsed by Reg. Guide 1.8, Revision 2, with the same exceptions as contained in the current revision to the Operating Licensing Examiner Standards, NUREG-1021, ES-202.

2. Shall hold a Senior Reactor Operator's (SRO) License, if performing license activities.

3. Shall have a high school diploma or equivalent.

13.1.3.1.5 Operating Supervisor

1. Operating Supervisors shall meet or exceed the qualifications of ANSI/ANS 3.1-1981, as endorsed by Reg. Guide 1.8, Revision 2, with the same exceptions as contained in the current revision to the Operating Licensing Examiner Standards, NUREG-1021, ES-202.

2. Shall hold a Senior Reactor Operator's (SRO) License, if performing licensed activities.

3. Shall have a high school diploma or equivalent.

4. If fulfilling the Shift Technical Advisor (STA) requirements, meet the educational requirements of Section 18.1.1.2.

13.1.3.1.6 Unit Reactor Operator

1. Reactor Operators shall meet or exceed the qualifications of ANSI/ANS 3.1-1981, as endorsed by Reg. Guide 1.8, Revision 2, with the same exceptions as contained in the current revision to the Operating Licensing Examiner Standards, NUREG-1021, ES-202.

2. Shall hold a Reactor Operator's (RO) License.

3. Shall have a high school diploma.

13.1.3.1.7 Operations Technician

1. A total of one year of operating power plant experience, of which a minimum of six months shall be nuclear power plant experience.

2. Successful completion of the Operations Technician Training Program.

3. High school education or equivalent.

13.1.3.1.8 Director, Maintenance (ANSI/ANS-3.1-1978 4.2.4)

1. A total of eight years of responsible positions related to power generation of which three years shall be nuclear power plant experience. A maximum of four years of the remaining five years of experience may be fulfilled by satisfactory completion of academic or related technical training.

2. High School education or equivalent.

13.1.3.1.9 Manager, Maintenance Mechanical (ANSI/ANS-3.1-1978 4.2.3)

1. A total of seven years of responsible power plant experience or applicable industrial experience of which one year shall be nuclear power plant experience. A maximum of two years of the remaining six years of power plant or industrial experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one basis.

2. Familiarity with nondestructive testing and pressure vessel, piping, and welding codes.

3. High school education or equivalent.

13.1.3.1.10 Manager, Maintenance Electrical (ANSI/ANS-3.1-1978 4.2.3)

1. A total of seven years responsible power plant experience or applicable industrial experience of which one year shall be nuclear power plant experience. A maximum of two years of the remaining six years of power plant or industrial experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one basis.

2. Familiarity with electrical codes.

3. High School education or equivalent.

13.1.3.1.11 Maintenance Supervisor

Maintenance Supervisors shall meet either one of the below items:

1. High school education or equivalent, and four years experience in the craft or discipline they supervise.

Or

2. A baccalaureate degree in engineering or the physical sciences and six months nuclear power plant experience in areas related to the activities to be supervised.

13.1.3.1.12 Maintenance Craft Personnel

Maintenance Craft Personnel shall meet the following requirements:

1. High school education or equivalent.

2. Three years experience in one or more crafts.

3. Should possess a high degree of manual dexterity and ability and should be capable of learning and applying basic skills in maintenance operations.

13.1.3.1.13 Manager, Maintenance Instrument and Controls (ANSI/ANS-3.1-1978 4.2.3)

1. A total of seven years of experience in instrumentation and control, of which one year shall be in nuclear instrumentation and controls at an operating nuclear power plant.

2. Two years of this seven years experience shall be related technical training. A maximum of four years of this seven years experience may be fulfilled by related technical or academic training.

3. High School education or equivalent.

13.1.3.1.14 Maintenance Instruments and Controls Supervisors

1. A total of four years of experience in instrumentation and control. A maximum of two years may be fulfilled by related technical training.

2. High school education or equivalent.

13.1.3.1.15 Maintenance Instruments and Controls Technician

1. Three years of experience in instrumentation and controls of which one year should be related technical training.

2. High school education or equivalent.

3. Should possess a high degree of manual dexterity and ability and should be capable of learning and applying basic skills in maintenance operations.

13.1.3.1.16 Director, Radiation Protection

The Director, Radiation Protection meets or exceeds the requirements of Regulatory Guide 1.8, revision 1, September, 1975, as clarified by USNRC HPPOS-020, Clarification of Regulatory Guide 1.8 on Qualification of Radiation Protection Manager.

13.1.3.1.17 Manager, Chemistry

The Manager, Chemistry is not required to meet all of the qualification requirements stated as long as the Supervisor, Chemistry meets the remaining requirements.

1. A total of five years of experience in chemistry of which one year shall be in radiochemistry at an operating nuclear power plant. Two years of this five

years experience shall be related technical training. A maximum of four years of this five years experience may be fulfilled by related technical or academic training.

2. High School education or equivalent.

13.1.3.1.18 Chemistry Supervisor, Radiation Protection Supervisor, and Radwaste Operations Supervisor

1. A minimum of four years of experience in applied health physics, chemistry, radiochemistry or radwaste activities.

2. High School education or equivalent.

13.1.3.1.19 Radiation Protection Technician, Chemistry Technician, and Radwaste Trainer Operator

1. Three years of radiation or chemistry experience.

2. High School education or equivalent.

13.1.3.1.20 Supervisor, Quality Control

1. A total of seven years of power plant experience of which two years shall be nuclear power plant experience. A maximum of four years of the remaining five years of experience may be fulfilled by satisfactory completion of related technical or academic training.

2. High school education or equivalent.

13.1.3.1.21 Director, Training

1. Bachelor’s Degree including courses in educational and technical subjects.

2. 4 years of professional level experience, of which 2 years shall be nuclear power plant experience.

