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WOLF CREEK

CHAPTER 13.0

CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF THE OPERATING AGENT

Wolf Creek Generating Station, Unit No. 1 (WCGS) is owned by Great Plains and Kansas Electric Power Cooperative, Incorporated (KEPCo) (See Section 1.4.1 for additional discussion of plant ownership) and operated by the Wolf Creek Nuclear Operating Corporation (WCNOC). WCNOC is also known as the Operating Agent. The Operating Agent has primary responsibility for the design, construction, quality assurance, testing and operation of the facility.

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

The management and technical support for WCGS is provided by personnel from the Operating Agent.

13.1.1.1 Technical Support Responsibilities

The activities, under the direction of the President and Chief Executive Officer, can be divided into the following phases: design, construction and preoperational activities, and management and technical support of the operating plant.

13.1.1.1.1 Design, Construction and Preoperational Activities

The responsibility for facility design, design review, design approval and preoperational activities is described in the Final Safety Analysis Report, Section 13.1.1.1. Key milestone dates are listed below.

Project Announced	2/20/73
Informed Atomic Energy Commission of intent to construct	5/31/73
Construction Permit Application and Environmental Report filed	4/01/74
SNUPPS and Wolf Creek Addendum PSAR filed	4/26/74
Construction Permit Application and Environmental Report docketed	5/17/74
SNUPPS PSAR docketed	6/21/74
Limited Work Authorization 1 request filed	4/11/75
Letter received from Kansas Department of Health and Environment on Section 401 Exemption	9/02/75
Safety Evaluation Report (Construction) Issued	9/04/75

ACRS letter issued	10/16/75
Final Environmental Statement Issued	11/06/75
Limited Work Authorization 2 Request filed	3/19/76
Construction on portion of 69 kV transmission line begins	4/13/76
Evidentiary hearings on environmental and health and safety issues complete	6/25/76
Exemption request to permit certain site preparation activities prior to issuance of limited work authorization filed	9/07/76
Limited Work Authorization 1 issued	1/24/77
Limited Work Authorization 2 issued	4/18/77
ASLB initial decision issued	5/11/77
Construction Permit issued	5/17/77
State Water Pollution Control Permit issued	11/18/77
Base mat poured	12/12/77-12/14/77
SNUPPS FSAR submitted	10/02/79
Operating License Application, Wolf Creek Addendum FSAR and Environmental Report filed	2/19/80
Vessel set on supports in Containment	2/80
Operating License Application docketed	8/07/80
Environmental Report docketed	12/08/80
Safety Evaluation Report (Operations) issued (supplements 1 thru 6 issued 8/82, 6/83, 8/83, 12/83, 3/84 and 6/85)	4/07/82
Electrical energization test completed	4/82
Special Nuclear Material License Application filed	4/23/82
ACRS letter issued	5/11/82
Final Environmental Statement issued	6/07/82

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Secondary System Hydrostatic Test completed	9/83
ASLB hearings conducted	1/17/84-2/16/84
Primary Coolant System Hydrostatic Test completed	2/10/84
Special Nuclear Materials License issued	5/09/84
Fuel for first core received onsite	6/6/84-9/01/84
ASLB initial decision issued	7/02/84
Hot Functional Testing conducted	7/17/84-10/26/84
Pre-license Emergency Plan Exercise conducted	11/07/84
Structural Integrity Integrated Leak Rate Test Conducted	12/16/84-12/23/84
Final Preoperational Test completed	1/25/85
ASLB decision issued	2/05/85
Low Power License issued (11:35 a.m. CST)	3/11/85
First fuel assembly removed from storage	3/11/85
First core fuel loaded - Mode 6 entered	3/12/85-3/17/85
Mode 5 first entered	3/22/85
Mode 4 first entered	4/17/85
Mode 3 first entered	4/26/85
First control rod withdrawn (10:43 a.m.)	5/21/85
Boron Dilution for first core begins (8:38 p.m.)	5/21/85
Initial criticality - Mode 2 entered (7:45 a.m.)	5/22/85
Full Power License approved by Commission vote (5:05 p.m.)	6/03/85
Full Power Operating License issued	6/04/85
Mode 1 first entered	6/06/85
Initial synchronization to grid	6/12/85

100 percent power first reached (warranty run started)	8/08/85
100 percent power Reactor Trip Test performed	8/27/85
Power Ascension Testing completed	8/28/85
Commercial Operation first entered	9/03/85
First year of commercial operation complete - produced more power in first year of commercial operation than any prior plant in the United States (8,922,510 megawatt-hours)	9/03/86
Maximum reactor core power level (rated thermal power) increased from 3411 megawatts thermal (MWt) to 3565 MWt	11/10/93
Applied for Renewed Operating License to operate for 20 years beyond the current expiration of midnight, March 22, 2025.	9/27/06
Operating License renewed	11/20/08
Merger between KCP&L and Westar finalized	6/04/2018
Operational day 1 of Evergy	6/06/2018

13.1.1.1.2 Technical Support for Operation

Technical services and backup support for the Operating Agent's operations division are furnished by other Operating Agent divisions. Personnel who are competent in plant safety and other engineering and scientific matters are available. In the event the staff is not qualified to deal with a specific problem, qualified consultants are engaged as appropriate.

The special capabilities that are usually available are:

a. Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical, materials, and instrumentation and controls.
b. Plant chemistry
c. Health physics
d. Fueling and refueling operations support
e. Maintenance support
f. Licensing
g. Safety analysis
h. Environmental concerns
i. Fire protection
j. Industrial safety

13.1.1.2 Organizational Arrangement

Refer to Figures 13.1-1 through 13.1-3 for the Operating Agent's organization charts.

13.1.1.2.1 President and Chief Executive Officer

The President and Chief Executive Officer is responsible for overseeing all aspect of company performance. This includes safe operation of WCGS, financial performance, leadership development, and organizational performance.

13.1.1.2.2 Senior Vice President and Chief Nuclear Officer

The Senior Vice President and Chief Nuclear Officer is responsible for promulgating quality program requirements. The Senior Vice President and Chief Nuclear Officer has responsibility for quality, engineering, procurement, configuration management, construction, and operation of the WCGS. The Senior Vice President and Chief Nuclear Officer endorses the Operating Agent's Quality Policy statements and delegates the authority necessary to implement this policy. The Senior Vice President and Chief Nuclear Officer directs all Operating Agent employees who work in direct support of nuclear operations activities or interface with nuclear operations to comply with the operating Quality program. Through designated personnel, the Senior Vice President and Chief Nuclear Officer is responsible for the administration of the Owner-Sponsored Employee Concerns Program. The Senior Vice President and Chief Nuclear Officer, is also responsible, through the Vice President Engineering, for the Independent Safety Engineering Group (ISEG) functions described in the Wolf Creek Quality Program Manual.

This position satisfies the generic position of a specified corporate officer as described in Technical Specification 5.2.1c.

13.1.1.2.3 Site Vice President

The Site Vice President reports directly to the Senior Vice President, and Chief Nuclear Operating Officer. The Site Vice President is responsible for site operations, training, and plant support.

13.1.1.2.4 Vice President Engineering

The Vice President Engineering reports to the Senior Vice President and Chief Nuclear Officer and is responsible for providing overall program direction to Engineering. The Vice President Engineering is also responsible for the Fire Protection Program at WCGS. The Vice President Engineering is responsible for:

a. Design and procurement of plant and ancillary facilities and equipment;
b. Maintenance of the Wolf Creek "Q" list at the subcomponent, component and system levels;
c. Assignment, review and approval of plant design and procurement activities of consultants and architect/engineers;
d. Engineering studies;
e. Continuing review of plant design for performance, availability, reliability, maintainability, inspectability;
f. Engineering will establish Technical Requirements for the Surveillance and Testing Programs: As identified in section 5 of the Technical Specifications and Technical Requirement Manual;
g. Site layout, including security provisions;
h. Defining the technical, quality and documentation requirements for procurement of replacement subcomponents for safety related, special scope and non-safety related, and controlled and some non controlled SSC's;
i. Configuration Management;
j. Coordination of PSI/ISI NDE inspections;
k. Monitoring plant thermal performance;
l. System Engineering;
m. Nuclear fuel design and reload design analysis;
n. Nuclear fuel procurement and inventory management;
o. Radiological consequence and containment consequence analyses, probabilistic risk assessment (PRA) and safety analysis;
p. Nuclear engineering support of WCGS;
q. Safety Analysis;
r. Physics testing, core monitoring and fuel handling, inspection and evaluation;
s. Developing and implementing the Fire Protection Program at WCGS. The tasks associated with the Fire Protection Program may be delegated to the Supervisor Fire Protection, and/or other members of the plant staff;
t. Applicable ISEG functions as described in sections 18.1.7.2 and Wolf Creek Quality Program Manual section 1.5.

The Vice President Engineering provides technical direction and administrative direction which includes the following areas of expertise: Mechanical and Fluid Systems, Electrical Systems, Civil/Facilities Engineering, Design Engineering, System Engineering and Nuclear Engineering.

The Vice President Engineering is the position that corresponds to the position described as "Engineer-in-Charge" in ANSI/ANS 3.1-1978.

The Vice President Engineering has a minimum of a Bachelor's Degree in Engineering or the physical sciences; three years of professional level experience in nuclear services, nuclear plant operation or nuclear engineering, and the necessary overall background to establish and manage an engineering staff which performs engineering work within its capabilities. The Vice President Engineering also engages and manages consultants and contractors for dealing with complex problems beyond the capabilities of the Operating Agent staff.

13.1.1.3 Qualifications

The Operating Agent's staff is competent in technical matters related to plant safety and other engineering and scientific support aspects. In the event that the staff specialists are not qualified to deal with specific problems, the services of qualified consultants are engaged as appropriate.

Resumes of key managerial personnel currently assigned are given below.

President and Chief Executive Officer

A. C. Heflin, has been employed by the Operating Agent since January, 2014. He obtained a Bachelor of Science in General/Mechanical Engineering from Arkansas Tech University, and his Master of Science in Operations Management from the University of Arkansas. Mr. Heflin served in the United States Navy from 1985 to 1990. Prior to coming to WCGS, he held a number of positions with increasing responsibility at Arkansas Nuclear One (ANO). He obtained his Reactor Operator License in 1993 and his senior Reactor Operator License in 1998. He served as the Operations Manager from 2003-2005 and Acting Plant Manager from 2004-2005. From 2005-2008, Mr. Heflin served as Vice President, Nuclear, at Callaway Plant. From 2008 until January 2014 he was the Senior Vice President and Chief Nuclear Officer at Ameren.

Senior Vice President and Chief Nuclear Officer

C. O. Reasoner, has been employed by the operating agent since April 2014. He earned his Bachelor of Science Degree in Mechanical Engineering from the University of Arkansas and his Master's Degree in Business Administration from the University of Arkansas in Little Rock. Prior to joining Wolf Creek, Mr. Reasoner worked for Arkansas Nuclear One for 20 Years in a variety of engineering roles. He joined Ameren in 2009 as the Vice President Engineering, and was most recently the Site Vice President at Callaway. Prior to becoming the Senior Vice President and Chief Nuclear Officer, he has held the following positions at Wolf Creek: Vice President Engineering and Site Vice President.

Site Vice President

J. H. McCoy, has been employed by the operating agent since September 2014. He earned his Bachelor of Science Degree and Ph. D. in Nuclear Engineering from the Missouri University of Science and Technology in Rolla, Mo. Prior to joining Wolf Creek, Mr. McCoy joined Entergy's Arkansas Nuclear One in December 1998, and served in positions of increasing authority. Those positions include Manager of Programs and Components, Superintendent Reactor Engineer and since 2010 Director of Engineering. Prior to becoming the Site Vice President he held the following position at Wolf Creek: Vice President Engineering.

Vice President Engineering

S. L. Smith, has been employed by the operating agent since September 2013. He earned his Bachelor of Science in Mechanical Engineering from the University of Texas at Austin. Prior to joining Wolf Creek, Mr. Smith worked for Comanche Peak Nuclear Power Plant as the Plant Manager. He also held the positions of Director of Maintenance, Director of Site Engineering, Manager of System Engineering, Technical Support Manager, and a number of other leadership positions. Prior to becoming the Plant Manager, he has held the following positions at Wolf Creek: Director of Projects Engineering and Recovery Manager. He obtained his Senior Reactor Operator Certification from Comanche Peak Nuclear Power Plant in 1998. Prior to becoming the Vice President Engineering he held the following position at Wolf Creek: Plant Manager.

13.1.2 OPERATING ORGANIZATION

13.1.2.1 Plant Organization

Operation of WCGS is the responsibility of the plant manager. The Plant Manager satisfies the generic position of plant manager as described in Technical Specifications 5.1.1, 5.2.1b., 5.2.2d., 5.3.1.2, and 5.5.1b.

13.1.2.2 Personnel Functions, Responsibilities, and Authorities

The Plant Manager reports to the Site Vice President. The Plant Manager is responsible for plant operation and maintenance and has the prime responsibility for the safe operation of plant and outage activities. The Plant Manager controls plant activities through the plant staff, as described in this section. Under the Plant Manager's direction, the plant staff develops detailed procedures and instructions for testing and operation of the station. The Manager Operations, Manager Maintenance, Manager Work Management, Manager Radiation Protection, Manager Performance Improvement, and Manager Chemistry report to the Plant Manager.

13.1.2.2.1 Operations Section

The Manager Operations reports to the Plant Manager. This manager coordinates the generation of power and changes in plant operating modes and participates in the coordinated refueling effort. The Manager Operations is responsible for developing and maintaining the procedures by which WCGS is operated as described in Section 13.5. This manager is responsible for ensuring that operating shift personnel are properly trained and qualified as described in Section 13.2. Reporting to the Manager Operations are the Superintendent Operations, Superintendent Operations Support (Administrative), Superintendent Operations Support (Training). This position satisfies the generic position of operations manager as described in Technical Specifications 5.2.2e. and 5.3.1.3.

The Superintendent Operations reports to the Manager Operations and is responsible for the conduct of plant operations. The Shift Managers, and operating crews report to the Superintendent Operations.

The Superintendent Operations Support (Administrative) reports to the Manager Operations and is responsible for developing, implementing, and maintaining operating procedures. This superintendent is responsible for the Operations self-assessment and corrective action programs, design changes, Technical Specifications, and the review of plant modifications for the Operations Section. This superintendent is responsible for the role of Operations in daily and outage scheduling, including providing coordination for advance outage planning. This Superintendent is also responsible for the clearance order group, maintaining the surveillance testing program and related schedules during all modes of plant operation, and for the operating crews during their relief weeks.

Superintendent Operations Support (Training) reports to the Manager Operations and is responsible for licensed and non-licensed individuals in Operations' training programs. This superintendent is also responsible for crew improvement development and tracking of all operating crews. This superintendent works closely with the Superintendent Operations and the Manager Operations to establish, communicate, and reinforce expectations.

The Shift Managers are responsible to the Superintendent Operations for the operation of WCGS on a shift basis. Each shift manager is specifically responsible for supervising the activities conducted during his shift and ensuring that they are conducted in accordance with the WCGS Operating License, Technical Specifications, station procedures, and applicable directives and policies. The shift managers are responsible for supervising shift operating personnel, and for conducting on-shift training.