3. Training in educational techniques or equivalent, if not included in the Bachelor’s Degree course material.

If the Director, Training meets the above experience requirements and training in educational techniques, he need not have a Bachelor’s Degree provided that the Manager, Technical Training or the Manager, Operations Training meets or exceeds the degree requirement.

13.1.3.1.22 Manager, Operations Training

1. Shall hold or shall have held a Senior Reactor Operator's license for Callaway Plant or a similar unit or shall have been certified for equivalent Senior Reactor Operator knowledge.

2. 3 years of nuclear power plant experience.

13.1.3.1.23 Technical Training Manager

1. 3 years of nuclear power plant experience

13.1.3.2 Qualifications of Plant Personnel

Resumes of key managerial and supervisory personnel currently assigned are maintained on file for review and are not included here.

13.2 TRAINING

13.2.1 Program Description

To assure safe, legal, and efficient operation, the Callaway Plant is committed to maintain comprehensive qualification programs that address the knowledge and skill requirements for each position performing safety related tasks at, or in support of, the Callaway Plant in accordance with Regulatory Guide 1.8. The preferred method for development and implementation of these programs utilizes a systematic approach to training (SAT) which integrates formal classroom training with on-the-job qualification training.

Initial qualification for licensed personnel is broken down into two programs; the Reactor Operator (RO) qualification program and the Senior Reactor Operator (SRO) qualification program.

Initial qualification for non-licensed personnel is broken down into craft specific qualification programs including the General Employee Training Program.

Personnel to be trained in these programs are typically selected from various Union Electric Company departments and shall meet the experience and education eligibility requirements as outlined in Section 13.1. Selected portions of the qualification program may be eliminated for persons having previous nuclear training and/or experience. Training for SRO and RO candidates will be completed prior to the administration of the Nuclear Regulatory Commission (NRC) examination.

Radiological Emergency Response Plan (RERP) Training has been developed with respect to the specific Emergency Response Positions. This training varies with the duties and responsibilities of the emergency position.

Other training programs for Callaway Plant personnel include off-site courses and seminars, on-the-job training, and on-site seminars and meetings. Retraining requirements for each qualification program are stated in each program description.

13.2.1.1 INPO Accredited Training Programs

The Callaway Training Programs are accredited by the National Academy for Nuclear Training and are based on the systematic approach to Training.

The Training programs are reflected in the Callaway Plant Administrative procedures.

The Accredited training programs at Callaway are based upon the guidelines defined in the INPO documents. The training programs are designed to provide professional development using a combination of previous training and experience, technical development and continuing studies to ensure personnel possess an appropriate understanding of nuclear power technology.

13.2.1.1.1 Simulator Certification

The Callaway Plant Simulator used in support of the INPO accredited training programs was certified in accordance with 10CFR55.45 in November, 1987.

13.2.1.2 General Employee Training (GET) Program

13.2.1.2.1 The GET program consists of two areas: In-processing training and Callaway Plant Administrative Controls and Plant Systems training.

13.2.1.2.1.1 In-processing training provides the basic introduction that individuals must complete prior to being granted unescorted access to the Protected Area of the Callaway Plant. This training is provided by standardized training modules that meet or exceed the requirements and recommendations of Section 5.4 of ANSI/ANS 3.1-1978, as required by the Operating Quality Assurance Manual (OQAM), section 2.10.

13.2.1.2.1.2 Callaway Plant Administrative Controls and Plant Systems training provides Non-licensed employees with more detailed knowledge pertaining to operation and maintenance of the Callaway Plant.

13.3 EMERGENCY PLANNING

The Callaway Plant Radiological Emergency Response Plan (RERP) is prepared in order to fulfill the requirements of 10 CFR 50, Appendix E, "Emergency Plans for Production and Utilization Facilities", with the objective of protecting the health and safety of the general public, persons temporarily visiting or assigned to the plant, and plant employees.

The RERP is designed to handle all radiological emergencies which might occur at the plant site. During a plant related nuclear emergency, the plant emergency staff will function to provide assistance and coordination between the site and outside agencies as required.

Further information regarding the RERP is located in Appendix A of FSAR Section 13.3.

The Callaway Plant Fire Protection Plan is established to ensure that a fire will not prevent safe plant shutdown and will not endanger the health and safety of the public.

The Callaway Plant Fire Protection Plan is located in FSAR Section 9.5.1.

13.3A RADIOLOGICAL EMERGENCY RESPONSE PLAN

The purpose of the Union Electric Radiological Emergency Planning effort is to ensure emergency preparedness and provide a means for mitigating the consequences of emergencies, including very low probability events, in order to protect the health and safety of the general public and site personnel, and prevent damage to property. The Radiological Emergency Response Plan, formerly in this section of the FSAR, is now a separate Licensing Document. The plan was submitted in order to fulfill the requirements of 10 CFR 50.34.

Union Electric maintains as two separate documents, The Callaway Plant Radiological Emergency Response Plan (RERP) and The Emergency Plan Implementing Document. The RERP establishes the concepts, evaluation and assessment criteria, and protective actions necessary to limit and mitigate the consequences of a potential or actual emergency. As such, objectives of the RERP are as follows:

1. Establish means to identify, classify and reclassify emergency conditions.

2. Detail the normal and emergency operating organizations, including the appropriate assignment of responsibilities necessary to direct the response of an emergency situation.

3. Evaluate the necessity for public protective actions deemed appropriate to protect the general public and site personnel.

4. Terminate or mitigate the consequences of an emergency, both on-site and off-site.

5. Establish and provide specific detail on emergency response facilities, assessment equipment, communications equipment and their utilization during normal and emergency conditions.

6. Provide for training of all emergency response personnel.

7. Outline the most effective course of action in order to protect the general public and site personnel, and property, in the event of an emergency.

8. Provide guidelines and specific detail of off-site support organizations' assistance and availability.

9. Establish means for maintaining emergency preparedness.

10. Establish means for recovery operations and reentry following an accident.

The RERP incorporates the necessary prearrangements, regulatory guidance and requirements, and organizations necessary to provide reasonable assurance for the protection of the health and safety of the general public and site personnel, and property. The RERP meets or exceeds the intent of the standards set forth in 10 CFR 50.47 and fulfills the requirements of 10 CFR 50 Appendix E. The RERP will be maintained in accordance with the requirements of 10 CFR 50.54.

The Emergency Plan Implementing Document, consisting of a set of procedures, provides specific instructions and guidance to emergency response personnel in order that they implement the RERP correctly during emergencies.

The interrelationships among the various elements of the on-site and off-site emergency response are described in the RERP and the Emergency Plan Implementing Document, and State and Local plans specific to emergencies at the Callaway Plant.

13.4 REVIEW AND AUDIT (Deleted)

13.4.1 ONSITE REVIEW (Deleted)

13.4.1.1 Onsite Review Committee (ORC) (Deleted)

13.4.1.1.1 ORC Membership (Deleted)

13.4.1.1.2 Alternate Members (Deleted)

13.4.1.1.3 ORC Membership Qualifications (Deleted)

13.4.1.1.4 Meeting Frequency (Deleted)

13.4.1.1.5 Quorum (Deleted)

13.4.1.1.6 Responsibilities of the ORC (Deleted)

13.4.1.1.7 Authority of the ORC (Deleted)

13.4.1.1.8 Records (Deleted)

13.4.2 INDEPENDENT REVIEW (Deleted)

13.4.2.1 Nuclear Safety Review Board (NSRB) (Deleted)

13.4.2.1.1 Composition (Deleted)

13.4.2.1.2 Meeting Frequency (Deleted)

13.4.2.1.3 Quorum (Deleted)

13.4.2.1.4 Review (Deleted)

13.4.2.1.5 Authority (Deleted)

13.4.2.1.6 Records (Deleted)

13.4.2.1.7 Independent Safety Engineering Group (ISEG) (Deleted)

13.4.2.1.7.1 ISEG Composition (Deleted)

13.4.2.1.7.2 Responsibilities of the ISEG (Deleted)

13.4.2.1.7.3 Records (Deleted)

13.4.3 AUDIT PROGRAM (Deleted)

13.5 PLANT PROCEDURES

The Callaway Plant staff is responsible for assuring the safe and efficient operation of the plant under the overall responsibility of the Senior Vice President and Chief Nuclear Officer. All activities which affect safety-related structures, systems and components are to be conducted by detailed, written and approved procedures. Typical listings of plant procedures are presented in table form in this section. These typical listings and other typical listings referenced in this Section represent general areas of procedural coverage, since provisions for procedure consolidation, separation, deletions, additions, or minor program changes do not permit an absolute listing of procedures. All plant procedures are controlled by a centralized computer database which is governed by administrative procedures.

13.5.1 ADMINISTRATIVE PROCEDURES

The Senior Director, Nuclear Operations provides for development and implementation of written administrative procedures that assign the responsibilities and designates the authority of the plant staff and provide control measures for the preparation, review, approval, revision and use of all plant procedures which govern safety-related activities. These administrative controls are consistent with the provisions of Regulatory Guide 1.33. (See Callaway Plant Operating Quality Assurance Manual.) In addition to the activities listed above, the administrative procedures provide a program for the distribution, accountability and periodic review of procedures.

A typical list of administrative procedures is contained in Table 13.5-1. Table 13.5-1 also contains a typical list of other administrative controls which may be incorporated into other procedures.

13.5.1.1 Preparation of Procedures

The responsible Department Head is charged with the preparation of procedures within the area of activity assigned to him. The actual preparation may be performed by other Ameren Missouri personnel or outside contractors, but final responsibility rests with the responsible Department Head.

The Senior Director, Nuclear Operations approves Administrative Procedures and Emergency Plan Implementing Procedures. The Manager, Security approves Security Plan implementing procedures. The appropriate manager ensures that procedures are reviewed and that these reviews are documented. Procedures are reviewed by at least one individual other than the preparer and approved by the responsible Department Head prior to use. The On-Site Review Committee performs a subsequent review of the 10 CFR 50.59 evaluation, if one is required.

Temporary changes are provided for in administrative procedures. Temporary changes to approved procedures, are conducted in accordance with the Callaway Plant Operating Quality Assurance Manual (Section 5.3.1) and Ameren Missouri's commitment to

Regulatory Guide 1.33, as described in Callaway Plant's Operating Quality Assurance Manual, Appendix A.

13.5.1.2 Procedures

The Senior Director, Nuclear Operations is responsible for assuring the development and implementation of plant administrative procedures which provide a clear understanding of operating philosophy and management policies. As stated in Section 13.5.1.1, administrative procedures provide methods for the preparation, review and approval of all other plant procedures including permanent procedures, temporary procedures and any procedures which might be of a transient or self-cancelling nature.

Administrative procedures are developed to provide the Shift Manager and plant staff personnel with a clear understanding of how they are to conduct plant operations. These procedures specifically describe who may manipulate the controls of the reactor and who may operate any equipment or control that may affect the reactivity of the reactor. Procedures are provided that describe the responsibilities of senior reactor operators, direct the activities of licensed operators and identify who must be present at the site or on call. Shift manning requirements in accordance with the Technical Specifications are specified in an administrative procedure.

During plant operation, the Shift Manager is responsible for ensuring that plant operating procedures are properly implemented. These procedures provide for control of equipment, as necessary, to maintain personnel and reactor safety, and to avoid unauthorized operation of equipment. To secure and identify equipment in a controlled status, measures such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings are controlled by approved procedures. Temporary changes are controlled by use of procedures or by administrative controls for the Temporary Modification Program.

The Director, Maintenance; the Director, Nuclear Operations; the Manager, Instruments and Controls; the Director, Radiation Protection; the Manager, Chemistry; the Director, Engineering Systems; the Director, Engineering Design and the Supervisor Quality Control are responsible for developing and implementing procedures, instructions and schedules required by the Technical Specifications.