During periods when the Plant Manager, Manager Operations and Superintendent Operations are not on site, the Shift Manager assumes responsibility for all station activities. In the absence of the Shift Manager the designated Control Room Supervisor assumes these responsibilities. The Control Room Supervisors assist the Shift Managers in discharging their responsibilities for supervision of WCGS.

The Shift Manager is responsible for the safe operation of the power plant. If the Shift Manager determines that a plant problem (such as a fire) constitutes a plant emergency as defined in the WCGS Radiological Emergency Response Plan, he will activate the Emergency Plan and assume the responsibilities of the Emergency Manager until relieved by the person assigned as Site Emergency Manager. See the WCGS Radiological Emergency Response Plan for details on the qualifications, assignment and responsibilities of the Emergency Manager. Section 18.1.2.2 also provides additional information.

The on-duty Shift Manager is responsible to the Plant Manager for ensuring that the Fire Protection Program and its implementing procedures are observed during operation and maintenance of the plant. The duties of the Shift Manager include:

a. Monitoring of the permit system for control of ignition sources

b. Monitoring of the permit system for storage and handling of combustible materials inside or adjacent to safety-related areas of the WCGS

c. Monitoring of the permit system for control of activities that render fire detection, alarm, or suppression equipment inoperative

d. Ensuring that a properly qualified Fire Brigade is onsite.

The Reactor Operators (ROs) are responsible for operating the plant on a shift basis. The ROs normally are responsible for routine activities and monitor the status of the unit in the Control Room and in the plant. A Shift Manager or Control Room Supervisor directs the ROs and major activities during a shift.

Nuclear Station Operators (NSOs) work under the supervision of the Shift Manager. The NSOs responsibilities include operating and servicing equipment remote from the Control Room at the direction of Control Room operating personnel.

The Treatment Systems Operators (TSOs) work under the supervision of the Supervisor Treatment Systems. The TSOs responsibilities include the operating of equipment associated with their respective watch stations. This is done under the supervision and direction of the Supervisor Treatment Systems, operating personnel, with coordination and input from the Control Room.

In conformance with ANSI/ANS-3.1-1981, as endorsed by Regulatory Guide 1.8 (Rev. 2), the Wolf Creek Generating Station has on-shift, personnel qualified to provide operations assessment during normal operations and accident assessment during transients. This technical support is provided by an individual who meets the qualifications and training for Shift Technical Advisor described in section 13.2.1.1.3 or 13.2.2.12.

13.1.2.2.2 Maintenance

The Manager Maintenance reports to the Plant Manager. The Manager Maintenance is responsible for all maintenance activities associated with mechanical and electrical equipment and instrumentation and controls including preventive maintenance programs and for inspecting and maintaining the fire suppression systems and portable fire fighting equipment as assigned. The Manager Maintenance ensures that instrumentation and controls and maintenance personnel are adequately trained and qualified. The Manager Maintenance ensures that activities and appropriate items of maintenance are conducted in accordance with approved procedures, regulatory requirements and applicable policies and directives. The Manager Maintenance is responsible for maintaining records and procedures pertaining to these safety-related activities and is also responsible for ensuring the proper installation, calibration, testing, and maintenance of the station Instrumentation and Controls.

The Manager Maintenance is responsible for planning, implementation, and coordinating minor modifications associated with mechanical, electrical, and instrumentation and control disciplines.

The Manager Maintenance is responsible for developing and maintaining procedures as described in Section 13.5. The Manager Maintenance is responsible for equipment assembly and disassembly associated with refueling and participates in the coordinated refueling effort.

13.1.2.2.3 Chemistry

The Plant Manager is responsible through the Manager Chemistry for the supervision of chemistry personnel. The Manager Chemistry reports to the Plant Manager and is specifically responsible for the station's fluid systems chemistry, both radioactive and non-radioactive. In addition the Chemistry organization is assigned responsibility for plant discharges in accordance with appropriate Technical Specifications and permits. The Chemistry organization is required to maintain appropriate procedures and personnel training as specified in Section 13.2.

13.1.2.2.4 Radiation Protection

The Plant Manager is responsible through the Manager Radiation Protection for the supervision of Radiation Protection personnel. The Manager Radiation Protection is specifically responsible for the routine operation and management of the WCGS Radiation Protection program and procedures (Section 12.5) including implementation of the station policy of maintaining occupational radiation exposures "as low as reasonably achievable." In discharging these responsibilities the Manager Radiation Protection is required to maintain appropriate procedures and personnel training as specified in Section 13.2.

The Radiation Protection Manager meets the qualifications of ANSI N 18.1-1971 and RG 1.8. The Radiation Protection Program meets the requirements of RGs 8.2, 8.8 and 8.10. Radiation Protection technicians are under the Manager Radiation Protection’s direction and are familiar with the station layout, personnel, procedures and equipment.

Onsite backup coverage in the event of the absence of the Manager Radiation Protection is provided by designating one of the Supervisors whose minimum qualification requirements are as specified in Table 13.1-1.

13.1.2.2.5 Work Management

The Manager Work Management reports to the Plant Manager and is responsible for the administration of daily scheduling and outage activities.

13.1.2.2.6 Security

The Manager Security reports to the Director Plant Support. The Manager Security is responsible for the activities of the Station Security Force and for implementing the Station Security Plan. The Manager Security advises the Director Plant Support on security matters and recommends actions to maintain station security.

13.1.2.2.7 Fire Protection

The Supervisor Fire Protection is responsible for the organization and training of the WCGS Fire Brigade. In conjunction with the training staff, the Supervisor Fire Protection assists in training the Fire Brigade. This individual is responsible for implementing the Fire Plan as described in the referenced document section of the USAR.

The Supervisor Fire Protection is responsible to the Vice President Engineering for the administration of the Fire Protection Program. The duties of the Supervisor Fire Protection include:

a. Periodic inspection of the WCGS to ensure that proper fire prevention measures are enforced and fire protection systems and equipment are periodically tested and adequately maintained. Test, maintenance and inspection activities are performed by qualified personnel.

b. Development and enforcement of a permit system for the control of ignition sources, including cutting and welding.

c. Development and enforcement of a permit system for the control of combustible materials in safety-related areas of the WCGS.

d. Development and enforcement of a permit system for control of activities that render fire detection, alarm, or suppression equipment inoperative.

e. Training of the Fire Brigade, station personnel, and contractors in appropriate aspects of fire protection.

f. Periodic review and update of the Fire Protection Program and implementing procedures.

A fire protection engineer or consultant who meets the eligibility requirements for membership in the Society of Fire Protection Engineers was retained to review the WCGS Fire Protection Program. The services of a fire protection engineer are available to other cognizant Operating Agent personnel throughout the active life of the WCGS.

13.1.2.2.8 Regulatory Affairs

The Manager Nuclear and Regulatory Affairs reports to the Vice President Engineering and is responsible for the administration of the WCGS Environmental Control Program.

13.1.2.2.9 Quality

The Manager Quality is responsible for the Quality organization at Wolf Creek Generating Station.

In this role, the Manager Quality reports directly to the Senior Vice President and Chief Nuclear Officer.

The Manager Quality, through the Wolf Creek Supervisor Quality Assurance, is responsible for the systematic assessment of activities and operations affecting plant safety and reliability at Wolf Creek.

The systematic assessment of activities and operations affecting plant safety and reliability is accomplished by the use of performance-based QA audits, surveillance's and reviews. This manager is also responsible for the development and implementation of a quality verification program to ensure the effective programs for quality standards and compliance are in place at all suppliers who provide materials, equipment or services affecting safety and reliability of the WCGS. This manager conducts trending and analysis to assess supplier quality performance and also conducts trending and analysis of conditions adverse to quality including assessment of supplier quality performance and assessments of problem root cause. The Manager Quality and the Supervisor Procurement Quality have the authority to stop unsatisfactory or improper work during repair, maintenance and refueling activities, to stop work at a supplier when continuation of the activity would preclude identification and correction or increase the extent of the deficiency. Additionally, the Manager Quality and the Supervisors Quality Assurance have the authority to recommend to the plant manager to stop work, affecting the continuation of plant operations, when work activities do not comply with established quality requirements. Quality has sufficient authority and organizational freedom to perform its designated functions of quality verification and is independent of the economic pressures of production. The Manager Quality has direct access to the Senior Vice President and Chief Nuclear Officer for resolution of any areas in question.

13.1.2.2.10 Quality Control

Quality Control reports directly to the Manager Quality and is responsible for the inspection of products and processes affecting plant safety and reliability. This is accomplished by the use of visual, mechanical, welding, and electrical tests and inspection and by the use of nondestructive examinations (NDE) including ultrasonic, magnetic particle, dye penetrant, eddy current and radiography.

Inspections are prescribed by specification, license provisions, regulatory control and performance history. The Supervisor Quality Control plans and implements an extensive system of tests, examinations and inspections at WCGS to ensure safety and reliability of the plant. Additionally, designated activities are monitored through the use of QC surveillance reports. Quality Control has the authority to stop work during repair, maintenance and refueling activities evolving from hold points, witness points and inspections. Quality Control has sufficient authority and organizational freedom to perform the designated functions of quality verification and is independent of the economic pressures of production. Quality Control has direct access to the Manager Quality and Senior Vice President and Chief Nuclear Officer for resolution of any areas in question.

13.1.2.2.11 Training

The Manager Training reports to the Site Vice President and is responsible for the training activities associated with all of the accredited programs, as well as Plant Access Training. The Manager Training is responsible for ensuring training staff have the appropriate qualifications, including reviewing instructor evaluation records. The Manager Training is also responsible for reviewing the content of training programs for technical completeness and compliance with regulatory standards.

The Manager Training is responsible for the following training activities:

a. Ensure plant operators and technicians are trained and certified to perform their jobs.
b. Ensure professional and supervisor personnel receive general professional training commensurate with their job tasks; (i.e. industry standards, quality assurance programs and ALARA).
c. Maintain accreditation of training program.

13.1.2.3 Supervisory Succession

The Plant Manager is responsible for the safe, reliable and efficient operation of WCGS. In the Plant Manager's absence, the Duty Call Superintendent will assume the Plant Manager's responsibilities unless otherwise designated by the Plant Manager. The Shift Manager is the senior management representative at the plant during all shifts other than normal day shift.

13.1.2.4 Shift Crew Composition

The Operations Department consists of six shifts. The rotation consists of a standard four shift complement with a fifth shift to allow for required training and a sixth to cover for vacations, sickness or out of the ordinary manpower requirements.

Required shift composition is given in the Technical Requirements Manual.

13.1.3 QUALIFICATION REQUIREMENTS FOR PLANT PERSONNEL

13.1.3.1 Minimum Qualification Requirements

The minimum qualification requirements for plant personnel are displayed in Table 13.1-1. All key station personnel meet the minimum requirements specified in Regulatory Guide 1.8, "Personnel Selection and Training" and Technical Specifications.

13.1.3.2 Qualification of Plant Personnel

Resumes of key managerial and supervisory personnel currently assigned are given below.

Plant Manager

R. J. Bayer, has been employed by the operating agent since November 2016. He earned his Bachelor of Science in Mechanical Engineering from Arkansas Tech University and a Masters of Business Administration from Arkansas State University. Prior to joining Wolf Creek, Mr. Bayer joined Arkansas Nuclear One in 2002 as a non-licensed operator and held positions of increasing authority. He obtained his Reactor Operator License in 2008 and his Senior Reactor Operator License in 2011 and served as Control Room Supervisor and Shift Manager. He also served as the Superintendent Mechanical Maintenance and Senior Manager, Maintenance. Prior to becoming the Plant Manager, he has held the following positions at Wolf Creek: Manager Strategic Projects and Manager System Engineering. Mr. Bayer is a graduate of the 2016 INPO Senior Nuclear Plant Manager seminar.

Manager Quality

R. D. Fincher, has been employed by the Operating Agent since January 2014. Prior to joining Wolf Creek Generating Station as Manager Quality, Mr. Fincher was employed by Irex Contracting Group as the Director of Quality and Program Development. Prior to his employment at Irex Contracting Group, Mr. Fincher held the following positions in Quality: Senior Vice President Nuclear Services, at Project Assistance Corporation, Manager Quality Assurance at Shaw, Stone & Webster, Project Quality Assurance Manager at Bechtel Corporation (Power Division), Manager and Supervisor Quality at South Texas Project. Mr. Fincher has more than 35 years of experience in Quality Assurance type programs in the nuclear and non-nuclear industries.

Manager Operations

B. J. Stucker, has been employed by the Operating Agent since September 1990. He was in the U. S. Navy from 1982 to 1990 serving as a Machinist Mate on a nuclear powered submarine and as a Training Instructor at the Naval Nuclear Power Prototype in South Carolina. Prior to becoming Manager Operations, he has held the following positions at Wolf Creek: NSO Trainee I, NSO Trainee II, Nuclear Station Operator, Senior Nuclear Station Operator, Reactor Operator, Control Room Supervisor, Shift Manager, and Superintendent Operations Support (Training). He received his Reactor Operator License in September 1997 and his Senior Reactor Operator License in April 2006.

Superintendent Operations Support (Admin)

J. R. Isch, has been employed by the Operating Agent since June 1988. He earned his Bachelor of Science Degree in Electrical Engineering from Kansas State University in December 1990. Prior to becoming Superintendent Operations Support (Admin), he has held the following positions at Wolf Creek: Engineer Trainee, Containment Leak Rate Engineer, In-Service Test Engineer, Shift Engineer, Control Room Supervisor, Shift Manager, and Superintendent Operations Support (Work Controls). Mr. Isch received his Senior Reactor Operator License at WCGS in May 1995.

Superintendent Operations Support (Training)

T. J. Dunlop, has been employed by the Operating Agent since September 1991. He was in the U. S. Navy from 1985 to 1991 serving as a Machinist Mate and Engineering Laboratory Technician. Prior to becoming Superintendent Operations Support (Training), he has held the following positions at Wolf Creek: NSO Trainee I, NSO Trainee II, Nuclear Station Operator, Senior Nuclear Station Operator, Reactor Operator, Control Room Supervisor, and Shift Manager. He received his Reactor Operator License in August 1999 and his Senior Reactor Operator License in October 2011.

Superintendent Operations

E. D. Carlson, has been employed by the Operating Agent since Dec. 2000. He earned his Bachelor of Science Degree in Mechanical Engineering from Kansas State University in May 1999. Prior to becoming Superintendent Operations, he held the following positions at Wolf Creek: Nuclear Station Operator, Shift Engineer, Control Room Supervisor, and Shift Manager. Mr. Carlson received his Senior Reactor Operator License at WCGS in Nov. 2007.

Shift Manager

T. A. Faircloth, has been employed by the operating agent since July 2013. He earned his Bachelor of Science in Nuclear Engineering Technology from Thomas Edison State College in December of 2012, and his Master of Business Administration from the University of Kansas in December of 2017. He served in the U. S. Navy from 2007 to 2013 as a Machinist Mate on a nuclear powered submarine. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek; Shift Engineer, Work Controls SRO, Shift Technical Advisor, and Control Room Supervisor. He received his Senior Reactor Operator License in December 2015.