The Director, Nuclear Operations and the Director, Engineering Programs maintain overall responsibility for the development and maintenance of administrative procedures and instructions implementing the Equipment Reliability Program. The Equipment Reliability Manager administers the implementation of these procedures and instructions including those pertaining to the preventative maintenance program.

The Director, Maintenance, develops, implements and administers the plant maintenance program.

In addition, the Director, Engineering Systems; the Director, Engineering Design; and the Director, Maintenance establish administrative procedures and instructions to control and document major repairs and modification. Repairs or modifications which may affect the functioning of safety related structures, systems, or components are performed in a manner to ensure a level of quality at least equivalent to that specified by the original design specifications, material specifications, and inspection requirements.

13.5.2 PLANT OPERATING AND MAINTENANCE PROCEDURES

13.5.2.1 Plant Operating Procedures

Operating procedures are written for all anticipated conditions affecting reactor safety. The plant operating procedures are grouped into the following classifications:

1. Operating Procedures (Normal and Off-Normal)
2. Alarm Responses
3. Operating Procedures (Special)
4. Operating Procedures (Emergency)

The format for the plant operating procedures meets the requirements of ANSI N18.7 - 1976, with the exception of the Emergency Operating Procedures. The Emergency Operating Procedure format developed from the Procedures Generation Package is symptom based and is controlled by Administrative Procedures.

13.5.2.1.1 Operating Procedures (Normal and Off-Normal)

This classification contains two types of procedures, General Operating Procedures and System Operating Procedures. Each type addresses both normal and off-normal conditions. Normal conditions exist when the operator has control of a predetermined condition or a routine evolution without equipment failure. Off-normal procedures specify operator action for restoring normal operating conditions or an operating variable to its normal controlled range following a perturbation. The consequence of this type of condition, with appropriate operator action, is judged not to be severe enough to require an emergency procedure (See Section 13.5.2.1.4).

System operating procedures provide detailed instructions for alignment, startup, shutdown, and normal operation of systems, including waste processing systems. Equipment and valve position checklists and procedure step sign-offs are included where necessary to ensure proper system operation. A typical list of System Operating Procedures is contained in Table 13.5-2.

General Operating Procedures provide instructions for the integrated operation of the unit and are usually sequencing procedures. General Operating Procedures refer

operators to System Operating Procedures for detailed instructions regarding the operation of the involved systems during unit evolutions. A typical list of General Operating Procedures is contained in Table 13.5-2.

13.5.2.1.2 Alarm Responses

A written procedure is provided for each main control board annunciator identifying the proper actions to be taken by the operator in response to an alarm. Each of these procedures include the annunciator identification, alarm trip and reset setpoints, and proper corrective action to be taken. When corrective actions are very detailed and/or lengthy, the alarm response will refer to an off-normal procedure.

13.5.2.1.3 Operating Procedures (Special)

This classification contains General Operating Procedures and System Operating Procedures for special conditions. These procedures cover special conditions or infrequent operations. Examples of activities covered by System Operating Procedures (Special) are system filling and draining, resin bed regeneration, resin changes, and operation of standby or special equipment. General Operating Procedures (Special) are for use in coordinating unit activities during special evolutions, such as, refueling. A typical list of Operating Procedures (Special) is contained in Table 13.5-3.

13.5.2.1.4 Operating Procedures (Emergency)

Operating Procedures (Emergency) provide the operator with instructions necessary to prevent, or mitigate the consequences of any emergency condition. The procedures include verification of automatic actions that occur in the event of an emergency, immediate operator actions required to prevent or lessen the consequences of an emergency, and subsequent operator actions necessary to bring the plant to a safe, stabilized condition.

A typical list of Operating Procedures (Emergency) is contained in Table 13.5-4.

13.5.2.2 OTHER PROCEDURES

All procedures falling into this general classification will meet ANSI N18.7-1976 requirements for format and contents.

13.5.2.2.1 Surveillance and Maintenance Procedures

Surveillance and Maintenance Procedures assure that the Limiting Conditions for Operation (as outlined in Section 16.3) along with all applicable Federal, State and ASME Code requirements are not violated, and that the plant is operated in a safe and efficient manner. Instructions for electrical and mechanical maintenance, instrument and control calibrations and tests, and performing technical surveillances are provided in these procedures.

The majority of the surveillance requirements are met by performing specific, individually written procedures. In a few specific instances, surveillance requirements are included in an integrated Normal Operating Procedure. For example, surveillance requirements normally encountered during major plant evolutions such as startup, boron dilution, or shutdown are included in the operating procedure to eliminate the need for additional procedures and remove confusion.

Surveillance and Maintenance Procedures have provisions for meeting surveillance schedules and for assuring measurement accuracies adequate to keep parameters within operational and safety limits. A master surveillance program reflecting the status of all planned in-plant surveillance testing will be developed. Control measures will be initiated to assure appropriate documentation, reporting, and evaluation of test results.

The Measuring and Test Equipment Laboratory is responsible for proper control and periodic calibration of Callaway's measuring and test equipment to maintain accuracy within necessary limits and to confirm adequacy of calibration frequency. When measuring and test equipment is found to be out of calibration, an evaluation will be made of the validity of previous site-related inspection or test results.

Procedures are written for maintenance of safety-related equipment expected to require recurring maintenance. Implementation of these procedures does not violate license limits, assures equipment required to be operable for the existing mode of reactor operation is available, and considers possible safety consequences of concurrent or sequential maintenance, testing, or operating activities. When failure of safety-related equipment occurs, the cause will be evaluated. However, since the probability of failure is usually unknown and the time and mode of operation unpredictable, procedures are not developed for repair of all equipment prior to failure. The general rules for developing and administering repair or replacement procedures at the time of failure of equipment are outlined by Administrative Procedures.