Shift Manager

E. L. Pitt, has been employed by the Operating Agent since November 1988. Prior to becoming Shift Manager qualified he has held the following positions at Wolf Creek: contract security guard (1987-1988), Armed Response Officer, Security Shift Corporal, Nuclear Station Operator Trainee I, Nuclear Station Operator Trainee II, Junior Nuclear Station Operator, Nuclear Station Operator, Senior Nuclear Station Operator, Reactor Operator, Work Control SRO, and Control Room Supervisor. He received his Reactor Operator License in December 2001 and his Senior Reactor Operator License in October 2009.

Shift Manager

T. J. Rohlfing, has been employed by the operating agent since January 2007. He earned his Bachelor of Science Degree in Mechanical Engineering from Kansas State University in May 2009. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek: Engineer Trainee, System Engineer, Shift Engineer, and Control Room Supervisor. Mr. Rohlfing received his Senior Reactor Operator License at WCGS n December 2015.

Shift Manager

W. C. Brandt, has been employed by the Operating Agent since January 1987. He earned his Bachelor of Science Degree in Electrical Engineering from Kansas State University in December 1986. Prior to becoming Shift Manager, he worked in the following Engineering disciplines at Wolf Creek: Nuclear Plant Engineering and Reactor Engineering. In the Operations organization he has held the following positions: Shift Engineer and Control Room Supervisor. He received his Senior Reactor Operator License at WCGS in May 1995.

Shift Manager

D. M. Gholson, has been employed by the Operating Agent since January 1997. He was in the U. S. Navy from 1987 to 1996 serving as a Machinist Mate on a nuclear powered submarine. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek: NSO Trainee I, NSO Trainee II, Nuclear Station Operator, Senior Nuclear Station Operator, Reactor Operator and Control Room Supervisor. He received his Reactor Operator License in March 2006 and his Senior Reactor Operator License in September 2011.

Shift Manager

M. A. Blow, has been employed by the Operating Agent since Jan 1983. She earned her Bachelor of Arts Degree in Chemistry from Fort Hays State University in December 1982. Prior to becoming Shift Manager, she has held the following positions at Wolf Creek: Chemistry Technician, Health Physics Technician, Superintendent Chemistry, Manager Chemistry/RP, Shift Engineer, Shift Manager, and Superintendent Operations Support (Training). She received her Senior Reactor Operator License in May 2004.

Shift Manager

S. A. Bell, has been employed by the operating agent since May 1994. He earned his Bachelor of Science Degree in Chemical Engineering from Kansas State University in May 1997. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek: Engineer Trainee, Operations Engineer, Shift Engineer, and Control Room Supervisor. Mr. Bell received his Senior Reactor Operator License at WCGS in December 2001.

Shift Manager

E. W. Martinson, has been employed by the Operating Agent since August 2009. He was in the U. S. Navy from 2000 to 2009 serving as a Machinist Mate on a nuclear powered submarine and as a Training Instructor at the Naval Nuclear Power Prototype in South Carolina. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek: Shift Engineer and Control Room Supervisor. He earned his Bachelor of Science Degree in Nuclear Engineering Technology from Thomas Edison State College in March 2008 and his Master of Business Administration from Baker University in August 2014. He received his Senior Reactor Operator License in March 2012.

Shift Manager

T. N. Greenfield, has been employed by the Operating Agent since February 2011. He earned a Bachelor of Electrical Engineering degree from University of Minnesota in December 1999. Prior to his employment at Wolf Creek, he was employed at Prairie Island Nuclear Plant from 1999 to 2011 as a System Engineer, Shift Technical Advisor, and Control Room Supervisor. He received his Senior Reactor Operator License for Prairie Island in May 2004. Prior to becoming a Shift Manager, he has held the following positions at Wolf Creek: Shift Engineer and Control Room Supervisor. He received his Senior Reactor Operator License at WCGS in August 2013.

Shift Manager

J. N. Weber, has been employed by the Operating Agent since August 2009. He earned his Bachelor of Science Degree in Nuclear Engineering Technology from Thomas Edison State College in December 2008 and his Master of Business Administration from Baker University in August 2014. He served in the U. S. Navy from March 2000 to March 2008 as an Electronics Technician/Reactor Operator on a nuclear powered submarine and as a Training Instructor at the Naval Nuclear Power Prototype in South Carolina. He trained and supervised nuclear fuel handlers at the Expended Core Facility on the Idaho National Laboratory from March 2008 to August 2009. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek; Shift Engineer, Work Controls SRO, Shift Technical Advisor, and Control Room Supervisor. He received his Senior Reactor Operator License in October 2011.

Shift Manager

E. F. Winn, has been employed by the Operating Agent since October 1990. He was in the U. S. Navy from 1984 to 1990 serving as a Electricians Mate on a nuclear powered aircraft carrier. Prior to becoming Shift Manager, he has held the following positions at Wolf Creek: NSO Trainee I, NSO Trainee II, Nuclear Station Operator, Senior Nuclear Station Operator, Reactor Operator and Control Room Supervisor. He received his Reactor Operator License in May 2004 and his Senior Reactor Operator License in September 2011.

Shift Manager

C. E. Woods, has been employed by the operating agent since Sept. 2009. He earned his Bachelor of Science Degree in Mechanical Engineering from Oklahoma State University in May 2007. He worked at Knolls Atomic Power Laboratory from June 2007 to until Sept. 2009 where he trained U. S. Navy nuclear officers and Enlisted personnel. Prior to becoming Shift Manager, he held the following positions at Wolf Creek: Shift Engineer and Control Room Supervisor. Mr. Woods received his Senior Reactor Operator License at WCGS in Oct 2012.

Manager Maintenance

D. R. Bowers, has been employed by the operating agent since May, 1991. He earned his Bachelor of Science Degree in Mechanical Engineering from Kansas State University in May, 1991. Prior to becoming Manager Maintenance, he has held the following positions at Wolf Creek: Engineer, Shift engineer, Control Room Supervisor, and Shift Manager. He received his Senior Reactor Operator License at WCGS in August, 1999.

Manager Radiation Protection

C. D. Gross, has been employed by the operating agent since September 2004. He earned his Bachelor of Science degree in Nuclear Engineering Technology in December 2004 from Thomas Edison State College. He served in the U. S. Navy from September 1994 through September 2004.

Mr. Gross also fills the position of Radiation Protection manager (RPM). He meets or exceeds the qualifications of Regulatory Guide 1.8, September 1975, for a Radiation Protection manager (RPM) as specified in TS 5.3.1.2.

Prior to becoming the Manager Radiation Protection, he has held the following positions at Wolf Creek: Chemistry Technician, Shift Engineer, Control Room Supervisor, and Manager Chemistry. Mr. Gross received his Senior Reactor Operator License in October 2009.

Manager Work Management

P. J. Herrman, has been employed by the operating agent since April, 2000. He earned his Bachelor of Science in Engineering Technology from Oklahoma State University in 1991. Prior to becoming Manager Work Management, he has held the following positions at Wolf Creek: Fire Protection Engineer, Engineering Equipment Reliability Supervisor, Plant Scheduling Superintendent, Manager Engineering Programs, and Manager Design Engineering.

Manager Training

J. L. Yunk, has been employed by the Operating Agent since September 1989. She obtained a Bachelors of Art degree in International Relations from University of California at Davis in June 1987. Prior to serving as Manager Training, she held the following positions: Manager Organizational Effectiveness, Manager Performance Improvement and Corrective Action, Manager Human Resources, Supervisor Regulatory Affairs, and Recovery Manager.

TABLE 13.1-1 (Sheet 1)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

This table lists training, education and experience requirements for personnel filling those permanent WCNOC positions or functions covered by Technical Specifications requirements. In the paragraphs below describing the training and experience requirements, the underlined words are defined in referenced ANSI standards.

Position or Function: Plant Manager

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.2.1

Training and/or Experience Requirements:

The Plant Manager shall have ten years of power plant experience, of which three years shall be nuclear power plant experience. A maximum of four years of the remaining seven years of experience may be fulfilled, on a one-for-one time basis, by academic training leading to a recognized college-level degree in an engineering or scientific field associated with power plants. The Plant Manager shall have acquired the experience and training normally required to be eligible for examination by the USNRC for a Senior Reactor Operator's License whether or not the examination is taken. The Plant Manager should have a B.S. degree or higher in an engineering or scientific field generally associated with power plants.

Position or Function: Manager Operations

Referenced Requirement: Tech Spec 5.3.1.3 & 5.2.2.e (also see Superintendent Operations)

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.2.2

Training and/or Experience Requirements:

The Manager Operations shall hold or have held a senior reactor operator license for a similar unit (PWR) and have eight years of responsible power plant experience of which a minimum of three years shall be nuclear power plant experience. A maximum of two of the remaining five years of power plant experience may be fulfilled by academic or related technical training on a one-for-one basis. The Superintendent Operations or the Manager Operations shall hold an SRO license.

TABLE 13.1-1 (Sheet 2)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Manager Maintenance

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.2.3 and Section 4.2.4.

Training and/or Experience Requirements:

The Manager Maintenance shall satisfy at least one of the following two requirements:

Requirement 1 (Section 4.2.3):
The Manager Maintenance shall have seven years of responsible power plant experience or applicable industrial experience, a minimum of one year of which shall be nuclear power plant experience. A maximum of two 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.

Requirement 2 (Section 4.2.4):
The individual fulfilling the function of Instrumentation and Control group Technical Manager shall have eight years experience in 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.

Position or Function: Function of Reactor Engineering Group Technical Manager – Currently fulfilled by Manager System Engineering

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.2.4

Training and/or Experience Requirements:

The individual fulfilling the function of Reactor Engineering group Technical Manager shall have eight years experience in 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.

TABLE 13.1-1 (Sheet 3)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Function of Instrumentation and Control Group Technical Manager – Currently fulfilled by Manager Maintenance

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.2.4

Training and/or Experience Requirements:

The individual fulfilling the function of Instrumentation and Control group Technical Manager shall have eight years experience in 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.

Position or Function: Function of Chemistry and Radiochemistry Group Technical Manager – Currently fulfilled by Manager Chemistry

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1 – 1978, Section 4.2.4

Training and/or Experience Requirements:

The individual fulfilling the function of Chemistry and Radiochemistry group Technical Manager shall have eight years experience in 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.

Position or Function: Function of Radiation Protection Group Technical Manager – Currently fulfilled by Manager Radiation Protection

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1 – 1978, Section 4.2.4

Training and/or Experience Requirements:

The individual fulfilling the function of Radiation Protection group Technical Manager shall have eight years experience in 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.

TABLE 13.1-1 (Sheet 4)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Function of Quality Assurance Group Technical Manager – Currently fulfilled by Manager Quality

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1 – 1978, Section 4.2.4

Training and/or Experience Requirements:

The individual fulfilling the function of Quality Assurance group Technical Manager shall have eight years experience in 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.

Position or Function: Candidates for RO and SRO licenses

Referenced Requirement: Tech Spec 5.3.1.1

Referenced Standard / Guidance: Letter WO 04-0031; INPO ACAD 10-001

Training and/or Experience Requirements:

Refer to Figures 2-1, 2-2, 2-3 and 2-4 of ACAD 10-001. These requirements apply to eligibility of candidates for RO or SRO training.

Position or Function: Supervisors not requiring NRC Licenses – Currently fulfilled by Supervisor Chemistry

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.3.2

Training and/or Experience Requirements:

The Supervisor Chemistry shall have a high school diploma or equivalent, and four years of experience in chemistry/radiochemistry.

Position or Function: Supervisors not requiring NRC Licenses – Currently fulfilled by Supervisor Health Physics

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.3.2

Training and/or Experience Requirements:

The Supervisor Health Physics shall have a high school diploma or equivalent, and four years of experience in health physics.

TABLE 13.1-1 (Sheet 5)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Supervisors not requiring NRC Licenses – currently fulfilled by Supervisor Maintenance

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.3.2

Training and/or Experience Requirements:

The Supervisor Maintenance, supervising individuals in the disciplines of I&C, mechanical maintenance, and electrical maintenance, shall have a high school diploma or equivalent, and four years of experience in the craft or discipline he/she supervises.

Position or Function: Supervisors not requiring NRC Licenses – Currently fulfilled by Supervisor Engineer, Support Engineering

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.3.2

Training and/or Experience Requirements:

The Supervisor Engineer, Support Engineering shall have a high school diploma or equivalent, and four years of experience in support engineering.

Position or Function: Function of Reactor Engineering Group Leader – Currently fulfilled by Supervisor Engineer (NSSS/RX)

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.4.1

Training and/or Experience Requirements:

The individual fulfilling the function of Reactor Engineering Group Leader shall have a Bachelor's Degree in Engineering or the physical sciences and four years experience or a graduate degree and three years experience. Two of these 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 programs (such as the 12 week concentrated programs offered by the NSSS vendors) may be equivalent to one year's nuclear power plant experience.

Position or Function: Function of Instrument and Control Group Leader – Currently fulfilled by Superintendent Maintenance

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.4.2

TABLE 13.1-1 (Sheet 6)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Training and/or Experience Requirements:

The individual fulfilling the function of Instrument and Control Group Leader shall have five years experience in instrumentation and control, of which one year shall be in nuclear instrumentation and control 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.

Position or Function: Function of Chemistry and Radiochemistry Group Leader – Currently fulfilled by Manager Chemistry

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.4.3

Training and/or Experience Requirements:

The individual fulfilling the function of Chemistry and Radiochemistry Group Leader shall have five years 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.

Position or Function: Function of Radiation Protection Group Leader – Currently fulfilled by Manager Radiation Protection

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.4.4

Training and/or Experience Requirements:

The individual fulfilling the function of Radiation Protection Group Leader shall have a bachelor's degree or equivalent in a science or engineering subject, including some formal training in radiation protection. The individual shall have a minimum of five years of experience in applied radiation protection at a nuclear power plant. (A master's degree may be considered equivalent to one year of professional experience, and a doctor's degree may be considered equivalent to two years of experience where course work related to radiation protection is involved). A minimum of three years of this five years experience shall be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power plants, preferably in an actual nuclear power plant. Two years of this five years experience should be related technical training. A maximum of four years of this five years experience may be fulfilled by related technical or academic training.

TABLE 13.1-1 (Sheet 7)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Function of Radiation Protection Manager – Currently fulfilled by Manager Radiation Protection

Referenced Requirement: Tech Spec 5.3.1.2

Referenced Standard / Guidance: [Note: TS 5.3.1.2 supercedes ANSI/ANS 3.1-1978, Section 4.4.4]; Reg Guide 1.8, September 1975 (The term "should" in Reg Guide 1.8, 1975 was replaced with "shall" in the descriptions below to be consistent with normal practices of Reg Guides and ANSI standards); ANSI N18.1-1971; Health Physics Position Papers – HPPOSs 18 & 217, ("professional experience" clarification) & HPPOS 20 ("bachelor's degree or equivalent" clarification)

Training and/or Experience Requirements:

The individual fulfilling the function of Radiation Protection Manager (RPM) shall be a supervisor with line responsibility for operational health physics. The RPM will be designated by the Plant Manager. The RPM shall have a bachelor's degree or the equivalent(1) in a science or engineering subject, including some formal training in radiation protection. The RPM shall have at least five additional years of professional experience(2) in applied radiation protection. (A master's degree may be considered equivalent to one year of professional experience, and a doctor's degree may be considered equivalent to two years of professional experience where course work related to radiation protection is involved.) At least three years of this professional experience shall be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power stations, preferably in an actual nuclear power station(3).

The following NRC approved guidance, referred to as Health Physics Position Papers (HPPOS), applies:

Note (1): HPPOS 20 clarifies the term "bachelor's degree or equivalent" as follows: --To provide clarification on this point, "equivalent" in the content of RG 1.8 is defined as follows:

1. Four years of formal schooling in science or engineering.
2. Four years of applied radiation protection experience at a nuclear facility.
3. Four years of operation or technical experience / training in nuclear power.
4. Any combination of the above totaling four years.

Note (2): HPPOS 18 clarifies the term "professional experience" as follows: -- Technician experience is not equivalent to professional experience when evaluating the qualifications of a Radiation Protection Manager (RPM).

Note (3): HPPOS 217 clarifies the phrase "three years of this professional experience" as follows: -- The three years experience "… in applied radiation protection work in a nuclear facility …" should all be professional level experience.

TABLE 13.1-1 (Sheet 8)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Function of Quality Assurance Group Leader – Currently fulfilled by Manager Quality Assurance

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.4.5

Training and/or Experience Requirements:

The individual fulfilling the function of Supervisor Quality Assurance shall have six years experience in the field of quality assurance, preferably at an operating nuclear plant, or operations supervisory experience. At least one year of this six years experience shall be nuclear power plant experience in the overall implementation of the quality assurance program. (This experience shall be obtained within the quality assurance organization.) A minimum of one year of this six years experience shall be related technical or academic training. A maximum of four years of this six years experience may be fulfilled by related technical or academic training.

Position or Function: Function of journeyman level Chemistry Technician – Currently fulfilled by Chemistry Technician, Level II

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.2

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Chemistry Technicians shall satisfy at least one of the following two requirements:

Requirement 1:
Three years working experience in the field of chemistry, of which one year should be related technical training.

Requirement 2:
Five years 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.

Position or Function: Function of journeyman level Health Physics Technician – Currently fulfilled by Health Physics Technician, Level II

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.2

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Health Physics Technicians shall have three years working experience in the field of health physics, of which one year should be related technical training.

TABLE 13.1-1 (Sheet 9)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Function of journeyman level Instrumentation & Controls Technician – Currently fulfilled by Instrumentation & Controls Technician, Level II

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.2

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Instrumentation & Controls Technicians shall have three years working experience in the field of instrumentation and controls, of which one year should be related technical training.

Position or Function: Function of journeyman level Engineering Technician – Currently fulfilled by Engineering Technician, Level III

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.2

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Engineering Technicians shall have three years working experience in the field of engineering support, of which one year should be related technical training.

Position or Function: Function of journeyman level Mechanic – Currently fulfilled by Journeyman Mechanic

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.3

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Mechanic shall have three years working experience in one or more crafts.

Position or Function: Function of journeyman level Electrician – Currently fulfilled by Journeyman Electrician

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1978, Section 4.5.3

Training and/or Experience Requirements:

The individuals fulfilling the function of journeyman level Electrician shall have three years working experience in one or more crafts.

TABLE 13.1-1 (Sheet 10)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Shift Manager

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1981, Section 4.3.1.1 as endorsed by Reg. Guide 1.8, Rev. 2, and 10 CFR Part 55.

Training and/or Experience Requirements:

The Shift Manager shall have a high school diploma, or equivalent. The Shift Manager shall have four years power plant experience of which two years shall be nuclear power plant experience. During the two years, the individual shall have participated in the reactor operator activities of an operating nuclear power plant during the following periods.

1. Six weeks operation above 20 percent power.
2. Startup from subcritical to 20 percent power.
3. Shutdown from above 20 percent power to cold (less than 212°F) and subcritical.
4. Startup preparations following a refueling outage.

The Shift Manager shall hold an NRC senior operator license. The Shift Manager shall complete specialized training in supervisory skills, general employee training, and annual licensed operator retraining.

Position or Function: Function of Engineer in Charge – Currently fulfilled by Vice President Engineering

Referenced Requirement: Tech spec 5.3.1

Referenced Standard / Guidance: USAR Section 13.1.1.2.4; ANS/ANS 3.1-1978, Section 4.6.1.

Training and/or Experience Requirements:

The individuals fulfilling the function of engineer in charge of technical support shall have a Bachelor's Degree in Engineering or the physical sciences and have three years of professional level experience in nuclear services, nuclear plant operation or nuclear engineering, and the necessary overall nuclear background to determine when to call consultants and contractors for dealing with complex problems beyond the scope of owner-organization expertise.

TABLE 13.1-1 (Sheet 11)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Control Room Supervisor

Referenced Requirement: Tech Spec 5.3.1

Referenced Standard / Guidance: ANSI/ANS 3.1-1981, Section 4.3.1.2 as endorsed by Reg. Guide 1.8, Rev. 2, and 10 CFR Part 55.

Training and/or Experience Requirements:

The Control Room Supervisor shall have a high school diploma, or equivalent. The Control Room Supervisor shall have three years power plant experience of which two years shall be nuclear power plant experience. During the two years, the individual shall have participated in the reactor operator activities of an operating nuclear power plant during six weeks operation above 20 percent power.

The Control Room Supervisor shall hold an NRC senior operator license. The Control Room Supervisor shall complete general employee training and annual licensed operator retraining.

Position or Function: Reactor Operator

Referenced Requirement: Tech Spec 5.3.1.1

Referenced Standard / Guidance: Letter WO 04-0031; INPO ACAD 10-001

Training and/or Experience Requirements:

The candidate should have at least three years of power plant experience, at least one year of which is spent at the facility for which the license is being sought. The candidate should spend at least six months as a nonlicensed operator at that site. (See Figure 2-1 of ACAD 10-001)

Position or Function: Superintendent Operations

Referenced Requirement: Tech Spec 5.2.2.e (also see Manager Operations)

Referenced Standard / Guidance: None

Training and/or Experience Requirements:

The Superintendent Operations or the operations manager shall hold an SRO license.

TABLE 13.1-1 (Sheet 12)

TRAINING AND EXPERIENCE REQUIREMENTS FOR PLANT PERSONNEL

Position or Function: Shift Technical Advisor – Currently fulfilled by Shift Engineer

Referenced Requirement: Tech Spec 5.2.2.f

Referenced Standard / Guidance: NRC Policy Statement on Engineering Expertise on Shift (48FR33781)

Training and/or Experience Requirements:

Either Option 1 or Option 2 may be used on each shift. A utility may use Option 1 on some shifts and Option 2 on other shifts, or may use the same option on every shift. If Option 1 is used for a shift, then the separate shift technical advisor (STA) position may be eliminated for that shift.

Option 1: Combined SRO/STA Position – This option is satisfied by assigning an individual with the following qualifications to each operating shift crew as one of the SROs (preferably the Shift Manager) required by 10 CFR 50.54(m)(2)(i):

a. Licensed as a senior operator on the nuclear power unit(s) to which assigned, and

b. Meets the STA training criteria of NUREG-0737, Item I.A.1.1 as follows:

    1. Received specific training in the response and analysis of the plant for transients and accidents.

    2. The STA shall also receive training in plant design and layout, including the capabilities of instrumentation and controls in the control room.

c. Meets one of the following educational alternatives:

    1. Bachelor’s degree in engineering from an accredited institution;

    2. Professional Engineer’s license obtained by the successful completion of the PE examination;

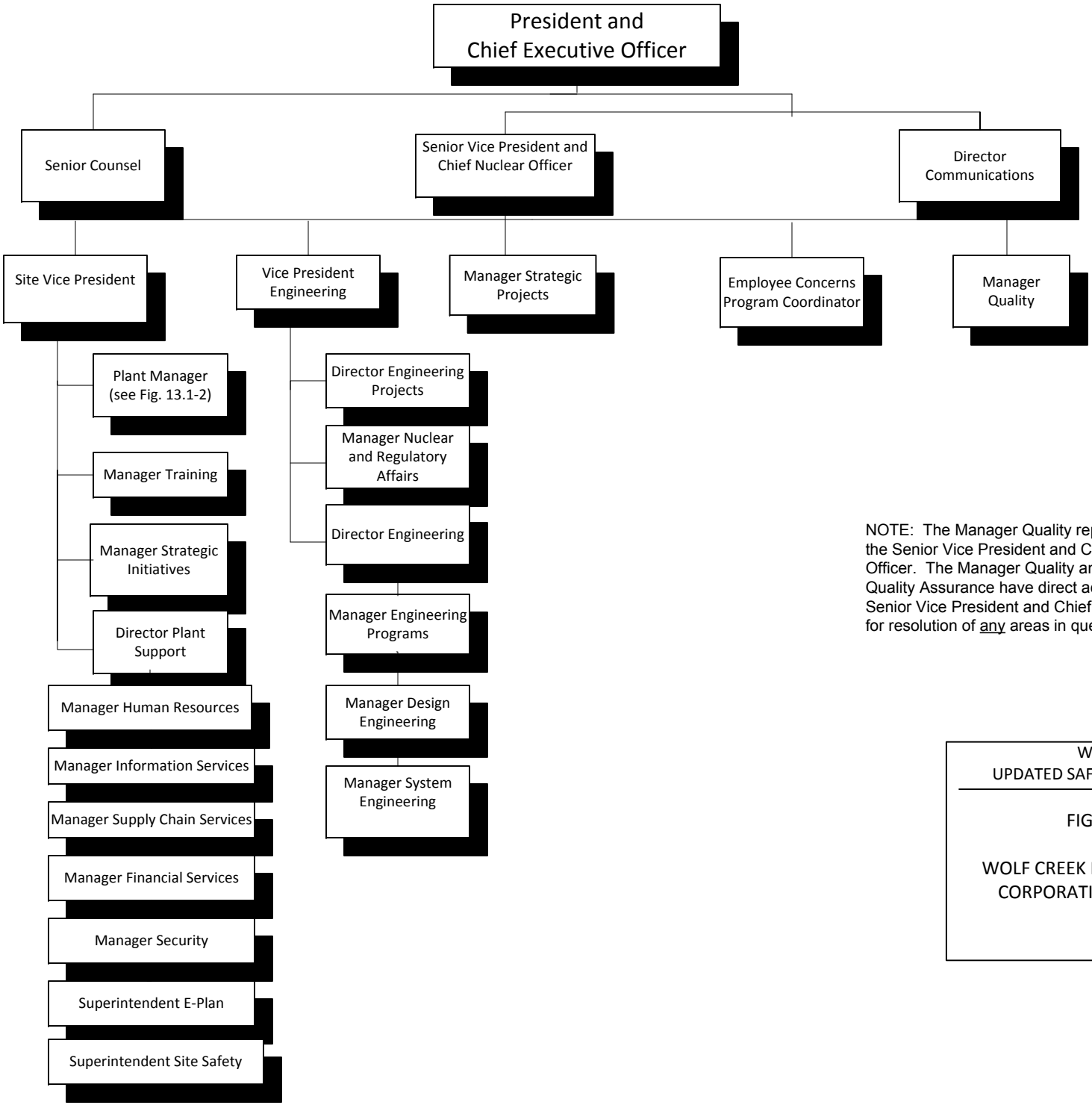
    3. Bachelor’s degree in engineering technology from an accredited institution, including course work in the physical, mathematical, or engineering sciences; or

    4. Bachelor’s degree in a physical science from an accredited institution, including course work in the physical, mathematical, or engineering sciences.

Option 2: Continued Use of STA Position – If the individual is serving in the STA role separate from the combined SRO/STA role, the following applies:

The individual shall hold a bachelor’s degree or equivalent in a scientific or engineering discipline and have received (1) specific training in the response and analysis of the plant for transients and accidents, and (2) training in plant design and layout, including the capabilities of instrumentation and controls in the control room.

WOLF CREEK STATION ORGANIZATION



NOTE: The Manager Quality reports directly to the Senior Vice President and Chief Nuclear Officer. The Manager Quality and the Supervisor Quality Assurance have direct access to the Senior Vice President and Chief Nuclear Officer for resolution of any areas in question.

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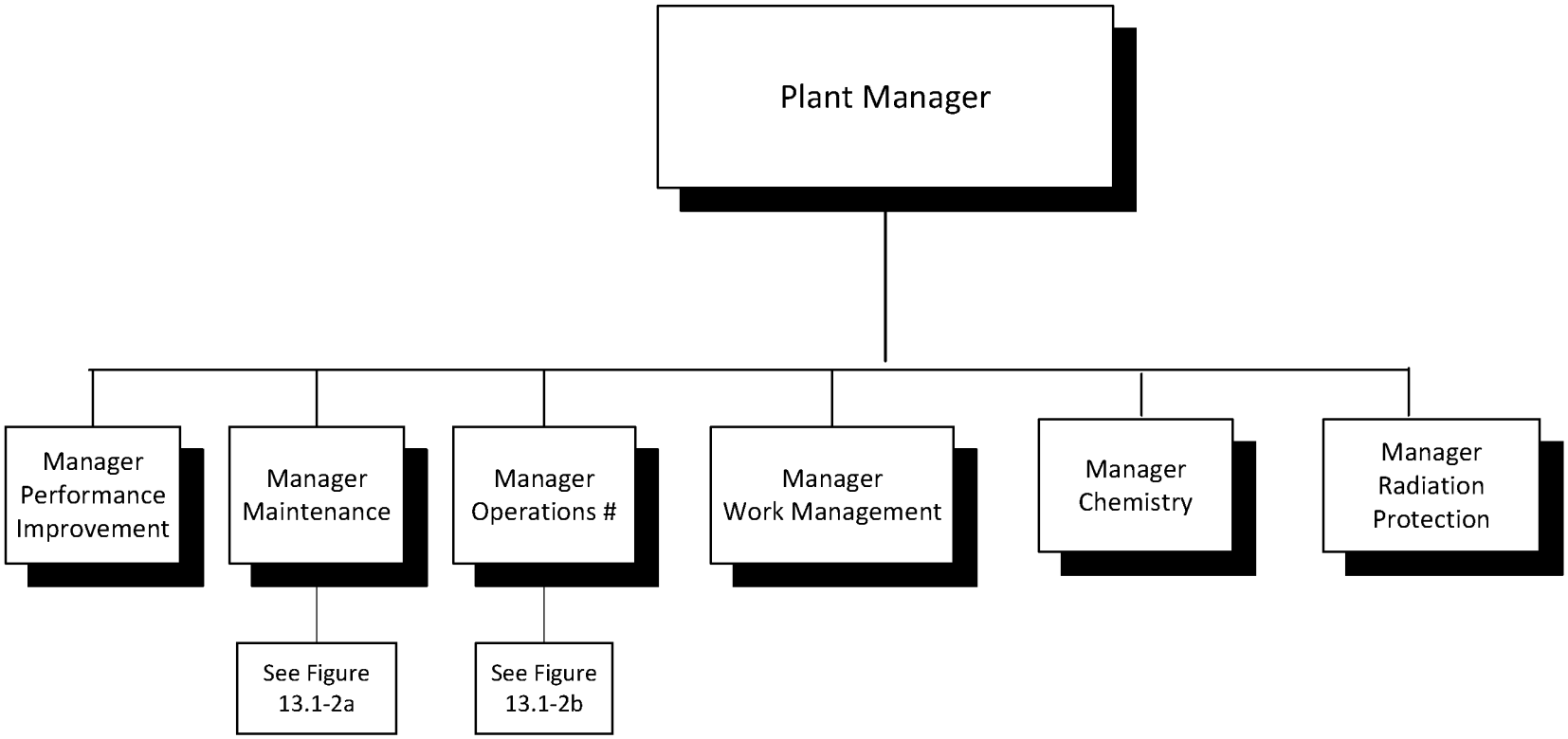
WOLF CREEK
UPDATED SAFETY ANALYSIS REPORT