A preventive maintenance schedule outlines the frequency and type of maintenance to be performed. An initial preventative maintenance schedule is developed before start-up. It is based on the manufacturers recommended maintenance schedule with consideration of past Ameren Missouri or industry experience and industry accepted standard practices. This preliminary schedule will be refined and changed as experience with the equipment is gained.

Materials used for replacement and repair of safety-related equipment are controlled by Materials Department procedures (See Section 13.5.2.2.2).

A typical list of Surveillance and Maintenance Procedures is contained in Table 13.5-5.

13.5.2.2.2 Materials Department Procedures

Materials Department procedures are provided to ensure proper procurement, documentation, and control of safety-related materials and components necessary for

plant maintenance. These procedures are of sufficient detail to ensure that purchased materials and components associated with safety-related structures or systems are:

1. Purchased to specification and codes which ensure performance at least equivalent to the original equipment;

2. Produced or fabricated under quality control which ensures performance at least equivalent to that of the original equipment;

3. Properly documented to show compliance with applicable specifications, codes and standards;

4. Properly inspected, identified, and stored to provide protection against damage or misuse;

5. Properly controlled to ensure the identification, segregation, and disposal of non-conforming material.

13.5.2.2.3 Radiation Protection Procedures

The Radiation Protection program for the Callaway Plant is contained in plant procedures. Plant Administrative Procedures and Radiation Protection departmental and technical implementing procedures establish the criteria, concepts and managerial policies for implementation of the Radiation Protection Program for personnel at the Callaway Plant to promote safe, legal and efficient operation of the Callaway Plant.

The Radiation Protection program also contains Administrative and implementing procedures for use by the Callaway Plant Operating Staff to ensure that occupational radiation exposure (ORE) is maintained as low as reasonably achievable (ALARA). The Director, Radiation Protection is responsible for preparation and maintenance of the Administrative, Departmental and Technical procedures that comprise the Radiation Protection Program.

Examples of topics and the sections to be covered by written procedures can be found in Table 13.5-6.

13.5.2.2.4 Chemistry Procedures

Chemistry Procedures provide detailed instructions for maintaining water quality of all plant systems within prescribed limits. The preparation and approval of chemistry procedures is the responsibility of the Manager, Chemistry.

Examples of topics to be covered in Chemistry procedures can be found in Table 13.5-7.

13.5.2.2.5 Emergency Plan Procedures

A discussion of Emergency Plan Procedures can be found in the Callaway Radiological Emergency Response Plan.

13.5.2.2.6 Security Procedures

A discussion of Security Procedures can be found in the Callaway Security Plan.

13.5.2.2.7 Radioactive Waste Management Procedures

See Sections 13.5.2.1.1 and 13.5.2.2.3.

13.5.2.2.8 Instrument Calibration and Test Procedures

See Section 13.5.2.2.1.

13.5.2.2.9 Inspection Procedures

Inspection Procedures are provided to assure that adequate inspections occur to control the quality of safety-related components and systems. These procedures contain sufficient detail to meet all applicable technical and quality assurance requirements. Inspection procedures are provided for the following activities.

1. Receipt inspection of safety-related components;
2. Inspection following repair, replacement or modification of safety-related components or systems;
3. Piping inspection;
4. Piping supports and snubber inspection;
5. Fire protection inspections;
6. Non-destructive examinations and inspections;
7. Inservice Inspection Procedures.

13.5.2.2.10 Temporary Procedures

Temporary procedures may be issued during the plant operational phase to direct operations during testing, refueling, maintenance and modifications; to provide guidance in unusual situations not within the scope of normal procedures; and to ensure orderly and uniform operations for short periods when the plant, a system, or a component of a system is performing in a manner not addressed by existing procedures or has been

modified such that portions of existing procedures do not apply. Such procedures are developed under established administrative guidelines. They include designation of the period of time during which they may be used and adhere to Technical Specifications and ANSI N18.7-1976.

TABLE 13.5-1 CALLAWAY PLANT ADMINISTRATIVE PROCEDURES

Preparation, Review and Approval of Plant Operating Procedures

Temporary Changes to Plant Operating Procedures

Conduct of Tests

Resolution of System Problems

Temporary System Modifications

Review and Approval of Test Results

Design Change Processing

Retest After Design Changes

Procurement of Services and Materials

Review and Approval of Fuel Load/Power Escalation Tests

Control of Plant Documents and Records

Plant Organization

Plant Staff Responsibilities

Shift Complement and Functions

Shift Turnover and Relief

Recall of Standby Personnel

Operations Standing Orders

Special and Temporary Orders

Work Requests

Bypass of Safety Functions

Equipment Control

Document Retention

TABLE 13.5-1 (Sheet 2)

Plant Quality Assurance Files

NRC Reporting Requirements

Plant Chemistry Control

Plant Radiation Control

Plant Radioactive Waste Management

Plant Modification Control

Maintenance Control

Technical Specifications Surveillance

Non-Technical Specifications Surveillance

Control of Measuring and Test Equipment

Control of Purchased Materials, Equipment and Services

Identification of Materials, Parts, and Equipment

Receiving, Inspection, Handling, and Shipping of Materials

Procurement Requirements and Process

Nonconformances

Material Requisition

Material Disposition

OTHER CALLAWAY PLANT ADMINISTRATIVE CONTROLS

Visitor Indoctrination

Plant Document Files

Non-Radiological Waste Discharge

Industrial Safety

TABLE 13.5-1 (Sheet 3)

Spare Parts Inventory Control

Personnel Indoctrination

Personnel Replacement Training

Personnel Retraining

Emergency Training

Security Training

Fire Fighting Training

Safety Training

Shift Records

TABLE 13.5-2 OPERATING PROCEDURES (NORMAL AND OFF-NORMAL)