FIGURE 13.1-1

WOLF CREEK NUCLEAR OPERATING CORPORATION ORGANIZATION

WOLF CREEK
STATION ORGANIZATION



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This position requires the individual to hold to have previously held a Senior Reactor Operator license for a similar unit (PWR) per Technical Specification 5.3.1.3

WOLF CREEK
UPDATED SAFETY ANALYSIS REPORT

FIGURE 13.1-2

PLANT MANAGEMENT
ORGANIZATION

WOLF CREEK
STATION ORGANIZATION

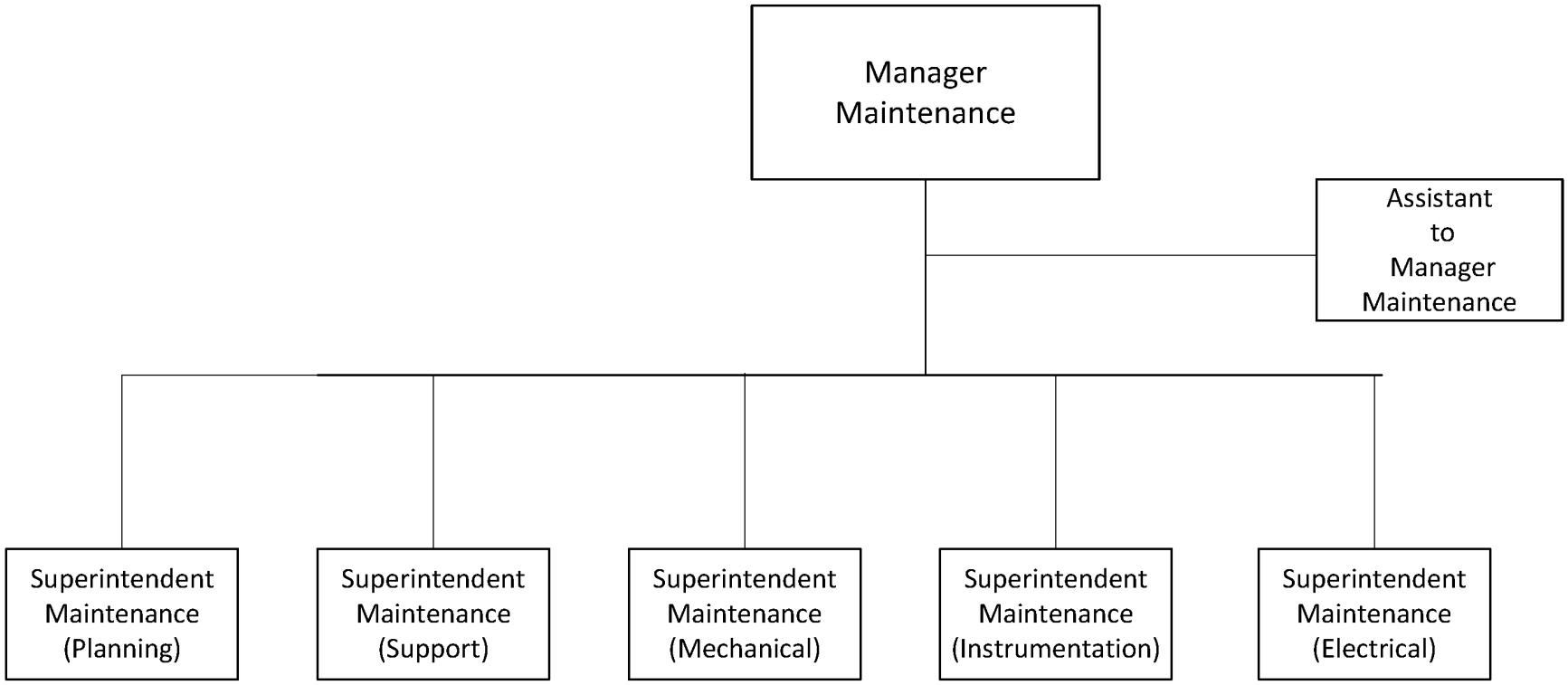

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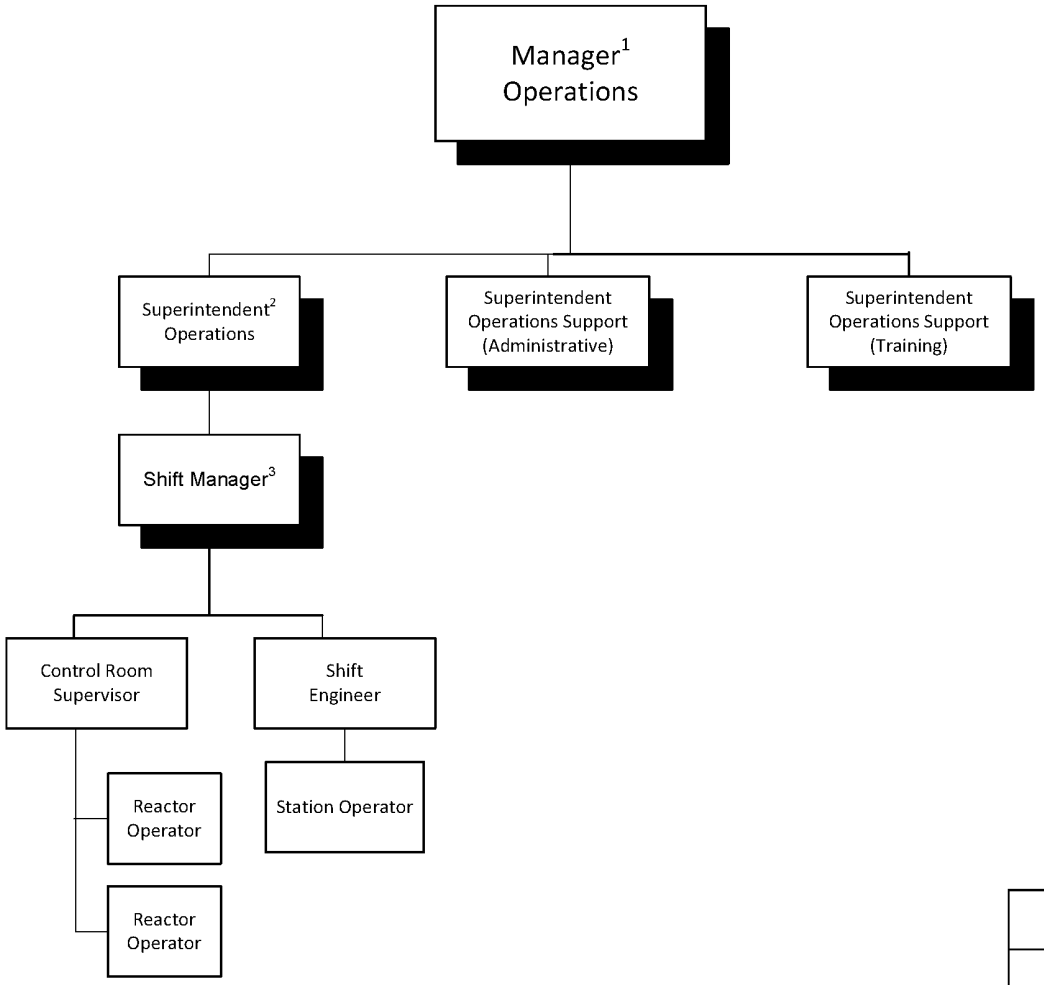
FIGURE 13.1-2a

MAINTENANCE ORGANIZATION

WOLF CREEK
STATION ORGANIZATION



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WOLF CREEK UPDATED SAFETY ANALYSIS REPORT
FIGURE 13.1-2b OPERATIONS ORGANIZATION

1 This position requires the individual to hold or have previously held a Senior Reactor Operator license for a similar unit (PWR) per Technical Specification 5.3.1.3
2 This position requires an SRO License per Technical Specification 5.2.2.e
3 This position requires an SRO License

WOLF CREEK
Quality

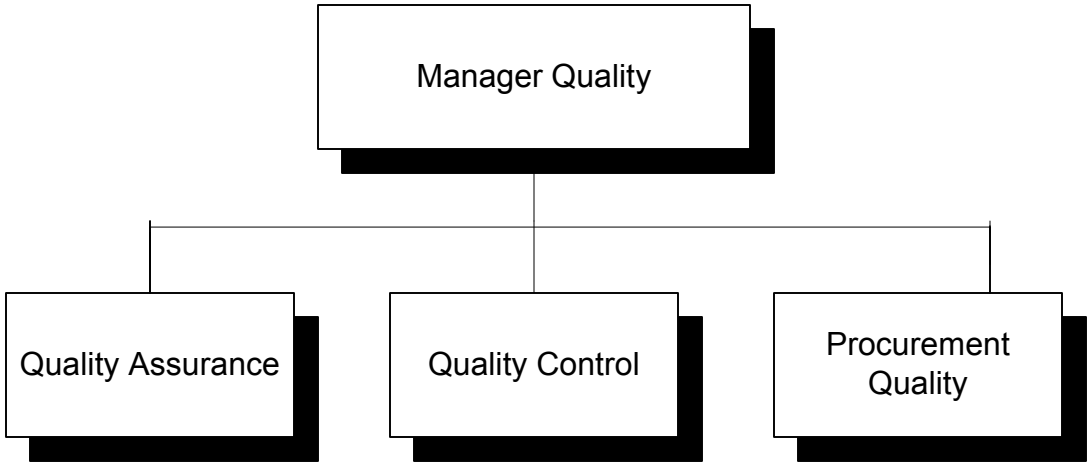

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FIGURE 13.1-3

QUALITY ORGANIZATION

13.2 TRAINING

This section is subdivided into three parts. The first part is 13.2.1, "Licensed Operator Training," which addresses both the initial and the requalification training of all licensed personnel.

The second part is 13.2.2, "Training for Non-Licensed Plant Staff" which addresses the programs other than the licensed training.

The third part is 13.2.3, "Applicable NRC Documents," which lists the documents associated with this section.

Records of training are maintained to demonstrate compliance with the qualification requirements of 10 CFR 55 and ANSI N 18.1/ANS-3.1, "Selection and Training of Nuclear Power Plant Personnel."

13.2.1 LICENSED OPERATOR TRAINING

This section is subdivided into two parts. The first part is 13.2.1.1, "Licensed Operator Initial Training Program," which addresses the training of personnel pursuing an NRC Reactor Operator or Senior Operator license. These licenses are mainly required for the shift positions of Reactor Operator (RO), Control Room Supervisor (CRS), or Shift Manager (SM). STA training is covered in Section 13.2.1.1.3. STA training for personnel without a Senior Operator license is covered in Section 13.2.2.12.

The second part, 13.2.1.2, "Licensed Operator Requalification Training Program," addresses the program that maintains licensed operators' qualifications current.

13.2.1.1 Licensed Operator Initial Training Program

The Licensed Operator Initial Training Program ensures that candidates for Reactor Operator (RO) licenses and Senior Operator licenses satisfy the training requirements of "A systems approach to training". RO candidates and Direct Senior Operator candidates who are individuals not fully qualified as nuclear station operators (NSOs) also complete additional NSO on-the-job training (OJT) requirements. This program is implemented in accordance with administrative procedures.

13.2.1.1.1 Licensed Operator

Licensed Operator candidates will receive training in the following topics.

(1) Fundamentals of reactor theory, including fission process, neutron multiplication, source effects, control rod effects, criticality indications, reactivity coefficients, and poison effects.

(2) General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.

(3) Mechanical components and design features of the reactor primary system.

(4) Secondary coolant and auxiliary systems that affect the facility.

(5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

(6) Design, components, and functions of reactivity control mechanisms and instrumentation.

(7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

(8) Components, capacity, and functions of emergency systems.

(9) Shielding, isolation, and containment design features, including access limitations.

(10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

(11) Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

(12) Radiological safety principles and procedures.

(13) Procedures and equipment available for handling and disposal of radioactive materials and effluents.

(14) Principles of heat transfer thermodynamics and fluid mechanics.

13.2.1.1.2 Senior Licensed Operator

In addition to the fourteen listed above the Senior Licensed Operator Candidate will receive training in the following topics.

(1) Conditions and limitations in the facility license.

(2) Facility operating limitations in the technical specifications and their bases.

(3) Facility licensee procedures required to obtain authority for design and operating changes in the facility.

(4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

(6) Procedures and limitations involved in initial core loading, alterations in core configuration, control rod programming, and determination of various internal and external effects on core reactivity.

(7) Fuel handling facilities and procedures.

13.2.1.1.3 Senior Reactor Operator Shift Technical Advisor (STA) Training

The purpose of the STA is to have on-site, at all times, a person with expertise and qualifications in areas such as plant design, safety and thermodynamics. This expertise is used to evaluate abnormal occurrences during normal plant operations, to provide advice to the shift crew during emergency conditions, and to mitigate the consequences of these conditions if they do occur.

This position is normally filled by a separate individual on shift who meets the qualifications and training described in section 13.2.2.12. The STA position may also be filled by the Shift Manager or other Senior Operator performing a dual role function as SRO/STA. The qualifications and training requirements for the dual role SRO/STA are described in this section.

1. Academic Qualifications for a Senior Reactor Operator-STA

The academic qualifications for the Senior Reactor Operator – STA are satisfied by meeting one of the following educational alternatives:

1. Bachelor’s degree in Engineering from an accredited institution:
2. Professional engineer’s license obtained by the successful completion of the PE examination,
3. Bachelor’s degree in Engineering technology from an accredited institution, including course work in the physical, mathematical, or engineering sciences; or
4. Bachelor’s degree in a physical science from an accredited institution, including course work in the physics, mathematical, or engineering sciences.

[Note: The remainder of this Section is included for historical purposes, however, the operating agent's conformance with NUREG-0737, Item I.A.1.1, is as specified by the Commission Policy Statement on engineering Expertise on Shift.]

The academic qualifications for the Senior Operator-STA are satisfied by fully completing any one of the three options listed below:

a. A Bachelor of Science degree in Nuclear Engineering, Bachelor of Science degree in Engineering Technology with a Nuclear Technology option, or Master of Science degree in Nuclear Engineering from an institution accredited by the Accrediting Board for Engineering Technology (ABET) is sufficient to satisfy all the academic education requirements; or

b. A candidate with a Bachelor of Science degree in Engineering or related physical sciences partially fulfills the requirements for academic education. The educational history of each prospective Senior Operator-STA is documented to ensure that academic experience has been obtained in the areas of reactor theory; engineering materials; fluid mechanics; materials of reactor systems; reactor heat transfer; radiation instrumentation, detection and monitoring; radiation protection; and health physics. Any deficiencies are corrected with academic training in the appropriate subject; or

c. A candidate without an appropriate degree completes required college level courses offered under the auspices of a regionally accredited college or university. These required courses are listed below:

	HOURS
College Algebra	3
Trigonometry	2
Technical Calculus I	3
Technical Calculus II	3
Differential Equations	3
Descriptive Statistics	3
Chemistry I and Lab	4
Chemistry II and Lab	4
College Physics I and Lab	4
College Physics II and Lab	4
Applied Statics	3
Properties of Engineering Materials	2
Materials of Nuclear Reactor Systems	2
Mechanics of Fluid	3
Energy Conversion Technology	3
Electrical Circuit Technology	4
Nuclear Reactor Technology I and II	6
Radiation Detection and Monitoring	3
Nuclear Reactor Thermal Technology	3
Radiation Protection	2

A minimum of 84 hours of college level credit

consisting of the required courses listed above and 20 additional hours of technical electives is obtained by each Senior Operator - STA candidate to complete the technical portion of a baccalaureate degree in Nuclear Technology. Additional general courses are required to complete the baccalaureate degree.

2. Senior Reactor Operator-STA Training Requirements

The training requirements for the Senior Reactor Operator – STA are satisfied by meeting the STA training criteria of NUREG-0737, Item I.A.1.1 as follows:

1. Received specific training in the response and analysis of the plant for transients and accidents.
2. The STA shall also receive training in plant design and layout, including the capabilities of instrumentation and controls in the control room.

[Note: the remainder of this Section is included for historical purposes, however, the operating agent's conformance with NUREG-0737, Item I.A.1.1, is as specified by the Commission Policy Statement on Engineering Expertise on Shift.]

This course consists of ten hours of classroom work and 30 hours of simulator training including:

a. Conduct of plant cooldown at various temperatures using natural circulation
b. Recovery from various loss of coolant accidents
c. Recovery from main steam line breaks including a repressurization accident
d. Plant cooldown with loss of all electrical power using steam driven auxiliary feedwater pump and steam generator atmospheric relief valves
e. Conditions requiring immediate boration
f. Fuel clad failure and high reactivity in reactor coolant system
g. Loss of all feedwater (normal and emergency)

At least nine hours of the 30 hours of simulator training involve candidates entering the simulator after a series of events and failures have taken place. The candidate will review the situation and provide technical advice to other personnel involved in plant recovery. All Senior Operator-STA candidates must complete this course.

A waiver for any of the required education and/or training is evaluated on a case-by-case basis. Such a waiver may be considered when a candidate has documented accredited college courses or can demonstrate an acceptable level of knowledge through comprehensive examinations in the area to be waived.

3. Senior Operator-STA Transient and Accident Analysis Response Course

This one-week course covers:

a. Design basis for major accidents
b. Assessment of major accidents
c. Degradation of instrumentation
d. Potential transients during long-term post-accident cooling

13.2.1.2 Licensed Operator Requalification Training Program

The Licensed Operator requalification program consists of regularly scheduled lectures, on-the-job training, and evaluations. The program satisfies the requirements of 10 CFR Part 55.59 "Requalification."

13.2.1.2.1 Licensed Operator Requalification Training Program Schedule

The requalification training program is conducted continuously with back to back cycles not exceeding two years in duration. To keep from exceeding the 24-month / 2-year duration requirement, a requalification program must be completed within the anniversary month of the second year. The program consists of pre- planned lectures, on-the-job training, and simulator training.

Each two year training cycle is organized into two one-year training schedules. This program is conducted on a regularly scheduled basis throughout the year around plant outages and holiday periods. Annual operating examinations and biennial written examinations are conducted within plus or minus three months of the annual training cycle year end, but in no case exceed the two year cycle limit. This program is accomplished in accordance with administrative procedures.

13.2.1.2.2 Licensed Operator Requalification Training Program Participation

All licensed personnel participate in this program to maintain their licenses.

13.2.1.2.3 Licensed Operator Requalification Training Program Lectures

Lectures covering the following subjects are part of the biennial cycle:

- Topics identified as important using the Systematic Approach to Training (SAT) process.
- Topics identified by Operations Representatives as topics of importance.
- Significant Plant/Industry events and Plant/Procedure changes.

13.2.1.2.4 Licensed Operator Requalification On-The-Job Training

The on-the-job requalification training program for each licensed individual consists of the following:

1. Those manipulations or major evolution's identified by the SAT process as individual or crew training topics.

2. These manipulations/evaluations may be performed on the WCGS simulator.

3. On-the-job training methods include any of the following:

    a. Manipulation of a system and its associated equipment.

b. Simulated walk-through of the procedural steps required to operate a system.
c. Use of the simulator instead of actual plant components.

13.2.1.2.5 Licensed Reactor and Senior Reactor Operator Requalification Simulator Training

At a minimum each Licensed Operator annually receives 30 hours training on the simulator. This time may include completion of the requirements of section 13.2.1.2.4. Simulator training will concentrate on reviewing the principles and procedures of overall plant control as well as identification and control of abnormal and emergency conditions including multiple malfunctions.

13.2.1.2.6 Licensed Reactor and Senior Reactor Operator License Renewal

Continued attendance in the Licensed Operator Requalification program with successful completion of annual and biennial examinations constitute the minimum requirements of the license renewal training requirements.

13.2.1.2.7 Licensed Operator Requalification Evaluation Standards

The following examination requirements apply to the Licensed Operator requalification training program:

1. A biennial written examination is administered once during a 2-year requalification cycle, and is used to assess license holder's knowledge of plant systems, procedures, and operating limits.

2. An annual operating examination is used to assess the individual's ability to manipulate plant controls associated with plant systems that he or she may be required to perform or to direct the performance of. This examination consists of individual job performance measures, and integrated crew performance during dynamic simulator scenarios.

13.2.1.2.8 Remedial Requalification Training

Remedial training is required for licensed individuals who fail all or part of the written or operating examination. The training must address areas of individual/crew weakness and culminate in a reexamination.

Individuals that have not completed remedial training due to failure of any part of the written or operating examination, including being part of a crew that failed, will not have their licenses renewed until completion of the remedial training.

13.2.1.2.9 License Status

"Active" status is maintained by performance of licensed duties (seven 8-hour shifts or five 12-hour shifts per quarter) and participation in the Licensed Operator Requalification Program.

"Current" status is maintained by participation in the Licensed Operator Requalification Program.

13.2.1.2.10 Licensed Operator Requalification Training Records

The Manager Training is responsible for maintaining records of the Requalification Training Program as lifetime records to document the participation of each Licensed Operator and Senior Licensed Operator in the Requalification Program. The records contain, as a minimum, copies of written examinations administered, answers given by the licensee, an answer key for that examination, and results of evaluations and documentation of any additional training administered in areas in which a Licensed Operator or Senior Licensed Operator has exhibited deficiencies.

13.2.2 NON-LICENSED PLANT STAFF TRAINING

This section addresses training programs outside of Licensed Operator training. The following is an index to this section:

13.2.2.1 Nuclear Station Operator Initial Training Program

Nuclear Station Operators all receive instruction on operation of plant equipment and components under normal and emergency conditions. This program is a combination of classroom instruction and on-the-job training. Training is given in:

1. Fundamentals of mechanical and electrical components
2. Equipment and systems operations
3. Operating procedures
4. Surveillance requirements
5. Operation of systems important to plant safety

On-the-job training includes system walk downs which emphasize the use of procedures, the proper operation of equipment, and safe operating practices. This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administratively.

13.2.2.2 Nuclear Station Operator (NSO) and Treatment Systems Operator (TSO) Requalification Training Program

The Nuclear Station Operator and Treatment Systems Operators Requalification Training Program is designed to maintain the NSO's and TSO's awareness of plant operating characteristics, procedures, and changes. This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2).

13.2.2.2.1 NSO and TSO Requalification Training Schedule

The Requalification Training Program is conducted over a two year period consisting of preplanned lecture series. This program is conducted as plant outages and heavy vacation schedules permit. This program commenced within three months of the issuance of the station operating license with examinations occurring at the end of each segment.

13.2.2.2.2 NSO, and TSO Requalification Training Participation

All fully qualified nuclear station operators assigned to shift duties participate in the NSO Requalification Training Program to maintain and improve their shift standing proficiency.

All qualified Treatment Systems Operators assigned to watchstanding duties participate in the Treatment Systems Requalification Training Program to maintain and improve their shift standing proficiency.

13.2.2.2.3 NSO and TSO Requalification Training Lectures

Preplanned lectures covering the following subjects are given to each NSO or TSO during the biennial schedule:

1. Basic plant theory and principles of operation
2. Plant systems review
3. Normal, off-normal, and emergency procedures with emphasis on in-plant operations
4. Operating experiences from similar plants related to plant systems
5. Review of significant plant transients, LERs, and reported occurrences
6. Emergency plan and its implementation as applicable to the NSO and TSO.
7. Review of facility design changes and operating procedures.

An instructor is present and participates as the instructor in at least 50 percent of the lecture series.

Requalification Training should be scheduled so that individuals successfully complete this training on or before the last day of the biennial cycle.

13.2.2.2.4 NSO and TSO Requalification On-The-Job Training

NSOs and TSOs demonstrate biennially an understanding of the operation of the systems in areas for which they are qualified. Requalification requirements shall be completed by the last day of a 30 day grace period extending past the biennial cycle. Demonstration methods include any of the following:

1. Local manipulation of the system and its associated equipment.

2. A simulated walk-through of the local procedure steps required to start, stop, or change the conditions of the system.

13.2.2.2.5 NSO and TSO Requalification Training Standards

The following standards apply to the NSO and TSO requalification training program:

1. Any NSO or TSO who scores 80 percent or higher on any preplanned lecture's examination, and successfully passes a walkthrough examination, has successfully completed this portion of the biennial requalification training program.

2. Any NSO or TSO who scores less than 80 percent on any preplanned lecture examination, is placed in an accelerated requalification program for the weak area(s).

13.2.2.2.6 NSO and TSO Accelerated Requalification Training

The accelerated requalification training is designed for NSOs and TSOs who have identified deficiencies requiring assignment to a special requalification effort. The Manager of Training is responsible for tailoring the scope and duration of the accelerated requalification training to the individual's demonstrated needs.

The minimum acceptable accelerated requalification training is a re-examination in the area(s) of weakness. The acceptance standard for re-examination is a score of not less than 80 percent as applicable to the individual's area(s) of deficiency.

13.2.2.2.7 NSO and TSO Requalification Training Records

The Manager of Training is responsible for maintaining records of the requalification for each NSO and TSO in the WCGS organization. Records for NSOs and TSOs include copies of written examinations, answers given, an answer key for that examination, results of walkthrough examinations, and documentation of other applicable training.

13.2.2.3 Health Physics Technician Training Program

The Health Physics Technician Training Program includes instruction in the following areas:

1. Principles of radiation
2. Radiation protection and safety
3. Use of survey instruments
4. Use of analytical equipment
5. Health Physics procedures
6. Emergency Plan procedures
7. ALARA practices and procedures
8. Fundamental systems training
9. On-the-job training to include actual operation of health physics equipment and use of procedures
10. Mitigating core damage training commensurate with their responsibilities during accidents which involve severe core damage

This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev.2). The duration is also controlled administratively.

13.2.2.4 Chemistry Technician Training Program

Chemistry technicians receive instruction in the following areas:

1. Chemistry procedures
2. Laboratory practices
3. Conduct of analytical tests
4. Operation of laboratory equipment
5. Fundamental systems training
6. On-the-job training to include actual operation of analytical equipment and the use of procedures
7. Mitigating core damage training commensurate with their responsibilities during accidents which involve severe core damage

This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administrativley.

13.2.2.5 Instrumentation and Control (I&C) Personnel Training Program

Training of I&C technicians is a combination of self-study, classroom instruction, and on-the-job training. Training is provided in the following areas:

1. Fundamentals of instrumentation and control
2. Pneumatic systems and equipment
3. Electronics
4. Fundamental systems training
5. I&C and other job related procedures
6. Surveillance requirements
7. Mitigating core damage training commensurate with their responsibilities during accidents which involve severe core damage

During on-the-job training, technicians are instructed in the proper methods to repair and align process controls and use of test equipment. This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administratively.

13.2.2.6 Electrical Maintenance Training Program

The Electrical Maintenance Training Program provides training for the electricians. This program is a combination of classroom and on-the-job training. This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administratively.

1. The electricians receive training in the following topics:

    a. Print reading
    b. Use of electrical tools and test equipment
    c. Fundamental systems training
    d. Electrical components and equipment
    e. Electrical maintenance practices
    f. Maintenance procedures

2. On-the-job training allows electricians to practice the skills learned in the classroom. On-the-job training is conducted under the guidance of experienced and qualified electrical maintenance personnel.

13.2.2.7 Mechanical Maintenance Training Program

The Mechanical Maintenance Training Program provides training for the mechanics. This program is a combination of classroom and on-the-job training. This program is controlled by administrative procedures, and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administratively.

1. The mechanics receive training in the following topics:

   a. Print reading
   b. Use of hand tools, power tools, and measurement devices
   c. Fundamental systems training
   d. Mechanical components and equipment
   e. Mechanical maintenance practices
   f. Maintenance procedures

2. On-the-job training allows mechanics to practice the skills learned in the classroom. On-the-job training is conducted under the guidance of experienced and qualified mechanical maintenance personnel.

13.2.2.8 Engineering Support Training Program

This section defines the Operating Agent's training program for non-licensed professional and technical positions discussed in ANSI/ANS-3.1-1978. Non-licensed professional personnel provide engineering support for the operation of the plant. This training consists of orientation training, position specific training and continuing training. Orientation training applies to all engineering support personnel while position specific training is based on the needs of the job position. Continuing training is a combination of generic training for all engineering support personnel and work group specific training targeted for engineering work groups or individuals. The Manager Training is responsible for developing the orientation training courses, except for supervisory training, and for providing required position specific and continuing training. The Manager Human Resources is responsible for the development of supervisory training.

The professional employee's manager is responsible to determine position specific training.

13.2.2.8.1 Job Specifications

Nuclear job specifications are described in Academy Document “Guidelines for Training & Qualification of Engineering Support Personnel”. This description lists activities commonly performed by Engineering Support Personnel.

13.2.2.8.2 Orientation Training for Engineering Support Staff

Engineering support personnel, in a timely manner, complete orientation training on topics such as those listed below. The topics are chosen to familiarize engineering support personnel with various aspects of nuclear technology in an operating plant environment. The engineering support employee's manager may seek a waiver for any of the following training by documenting equivalent prior training or qualification. The duration is controlled administratively and is based on the needs of each individual.