General Procedures

Plant Heatup - Cold Shutdown to Hot Standby

Reactor Startup

Plant Startup - Hot Standby to 20% Power

Power Operations

Plant Shutdown - 20% Power to Hot Standby

Plant Cooldown - Hot Standby to Cold Shutdown

Heat Balance Calculation

Estimated Critical Position (1/M) Calculations

Shutdown Margin Calculations

Reactivity Balance

Turbine Trip

Load Rejection

System Procedures

Main Steam System - Normal Operating Procedure

High Steam Generator Conductivity

Main Turbine - Normal Operating Procedure

Compressed Air System - Normal Operating Procedure

Pressurizer System Malfunction

Non-Class 1E AC Electrical System - Normal Operating Procedure

Auxiliary Feedwater System - Normal Operating Procedure

Loss of Auxiliary Feedwater Flow

TABLE 13.5-2 (Sheet 2)

Reactor Coolant System - Normal Operating Procedure

Reactor Coolant System - Loss of Reactor Coolant Flow

Reactor Coolant System - Malfunction

Reactor Coolant System - Excessive Coolant Leakage

Reactor Coolant System - Chemistry Out of Specification

Reactor Coolant System - High Reactivity

Chemical and Volume Control System - Normal Operating Procedure

CVCS - Boric Acid Batching

Emergency Boration

Loss of Charging Pump

CVCS Makeup Control Malfunction

Reactor Makeup Water System - Normal Operating Procedure

Reactor Makeup Water System Malfunction

Steam Generator Blowdown System - Normal Operating Procedure

Borated Refueling Water Storage System - Normal Operating Procedure

Spent Fuel Pool Cooling and Cleanup System - Normal Operating Procedure

Spent Fuel Pool Cooling System Malfunction

Essential Service Water System - Normal Operating Procedure

Essential Service Water System Malfunction

Component Cooling Water System - Normal Operating Procedure

Component Cooling Water System Malfunction

Residual Heat Removal System - Normal Operating Procedure

TABLE 13.5-2 (Sheet 3)

Residual Heat Removal System Malfunction

Safety Injection System - Normal Operating Procedure

Inadvertent Safety Injection Actuation

Safety Injection Train Malfunction

Containment Spray System - Normal Operating Procedure

Inadvertent Containment Spray Actuation

Containment Spray Train Malfunction

Accumulator Safety Injection System - Normal Operating Procedure

Accumulator Safety Injection System Malfunction

Auxiliary Steam System - Normal Operating Procedure

Auxiliary Steam System Malfunction

HVAC Systems - Normal Operating Procedure

HVAC Systems Malfunction

Containment Cooling System - Normal Operating Procedure

Containment Cooling System Malfunction

Containment Hydrogen Control System - Normal Operating Procedure

Containment Hydrogen Control System Malfunction

Containment Purge System - Normal Operating Procedure

Containment Purge System Malfunction

Gaseous Radwaste System - Normal Operating Procedure

Gaseous Radwaste System Malfunction

Liquid Radwaste System - Normal Operating Procedure

TABLE 13.5-2 (Sheet 4)

Liquid Radwaste System Malfunction

Solid Radwaste System - Normal Operating Procedure

Decontamination System - Normal Operating Procedure

Boron Recycle System - Normal Operating Procedure

Boron Recycle System Malfunction

Secondary Liquid Waste System - Normal Operating Procedure

Secondary Liquid Waste System Malfunction

Diesel Fuel Oil System - Normal Operating Procedure

Diesel Fuel Oil System Malfunction

Fire Protection System (Water) - Normal Operating Procedure

Fire Protection System (Halon) - Normal Operating Procedure

Inadvertent Fire Protection System Actuation

Fire Protection System Malfunction

Standby Diesel Engine - Normal Operating Procedure

Standby Diesel Engine Malfunction

Standby Generation System - Normal Operating Procedure

Standby Generation System Malfunction

Load Shedding and Emergency Load Sequencing System - Normal Operating Procedure

Inadvertent Actuation of Load Shedding and Emergency Load Sequencing System

Low Voltage (Class 1E) System - Normal Operating Procedure

Low Voltage (Class 1E) System Malfunction

125 V DC (Class 1E) System - Normal Operating Procedure

TABLE 13.5-2 (Sheet 5)

125 V DC System Malfunction

Emergency Lighting DC System - Normal Operating Procedure

Emergency Lighting DC System Malfunction

Meteorological Instrumentation System - Normal Operating Procedure

Meteorological Instrumentation System Malfunction

Plant Computer System - Normal Operating Procedure

Plant Computer System Malfunction

Plant Annunciator System - Normal Operating Procedure

Plant Annunciator System Malfunction

Process Sampling System - Normal Operating Procedure

Engineered Safety Features Actuation System - Normal Operating Procedure

Engineered Safety Features Actuation System Malfunction

Reactor Protection System - Normal Operating Procedure

Reactor Protection System Malfunction

Reactor Instrumentation System - Normal Operating Procedure

Reactor Instrumentation System Malfunction

Area Radiation Monitoring System - Normal Operating Procedure

High Radiation - Area Radiation Monitoring System

Nuclear Instrumentation System - Normal Operating Procedure

Nuclear Instrumentation System Malfunction

Control Rod Drive System and Rod Position Indication System - Normal Operating Procedure

Failure of Control Rod Bank(s) to Move

TABLE 13.5-2 (Sheet 6)