1. Interdepartmental functions and responsibilities,
2. Site and plant layout,
3. Communications
4. Records management and document control
5. Applicable industrial and nuclear regulations, codes, and standards
6. Procedures and drawings which conform to the criteria of 10 CFR 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.”
7. Applicable programs such as corrective action, configuration, work control, and the QA program
8. WCGS Technical Specifications
9. Fundamentals such as reactor theory, heat transfer, fluid flow, properties of materials, and chemistry
10. Plant Systems, instrumentation and component training
11. Plant Operations
12. Introductory review of accidents

13.2.2.8.3 Position Specific Training for Engineering Support Staff

Department managers and supervisors are responsible for determining position specific training requirements, as well as enhancement training, for each professional employee performing engineering support functions. The following activities are undertaken to accomplish both position specific training and enhancement training, as necessary and subject to availability, to ensure the qualification and continuing technical development of Operating Agent engineering support employees, to further technical knowledge in specific areas, and to facilitate technical information exchange with professional personnel from other organizations. The duration of both position specific training and enhancement training is determined by the specific training topic and by the needs of each individual.

1. Attendance at technical society and topical meetings.

2. Attendance at industry or academic sponsored short courses on specific technical topics.

3. Attendance at vendor schools in courses that support Operating Agent hardware and software.

4. Observation and training assignments to other utilities in areas of specific technical interest.

5. Attendance at technical training classes provided by the Training Division.

6. On-the-job training conducted under the guidance of experienced and qualified engineering support personnel.

13.2.2.8.4 Continuing Training Engineering Support Staff

Continuing position specific training is provided for designated engineering support personnel. Continuing training is provided on a frequency consistent with the impact of the training on the performance of specific job duties, but is provided at least once per fuel cycle. The duration is controlled administratively and is based on the needs of the individuals. Continuing training may include topics such as:

1. Licensee event reports, design changes and plant modifications.

2. Changes in codes and regulations.

3. Updated ALARA training.

4. Other selected topics as identified by management such as important industry events.

13.2.2.9 General Employee Training

13.2.2.9.1 General Employee Training (GET) Program

As part of the GET program, all members of the station staff, contractor workers, and unescorted visitors participate in Plant Access Training prior to being granted unescorted access to the site. This program is controlled by administrative procedures and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2). The duration is also controlled administratively.

13.2.2.9.2 Radiation Worker (RAD) Training Program

The Operating Agent employees, Radiation Worker Trained contractor employees, and others whose job duties require them to have unescorted access to radiological controlled areas of the plant receive in-depth instruction in applicable aspects of radiation protection. Topics include, but are not limited to, those listed below:

1. Sources of Radiation
2. Types and measurement of radiation
3. Biological effects
4. Limits and guidelines including Reg. Guide 8.13
5. ALARA
6. Radiation Dosimetry
7. Contamination
8. Internal Exposure
9. Radiation Work Permits
10. Radiological Postings
11. Radiological Alarms
12. Radioactive Waste
13. Rights and Responsibilities
14. Protective Clothing

13.2.2.9.3 GET/RAD Requalification Training

Personnel with unescorted access to the plant participate in periodic requalification.

This program is controlled by administrative procedures, including duration, and meets the requirements of ANSI/ANS-3.1-1978 as endorsed by Reg. Guide 1.8 (Draft Rev. 2).

13.2.2.10 Training Effectiveness Evaluation Program

The program to evaluate the effectiveness of training programs at WCGS is based on three independent inputs or perspectives. These perspectives are: the supervisor of the trainee, the trainee, and an educational content evaluation. Each of these reviews of training programs for effectiveness is discussed below.

13.2.2.10.1 Supervisory Review for Training Effectiveness

The purpose of this review is to monitor the content of training programs as related to the duties and job responsibilities for The Operating Agent employees being trained. This may be accomplished by supervisors of employees meeting with appropriate Training personnel or participating in training committee meetings periodically to compare observations of employee job performance with the training employees have received. Observations are discussed to determine topics that may require additional training or subjects that may be removed from the training program.

13.2.2.10.2 Trainee Review of Training Effectiveness

Following selected courses, or training cycles, trainees are solicited for written comments in the effectiveness of the instructional methods and materials in relations to the relevancy of their jobs. These comments are used in the evaluation of both instructors and content of the training program.

13.2.2.10.3 Review for Effectiveness of Instructional Techniques and Materials

The Operating Agent retains either a staff member or qualified consultant with appropriate experience in educational processes to evaluate instructional techniques and materials. Textbooks and classroom visual aids are monitored for clarity and applicability. Spot checks of instructors in the teaching environment are conducted by this qualified individual to monitor classroom performance. Full time instructors for WCGS personnel receive basic indoctrination in instructional techniques as soon as practicable after assuming instructional duties. The educational specialist conducts periodic seminars in instructional techniques, discussing areas where group performance could be improved and also passing on innovative new techniques observed at WCGS or elsewhere. Individual counseling for improvement of classroom instructor techniques are conducted by the Manager Training or designee, as appropriate. The educational specialist may assist the Manager Training with this individual counseling effort, if requested.

This program is controlled by administrative procedures.

13.2.2.11 Fire Protection Training Program

See Section 2.0 of the WCGS Fire Protection Program.

13.2.2.12 Shift Technical Advisor Training Program

The purpose of the STA is to have on-site, at all times, a person with expertise and qualifications in the areas of plant design, safety and thermodynamics. This expertise is used to evaluate abnormal occurrences during normal plant operations, to provide advice to the shift crew during emergency conditions, and to mitigate the consequences of these conditions if they do occur.

This position is normally filled by a separate individual on shift who meets the qualifications and training described in this section. The STA position may also be filled by the Shift Manager or other Senior Operator on shift who meets the qualifications and training described in Section 13.2.1.1.3.

The content of the STA program described in this section is derived from a Systematic Approach to Training (SAT) based on the job requirements of the STA. The course content is developed and controlled, including duration if not specifically stated in this section, using normal station procedures.

13.2.2.12.1 Academic Qualifications for the stand-alone STA

The individual (filling the stand-alone STA position) shall hold a bachelor's degree or equivalent in a scientific or engineering discipline.

13.2.2.12.2 Training Program for the stand-alone STA

The training requirements for the stand-alone STA are satisfied by receiving the following:

1. Specific training in the response and analysis of the plant for transients and accidents.
2. Training in plant design and layout, including the capabilities of instrumentation and controls in the control room.

13.2.2.12.3 Shift Technical Advisor (STA) Requalification Training

STA qualifications are maintained by participation in the Licensed Operator Requalification Training Program. STAs participate in requalification training with their assigned crews.

In addition to the Licensed Operator Requalification Training Program topics, STAs receive training on: 1) transient and accident analysis, and 2) Mitigating core damage.

13.2.2.13 Emergency Plan Training Program

Discussion of the Emergency Plan training Program can be found in the Wolf Creek Generating Station Radiological Emergency Response Plan.

13.2.2.14 Emergency Diesel Generator Training

> Nuclear station operator and licensed operators will all be used for operation of the diesel generator. As such, they will have passed a system qualification which ensures an understanding of the theory of operation, components associated with the diesel generator, related systems and a demonstrated proficiency of actual operation. Discussion of diesel generators will also be included as part of the Operator Requalification Program

For maintenance all journeymen level mechanics and electricians will have as a part of their general training a general knowledge of the operation of plant systems and will have specialized training on specific equipment such as the diesel generator as needed. Diesel generator maintenance training will either be provided by the diesel manufacturer or be equivalent to the diesel manufacturer's training. Education requirements will be as specified in the applicable version of ANI 3.1.

The duration for the training for operations and maintenance personnel is controlled administratively and is based on the needs of the individual.

13.2.2.15 Supervisory Training

Individuals in supervisory positions participate in a course in the fundamentals of supervision. This course covers the topics of leadership, interpersonal communications, command responsibilities and limits, personnel motivation, problem analysis and decision analysis. Additional supervisory training topics include Employee Behavior Reliability and Equal Employment Opportunity. The duration is controlled administratively and is based on the needs of the individuals. The Manager Human Resources is responsible for the development of supervisory training.

13.2.3 APPLICABLE NRC DOCUMENTS

The NRC Regulations, Regulatory Guides, and Reports listed below were used to provide guidance in the area of training for staff personnel. Compliance to those items is indicated below:

1. 10 CFR Part 50, "Licensing of Production and Utilization Facilities." Full compliance to these items is indicated below.
2. 10 CFR Part 55, "Operator's Licenses." Full compliance in the area of training.
3. 10 CFR Part 19, "Notices, Instructions, and Reports to Workers; Inspections." Full compliance in the area of training.
4. Regulatory Guide 1.8, "Personnel Selection and Training." Compliance in this area is discussed in Appendix 3A
5. Regulatory Guide 8.2, "Guide for Administrative Practices in Radiation Monitoring." Full compliance in the area of training.
6. Regulatory Guide 8.8, "Information Relevant to Maintaining Occupational Radiation Exposure As Low As Reasonably Achievable (Nuclear Power Reactors)." Full compliance in the area of training except as noted in Item #4 above.
7. Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure As Low As Is Reasonably Achievable." Full compliance in the area of training.
8. Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure." Full compliance in the area of training.
9. 10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel." Full compliance in the area of training.

13.3 EMERGENCY PLANNING

A comprehensive emergency plan is provided as a physically separate document. The plan discusses implementation of the objectives and requirements of 10 CFR 50 Appendix E. The plan also addresses the recommendations of NUREG 0654 and 0696.

The Superintendent Emergency Planning is responsible for ensuring that procedures are prepared and maintained that implement the protective measures outlined in the Emergency Plan. Detailed written and approved procedures were developed for activities such as those listed in Table 13.3-1.

Table 13.3-1

TYPICAL EMERGENCY PROCEDURES

Classification of Emergency Conditions

Assessment, Corrective and Protective Actions for Emergency Classifications

Notification of the Emergency Organization and Support Groups

Personnel Accountability Verification

Rescue and Treatment of Injured Persons

Medical Transportation of Accident Victims

Use of Emergency Communication Equipment

Testing and Evaluating the Emergency Plan

Review of the Emergency Plan and Procedures

13.4 REVIEW AND AUDIT

A program for review and audit of activities affecting station safety during the operational phase has been established. The program provides a system to insure that these activities are performed in accordance with company policy and rules, approved procedures and license provisions. This program provides review of safety-related plant changes, tests, and procedures.

13.4.1 ONSITE REVIEW

Proposed physical changes to nuclear-safety-related systems, or any new or modified tests or experiments involving nuclear-safety-related systems that result in a 10 CFR 50.59 Evaluation (i.e., changes, tests or experiments as defined by 10 CFR 50.59), and unplanned events that have operational nuclear-safety significance are reviewed by the Plant Safety Review Committee. Changes to nuclear-safety-related procedures are reviewed by the Plant Safety Review Committee as described in the Quality Program Manual.

13.4.1.1 Plant Safety Review Committee (PSRC)

The PSRC is composed of certain supervisory and technical personnel as described in the Quality Program Manual. The PSRC is charged with reviewing those nuclear-safety-related activities described in the Quality Program Manual and with advising the Plant Manager on the disposition of those items reviewed. The PSRC may also review other nuclear-safety-related activities as deemed appropriate by the PSRC Chairman, President and Chief Executive Officer, Plant Manager, and PSRC member, or by other WCNOC organizations.

A subcommittee of the PSRC, the Joint Test Group (JTG) reviewed preoperational test procedures in accordance with Section 14.2.3.2.

13.4.2 INDEPENDENT REVIEW

Activities affecting station safety occurring during the operational phase are independently reviewed by the Plant Safety Review Committee and Quality.

13.4.3 AUDIT PROGRAM

Audits of activities affecting safety-related systems, structures or components are carried out according to prearranged schedules by qualified members of the Operating Agent Quality division.

13.4.3.1 Activities Audited

Audits are periodically conducted on activities such as, but not limited to, the following:

1. The conformance of plant operation to provisions of the Technical Specifications and license conditions.

2. The results of actions taken to correct deficiencies affecting safety-related systems, structures, or components.

3. Offsite engineering and technical support activities.

4. Contractors, consultants, and suppliers of safety-related items or services.

13.4.3.2 Conduct of Audits

Audits are conducted by auditors as described in the Quality Program Manual.

13.4.3.3 Review of Audits

The entire quality program including the audit program is under independent periodic review to assure that audits are being conducted, are effective in identifying problems and are verifying that appropriate corrective actions are taken.

13.5 PLANT PROCEDURES

The WCGS staff is responsible for assuring the safe and efficient operation of the station under the overall responsibility and direction of the plant manager. Activities which affect safety-related structures, systems and components are conducted by detailed, written, and approved procedures. These activities are identified in this section and a method for developing and approving the procedures is provided.

13.5.1 ADMINISTRATIVE PROCEDURES

The Plant Manager develops and implements written administrative procedures. These administrative procedures assign the WCGS staff responsibilities and authorities. They also provide the control measures for the preparation of station procedures which govern safety-related activities.

13.5.1.1 Conformance with Regulatory Guide 1.33

The administrative controls utilized during the operations phase, which are described in this section, are consistent with the provisions of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978, except as described in Appendix 3A.

13.5.1.2 Preparation of Documents

Preparation of plant operating procedures took place in approximately the same time frame as the preparation of final drafts for preoperational and initial startup test procedures.

Administrative procedures which govern the assignment of responsibilities for preparation, review and approval of other station procedures were prepared initially. Other administrative procedures were prepared as necessary to implement the operational phase of programs such as security and visitor control, housekeeping, design change processing and retest requirements after design changes, document control and records management. Operation section administrative procedures and operating procedures necessary for operator training and preparation for operator license examination were completed six months prior to fuel loading. All other procedures are prepared and approved prior to their use for performing the prescribed safety-related activity.

The station management position designated responsible for a given activity, as prescribed in Wolf Creek Generating Station procedures, is also responsible for the preparation of procedures for that activity. The actual preparation of procedures may have been performed by other Operating Agent personnel or by outside contractors, but the final responsibility lies with the designated responsible position.

Procedures are reviewed by Qualified Reviewers designated by the PSRC Chairman. The Qualified Reviewer ensures all reviews are completed and reviews are documented as directed by administrative procedures. The Responsible Manager for the document will sign to approve the document for use.

Procedures are approved for use by the manager responsible for implementation of the procedure, or by a direct report of the responsible manager who is directly responsible in the area of expertise for the procedure.

Procedures which are classified as Administrative Control procedures are reviewed and approved by the Plant Safety Review Committee (PSRC) and the plant manager. All Administrative Control Procedures are reviewed and the reviews documented by qualified personnel. All Administrative Control Procedures are reviewed by a Qualified Reviewer, the Responsible Manager, the Plant Safety Review Committee (PSRC), and by the plant manager. Reviews of Administrative Control Procedures are documented on the Document Revision Request form.

Temporary Changes to procedures which do not change the intent of the original or subsequent approved procedure, or generate an Evaluation per 10CFR 50.59 may be made. Prior to use, temporary changes are to be approved by two cognizant members of the WCNOC staff knowledgeable in the areas affected by the document. At least one of these shall be a member of WCNOC supervision. For temporary changes to operating procedures, at least one of these members must hold a senior reactor operator (SRO) license.

All temporary changes to procedures are subsequently reviewed by a Qualified Reviewer and the Responsible Manager within 14 days after approval for use.