Misalignment of Full Length Rods

Continuous Rod Insertion

Dropped Rod

Rod Position Indication Malfunction

Seismic Instrumentation System - Normal Operating Procedure

Seismic Instrumentation System Malfunction

Primary Sampling System - Normal Operating Procedure

Plant Security System - Normal Operating Procedure

Plant Security System Malfunction

Process Radiation Monitoring System - Normal Operating Procedure

High Activity - Process Radiation Monitoring System

Incore Instrumentation System - Normal Operating Procedure

Incore Instrumentation System Malfunction

TABLE 13.5-3 SPECIAL OPERATING PROCEDURES

General Procedures

Preparation for Refueling

Plant Operations for Refueling

Recovery from Refueling

Operation of Filter Handling Tools

Resin Transfer

System Procedures

Atmospheric Steam Dump Operation

Condenser Steam Dump Operation

Borating the Refueling Water Storage Tank

Filling Spent Fuel Pool and System

Purification of Refueling Water Storage Tank

Draining Spent Fuel Pool

Draining Fuel Transfer Canal

Purging Primary Containment

Gaseous Radwaste Disposal System Purge

Liquid Radwaste System Flush

Barrel Shipment

Receipt and Storage of New Fuel Assemblies

New Fuel Inspection

Transfer of New Fuel Assemblies From New Fuel Storage Pit to Spent Fuel Pit

New and Spent Fuel Transfer

TABLE 13.5-3 (Sheet 2)

Core Loading and Unloading

Filling and Draining Refueling Cavity

Operation of Fuel Handling Equipment

Manipulator Crane Operation

RCC Charge Fixture Operation

Control Rod Drive Shaft Latching and Unlatching

Guide Tube Cover Handling Tube Operation

Burnable Poison Cover Handling Tool Operation

Upper and Lower Internals Lifting Rig Operation

Source Loading

Handling of Burnable Poison Rod Assemblies

Reactor Closure Head Removal

Reactor Closure Head Installation

Load Center Transformers Isolation & Restoration

Load Centers Isolation & Restoration

Motor Control Centers Isolation & Restoration

Battery Charger Isolation & Restoration

Shifting Instrument Bus to Alternate Power Source

Inverter Isolation & Restoration

Sampling Secondary Systems While in Cold Shutdown

Sampling RCS Without Pressurizer Bubble

Sampling RCS in Cold Shutdown

TABLE 13.5-3 (Sheet 3)

Flux Mapping with Incomplete Incore Capability

Cross-calibration of Incore Thermocouples

TABLE 13.5-4 EMERGENCY OPERATING PROCEDURES

Immediate Actions and Diagnostics

Loss of Primary Reactor Coolant

Steam Generator Tube Rupture

Loss of Secondary Coolant

Station Blackout

Anticipated Transient Without Scram

Inadequate Core Cooling

Cooldown - Natural Circulation

TABLE 13.5-5 SURVEILLANCE AND MAINTENANCE PROCEDURES

Daily and Shift Checks

Weekly Checks

Monthly and Special Checks

Refueling Operations Checks

Reactor Coolant System Integrity Test

Boron Injection Path Valve Operability Test

Charging Pump Operability Test

Boric Acid Transfer Pump Operability Test

RHR System Pump and Valve Operability Tests

Component Cooling System Pump and Valve Operability Tests

Safety Injection Valve Operability Tests

Essential Service Water System Pump and Valve Operability Tests

Main Steam Line Isolation Valve Operability Tests

Containment Spray System Pump and Valve Operability Tests

Control Room Ventilation Operability Tests

ECCS Ventilation System Operability Tests

Fuel Building Ventilation System Test

Diesel Generator Operability Test

Control Rod Partial Movement

Axial Power Distribution Monitoring System Functional Test

Daily Power Range Neutron Flux Calibration

Source Range Instrument Channel Test

TABLE 13.5-5 (Sheet 2)

Intermediate Range Instrument Channel Test

Containment Integrity Verification

Containment Air Lock Operability Test

Containment Isolation Valves Operability Test

Containment Isolation System Automatic Actuation Verification

Hydrogen Purge System Operability Test

Containment Cooling Fan Operability Test

Hydrogen Mixing System Operability Test

Nuclear Power Range Instrument Channel Test

Reactor Coolant Temperature Channel Test

Pressurizer Level Instrument Channel Test

Pressurizer Pressure Instrument Channel Test

Reactor Coolant Flow Instrument Channel Test

Steam Generator Level Instrument Channel Test

Steam/Feedwater Flow Instrument Channel Test

Steam Line Pressure Instrument Channel Test

Containment Pressure Instrument Channel Test

ESFAS and Reactor Protection Logic Channel Test

ESFAS and Reactor Protection Instrumentation Time Response Test

ESFAS and Reactor Protection Sensor Time Response Test

Incore Movable Detector System Operational Test

Area Radiation Monitoring System Test

TABLE 13.5-5 (Sheet 3)

Process (GM) Radiation Monitoring System Test

Process (Scintillation) Radiation Monitoring System Test

Seismic Instrumentation System Test

Pressurizer Safety Relief Valve Test

Reactor Coolant Pump Undervoltage and Underfrequency Test

Containment Air Lock Test

Main Steam Line Safety Valve Test

Rod Drop Time Test

Containment Leakage Test Verification

Containment Spray System Nozzle Test

Accumulator Isolation Valve Automatic Open Test

Diesel Generator Offsite/SI Automatic Start/Load Test

Chemical Waste Sump pH Monitor Instrument Channel Test

Reactor Shutdown Margin Determination at T_{avg} - 200°F

Reactor Shutdown Margin Determination while T_{avg} - 200°F

Rod Position Indicator Verification

Shutdown Rods Withdrawn Verification

Rod Insertion Limit Verification

Axial Flux Difference Monitoring

Quadrant Power Tilt Radio Check

Axial Power Distribution Check

Source Range Channel Test

TABLE 13.5-5 (Sheet 4)

Overtemperature Delta ΔT Test

Overpower Delta ΔT Test

Pressurizer Pressure Low Test

Pressurizer Pressure High Test

Pressurizer Water Level High Test

Steam Generator Low Low Level Test

Steam/Feedwater Flow Mismatch Test

Turbine Trip Functional Test

Safety Injection Input from ESF Test

Reactor Trip Breaker Test

Logic Channel Test

Reactor Protection Instrument Time Response

ESF Instrument Time Response

Safety Injection (SI) Feedwater Isolation (FI) Manual Initiation Test

SI/FI Actuation Logic Test

Containment Spray (CS) Manual Initiation Test

CS, Auto Actuation Logic Test

Steam Line Isolation Manual Actuation Test

Steam Line Isolation Auto Actuation Test

Incore Movable Detection System Operational Test

Axial Power Distribution Monitoring System Test

MOV/AOV Maintenance

TABLE 13.5-5 (Sheet 5)

Feedwater Pump Maintenance

Motor Driven Auxiliary Feedwater Pump and Motor Maintenance

Turbine Driven Auxiliary Feedwater Pump Maintenance

Reactor Coolant Pump and Motor Maintenance

Pressurizer Heaters Maintenance

Reactor Coolant System Inspection

CVCS Chiller Unit Maintenance

Boric Acid System Maintenance

Reactor Make-up Water Transfer Pump and Motor Maintenance

Steam Generator and Auxiliaries Maintenance

Fuel Pool Equipment

Component Cooling Water Pump and Motor Maintenance

Residual Heat Removal Pump and Motor Maintenance

Safety Injection Pump and Motor Maintenance

Containment Spray Pump and Motor Maintenance

Auxiliary Feedwater Pump Turbine Maintenance

Steam Generator Feed Pump Turbine Maintenance

Essential Service Water Pump House HVAC Maintenance

Containment Cooling System Maintenance

Containment Hydrogen Control System Maintenance

Waste Gas Compressor Package Maintenance

Catalytic Hydrogen Recombiner Package Maintenance

TABLE 13.5-5 (Sheet 6)

Gas Decay Tank Drain Pump and Motor Maintenance

Reactor Coolant Drain Tank Pump and Motor Maintenance

Solid Radwaste System Maintenance

Dry Waste Compactor Maintenance

Crane Maintenance

Spent Resin Sluice Pump and Motor Maintenance (Primary)

Spent Resin Sluice Pump and Motor Maintenance (Secondary)

Air Compressor Maintenance

Fire Pump and Motor Maintenance

Hydrant Inspection

Hose Station Inspection

Sprinkler and Deluge Test and Inspection

Refueling Tools and Fixtures Inspection and Maintenance

Fuel Transfer System Maintenance

Manipulator Crane Maintenance

Diesel Engine Maintenance

Diesel Generator Maintenance

Control Panels Maintenance

Main Generator Maintenance

Power Transformer Maintenance

Switchyard Maintenance

Excitation System Maintenance

TABLE 13.5-5 (Sheet 7)

Bus Maintenance

Transformer Maintenance

Circuit Breaker Maintenance

Load Center Maintenance

Motor Control Center Maintenance

Battery Maintenance

Battery Charger Maintenance

Inverter Maintenance

Transfer Switch Maintenance

Standby Lighting AC Maintenance

Public Address System Maintenance

Cathodic Protection System Maintenance

Freeze Protection System Maintenance

RDMG Set Maintenance

Indexer Drive Maintenance

Test and Measuring Equipment Calibration Program

Level Instrumentation Calibration

Pressure Instrumentation Calibration

Flow Instrumentation Calibration

Temperature Instrumentation Calibration

Power Supplies Calibration

Converters Calibration

TABLE 13.5-5 (Sheet 8)

Recorders Calibration

Rod Control

Steam Dump

Pressurizer Pressure

Pressurizer Level/Charging Flow

Volume Control Tank Level

Boric Acid Blending

Rod Insertion Limits

Steam Generator Level

Reactor Coolant Pump Seal Water Flow

Letdown Heat Exchanger Outlet Temperature

Volume Control Tank Pressure

Boron Thermal Regeneration Temperature

Reactor Make-up Water Storage Tank Level

Reactor Make-up Water Storage Tank Temperature

Steam Generator Blowdown Flash Tank Level

Steam Generator Blowdown Surge Tank Level

Steam Generator Blowdown Effluent Flow

Refueling Water Storage Tank Temperature

Spent Fuel Pool Temperature

Spent Fuel Pool Level

Fuel Pool Cleanup Pump Flow

TABLE 13.5-5 (Sheet 9)

Reactor Coolant Pump CCW Thermal Barrier Return Flow

Safety Injection Accumulator Level

Residual Heat Removal Heat Exchanger Bypass Flow

Auxiliary Feedwater Pump Speed Control and Safety Devices

Waste Gas Compressor Moisture Separator Level

TABLE 13.5-6 TOPICS COVERED IN RADIATION PROTECTION PROCEDURES

Topics covered by Radiation Protection Departmental Procedures (HDP) and Radiation Protection Technical Procedures (HTP):

Radiation Protection implementing procedures for ALARA

Radiation Work Permit Program

Internal Personnel Monitoring

External Personnel Monitoring

Area Posting

Radioactive Material Control

Radiological Surveys

Instrumentation

Radiological Incidents

Radiation Work Practices

Environmental Monitoring

Respiratory Protection

TABLE 13.5-7 TOPICS COVERED IN THE CHEMISTRY PROGRAM

Chemistry Departmental Procedures (CDP), Chemistry Technical Procedures (CTP) and Chemistry Surveillance Procedures (CSP) cover topics such as the following:

Records and Reports

Sampling and Analytical Procedures

Reagent Preparation Procedures

Specifications for System Chemistry

Inventory Control

Laboratory Quality Control

Analytical Instrumentation Operating Procedures

Radiochemical Determinations and Measurement Procedures

Surveillance Procedures for Chemistry Technical Specifications

13.6 INDUSTRIAL SECURITY

The Physical Security Plan for the Callaway Plant, which incorporates the Safeguards Contingency Plan, is submitted under separate cover pursuant to paragraph 2.790(d), 10 CFR 2, "Rules of Practice".

The Physical Security Plan, formerly in this section of the FSAR, is now a separate licensing document. The Plan was submitted in order to fulfill the requirements of 10CFR50.34. The Physical Security Plan meets the requirements contained in 10CFR73 and its Appendices and the Plan will be maintained in accordance with the requirements of 10CFR50.54.