13.5.1.3 Procedures

The Plant Manager develops and implements station administrative procedures that provide a clear understanding of operating philosophy and management policies. As stated in 13.5.1.2, administrative procedures were implemented that provide methods for preparation, review and approval of all other station procedures including permanent procedures, temporary procedures or any procedures that might be of a transient or self-cancelling nature.

Administrative procedures are developed that provide operations shift managers and shift crews with a clear understanding of how they are to conduct plant operations. Included are procedures that specifically describe who may manipulate the controls of the reactor and who may operate any apparatus or mechanism that might affect the reactivity of the reactor.

Procedures have been implemented specifying shift manning requirements which are in accordance with the Technical Specifications. The responsibilities and authorities of the supervising licensed personnel are delineated.

Procedures prescribe the conduct of shift operational activities including the following:

1. Definition of the specific area where the reactor operator who is at the controls of the unit must remain.

2. Measures to control access to the Control Room.

3. Procedures for proper shift relief and turnover.

4. Procedures for the control of log and record keeping.

During station operation, the Shift Manager is responsible for ensuring that equipment control procedures are followed and properly implemented. These procedures provide control of equipment, as necessary, to maintain personnel safety and reactor safety. 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. A log is maintained of the current status of such temporary modifications.

Maintenance, Operations, and Site Support, are responsible for developing and implementing procedures, instructions and schedules to describe and control a surveillance inspection program for those areas for which they are responsible.

Maintenance has developed and implemented administrative procedures that describe and control a preventive maintenance program. These administrative procedures were written before initial station startup and provided the general rules for the development of procedures under the preventive maintenance program. This program provided for advance planning and scheduling of required routine preventive repair and maintenance activities.

The Maintenance group has also established administrative procedures and instructions to control and document major repair and modification. Repairs or modifications which may affect the functioning of safety-related structures, systems or components are performed in a manner to ensure quality equivalent to that specified by the design specifications, materials specifications and inspection requirements.

The Maintenance Organization has developed and implemented administrative procedures that describe and control the installation of scaffolding and temporary equipment used in support of maintenance activities. Scaffolding and temporary equipment may be in place for long durations for repetitive use. The scaffolding and temporary equipment are installed and controlled per these procedures and typically are not reflected on plant drawings.

Administrative procedures and controls are established to ensure the reliable performance of fire protection personnel, systems, and equipment.

13.5.2 STATION OPERATING AND MAINTENANCE PROCEDURES

13.5.2.1 Station Operating Procedures

Operating procedures for all anticipated conditions affecting reactor safety were written prior to initial fuel loading. The format of the station operating procedures met the requirements of the ANSI N18.7. These procedures are grouped into the following classifications:

1. General Operating Procedures
2. Fuel Handling Procedures
3. System Operating Procedures
4. Checklist Procedures
5. Alarm Response Procedures
6. Emergency Procedures
7. Off-Normal Procedures

13.5.2.1.1 General Operating Procedures

These procedures provide guidance for integrated plant operations. They include specific steps to be performed with references to system operating procedures.

Examples of procedures that may be included in this category are given in Table 13.5-1.

13.5.2.1.2 Fuel Handling Procedures

These procedures provide guidance for fuel handling activities. They include specific steps to be performed during the different phases of the refueling process. Samples of procedures that may be included in this category are given in Table 13.5-2.

13.5.2.1.3 System Operating Procedures

These procedures include special steps required for operations startup, shutdown, and other appropriate instructions for the operation of systems.

13.5.2.1.4 Checklist Procedures

These procedures provide lineups and check-off sheets to support system operating procedures. These checklists may be used independently of system operating procedures to verify system status.

13.5.2.1.5 Alarm Response Procedures

Each main control board annunciator has a written procedure to identify the proper action to be taken by the operator in response to the alarm. Each of these procedures include the annunciator identification and the corrective action to be taken.

13.5.2.1.6 Emergency Procedures

The Wolf Creek Emergency Operating Procedures (EMG's) are written and are maintained in accordance with the Westinghouse Owner's Group Generic High Pressure Emergency Response Guidelines (ERG's).

Emergency Procedures are provided to guide operations to prevent or lessen the consequences of emergency conditions. These procedures include automatic actions that will occur in the event of an emergency, immediate operator actions required to prevent or mitigate the consequences of an emergency; and subsequent operator actions necessary to stabilize the plant's condition.

Emergency Procedures were written to provide for a conservative course of action on the part of the operator and are sufficiently flexible to accommodate variations.

Examples of procedures that may be included in this category are listed in Table 13.5-3.

13.5.2.1.7 Off-Normal Procedures

The Off-Normal Procedures may be used for operating the plant or a system in an abnormal situation or after a perturbation. These procedures include symptoms of the condition, probable cause, automatic actions which would occur as a result of the condition and actions the operator must perform to stabilize and/or return the plant to a normal condition. Table 13.5-4 contains examples of possible Off-Normal Procedures.

13.5.2.2 Other Procedures

13.5.2.2.1 Maintenance Procedures

Maintenance or modification that may affect the functioning of safety-related structures, systems, or components is performed in accordance with applicable codes, bases, standards, design requirements, material specifications, and inspection requirements. Maintenance of safety-related equipment is pre-planned and 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). It is the responsibility of the Manager Maintenance to implement a maintenance program for safety-related mechanical and electrical equipment. General rules for the control and administration of the maintenance program were written before fuel loading. These general rules form the basis for developing the repair or replacement procedures at the time of failure.

Procedures were written early in plant life for maintenance of safety-related equipment expected to require recurring maintenance. When failure of safety-related equipment occurs, the cause is evaluated; however, since the probability of failure is usually unknown and the time and mode of failure are usually unpredictable, procedures are not generally written for repair of most equipment prior to failure. As experience is gained in operation of the plant, routine maintenance is altered to improve equipment performance and repair procedures are written and improved as required.

A preventive maintenance schedule has been developed which describes the frequency and type of maintenance to be performed. A preliminary schedule was developed early in plant life and is refined and changed as experience with the equipment is gained.

Maintenance is scheduled so as not to jeopardize the safety of the reactor. Scheduling considers the possible safety consequences of concurrent or sequential maintenance, testing, or operating activities. Equipment required to be operable for the mode in which the reactor exists is available, and maintenance is performed in a manner such that the license limits are not violated.

Proposed design/configuration changes to safety-related equipment that include an evaluation per 10 CFR 50.59, will be reviewed by the PSRC to verify that the changes do not require a license amendment as required by 10 CFR Part 50.59 and 10 CFR 50.90. Off-the-shelf components are used only when the proper quality assurance documents are available or when the required quality assurance can be obtained by inspection and testing prior to being placed in service. Modifications to safety-related equipment are designed and performed in accordance with applicable codes, standards, bases, design requirements, materials specifications and inspection requirements.

13.5.2.2.2 Health Physics Procedures

Detailed written and approved procedures are used by the WCGS personnel to ensure that occupational radiation exposure is maintained as low as reasonably achievable (ALARA). It is the responsibility of the Manager Radiation Protection, under the direction of the Plant Manager to prepare and maintain the station Health Physics procedures. Careful administrative control of the use of these procedures ensures that a sound health physics philosophy, consistent with maintaining radiation exposures ALARA becomes an integral part of station operation and maintenance. Health Physics procedures were developed for activities such as those listed in Table 13.5-5.

13.5.2.2.3 Emergency Preparedness Procedures

See Section 13.3 for a discussion of Emergency Preparedness Procedures.

13.5.2.2.4 Chemistry Program

Chemistry and radiochemistry activities, while not intended to be controlled in the same manner as M&TE, are considered by the Operating Agent to be of such importance that a program for quality control of data is essential. The control program outlined here is applied to chemistry laboratory functions and activities.

The intent of this program is to furnish a commitment to an ongoing Quality Program. The quality control activities described here are the minimum acceptable.

The following aspects of quality control are applicable to a chemistry/radiochemistry laboratory:

a. Comply with established procedures.

b. Use only ACS "reagent" grade chemicals for analytical procedures unless otherwise approved by a Chemistry Supervisor.

c. Date and label reagents with definite "shelf lives," dispose of out-of-date reagents.

d. Frequent introduction of duplicate samples into the actual work routine to evaluate procedural performance.

e. Calibration Program.

f. Participation in cross check programs with government agencies, contractor laboratory, and other laboratories.

g. Schedules for routine analysis, cross checks, duplicate samples, and calibration.

h. Daily Log of analyses performed.

PROCEDURES

The preparation of detailed written and approved chemical and radiochemical procedures is the responsibility of the Manager Chemistry under the direction of the Plant Manager. These procedures ensure primary and secondary chemical/ radiochemical quality, and compliance with Technical Specifications, Process Control Program, NPDES permit, Offsite Dose Calculation Manual, and operating procedures.

Approved chemical and radiochemical procedures include instrumentation and methods used in chemical analysis for safety-related or special scope systems. Examples of areas covered by written and approved safety-related or special scope procedures are listed

in Table 13.5-6. In addition, sampling procedures were prepared and used for surveillance activities to satisfy Technical Specifications and for any analysis determined by the Chemist to require them.

CHEMICALS

When reagent grade chemicals are necessary to avoid potential error, the same chemical of a lesser grade will not be present in the laboratory. Analytical procedures specify the grade of chemicals acceptable or required for each specific analysis.

SHELF LIFE

Chemicals are labeled with a shelf life date and are not used after this date. Chemicals which are obviously stable do not require a shelf life date, but the date when each chemical is received in laboratory and the yearly inspection date is clearly marked on each container. A Chemistry Supervisor or his designee inspects these stable chemicals once a year and dispose of them when necessary. Stable chemicals are not used if the yearly inspection date has been exceeded and no inspection has been performed.

Solutions made from stock chemicals are labeled with the date prepared, the name of the solution, concentration, the expiration date (the solution expiration date will not exceed the stock chemical expiration date), procedure number, and the preparer's initials.

DUPLICATE SAMPLES, CROSS CHECKS

As a minimum, at least quarterly, analysis of known chemical species samples is required to check equipment and procedures. At least annually, analysis of known radiochemical species samples is required to check equipment and procedures. Results, discrepancies, and resolutions are documented. Acceptable results of the analytical observation are determined from the sample's certificate or by the Manager Chemistry.

If the results do not coincide with the results stated by an outside organization and a duplicate sample gives the same results, Manager Chemistry/Radiation Protection or the manager’s designee evaluates the results and takes necessary corrective action.

CALIBRATION PROGRAM

The following principles are important to the operation of chemistry laboratory equipment and are applicable to chemistry laboratory activities.

a. Procedural Control

Instrumentation equipment and methods used in chemistry analysis for safety-related or special scope systems are controlled in accordance with written and approved procedures or instructions. The procedures for the calibration and control of the instrumentation and equipment address the identification of permanent equipment, calibration techniques, calibration frequencies, maintenance control, and storage requirements.

b. Program Requirements

The calibration and control program provides for:

1. The assignment of specific calibration intervals for equipment and instrumentation and calibration procedures which specify calibration methods and instrument accuracy requirements. Equipment included in this program and the intervals selected are a function of the equipment types, inherent stability and reliability, intended use, required accuracy, and other conditions which may affect calibration as determined by the Manager Chemistry Primarily, this equipment consists of instrumentation and not glassware. Records are maintained to permit a determination of calibration intervals. When the validity of an analysis is suspect, corrective actions such as reviewing or verification of the instrument calibration shall be performed.

2. The unique identification of instruments and equipment.

3. The traceability to calibration test data. Calibration test data is recorded and kept as a QA record.

4. Reference solutions used for calibration are prepared from chemicals procured from nationally recognized suppliers and procured to purities identifiable to nationally recognized standards, i.e., American Chemical Society Standards, etc.

5. The maintenance of records which indicate the status of each item, maintenance history, calibration results, anomalies, and most recent and next scheduled calibration dates. A system has been established to assure that equipment which is outside its calibration interval by more than 25% is not used.

6. The maintenance and control of instrumentation and equipment not in use.

7. The calibration of instrumentation against standard Reference Solutions when available.

8. Instrumentation found to be out of calibration requires an investigation to evaluate the validity of previous results and the acceptability of impacted items. Investigations are documented and evaluate the necessity of repeating original measurements, or calibrations to establish the acceptability of such items. When the calibration history of an item shows it to be consistently out of calibration, the item is repaired, replaced, or the calibration interval modified.

SCHEDULES

A Chemistry Supervisor maintains the following schedules and ensures that the results are documented as necessary.

a. Routine Analysis (Sampling Schedule)
b. Cross Checks and Duplicate Samples
c. Calibration

DAILY LOG

The Daily Log contains the results from all of the analyses performed, in the appropriate laboratory, in chronological order.

RADIOCHEMISTRY

For radiochemistry calibration standards, certified standards traceable to NIST are used.

13.5.2.2.5 Instrument Calibration and Test Procedures

The Superintendent Instrumentation and Electrical, under the direction of the Manager Maintenance, is responsible for assuring that procedures are prepared and implemented for proper control and periodic calibration of plant equipment to maintain accuracy within necessary limits and to confirm adequacy of calibration frequency including test and measuring equipment. When measuring and test equipment is found to be out of calibration, an evaluation is made of the validity of previous safety-related inspection or test results.

13.5.2.2.6 Material Control Procedures

Procedures are provided for the proper procurement, documentation and control of safety-related materials and components necessary for plant maintenance and modification.

The procedures are sufficiently detailed to ensure that purchased materials and components associated with safety-related structures or systems are:

1. Purchased to specifications 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.

13.5.2.2.7 Security Procedures

It is the responsibility of the Manager Security under the direction of the Plant Manager, to prepare and maintain detailed, written and approved procedures to implement the Security Plan. These procedures supplement the physical barriers and other features designed to control access to the station and, as appropriate, to vital areas within the station. Information concerning specific design features and administrative provisions of the Security Plan is accorded limited distribution on a need-to-know basis.

13.5.2.2.8 Environmental Procedures

An Environmental Control Program has been established by the applicant to provide for periodic review of all site activities to assure that these activities conform to environmental conditions set forth in the WCGS Licensing documents. The Environmental group under the direction of the Manager Regulatory Affairs is responsible for preparing the environmental procedures and directing the Environmental Control Program.

Table 13.5-1

TYPICAL GENERAL OPERATING PROCEDURES

Cold Shutdown to Hot Standby

Hot Standby to 20 Percent Power

Power Operations

20 Percent Power to Hot Standby

Hot Standby to Cold Shutdown

Cold Shutdown to Refueling

Table 13.5-2

TYPICAL FUEL HANDLING PROCEDURES

New Fuel Inspection

Core Loading and Unloading

Reactor Closure Head Installation

Fuel Transfer

Table 13.5-3

TYPICAL EMERGENCY PROCEDURES

Loss of Coolant

Station Blackout (Loss of All AC Power)

Loss of Core Cooling

Reactor Trip

Steam Generator Tube Rupture

TABLE 13.5-4

TYPICAL OFF-NORMAL PROCEDURES

Feedwater Heaters out of Service

Operational Limitations

Fire

Fuel Handling Accident

Acts of Nature

Accidental Radioactive Release

Turbine Trip

Loss of Service Water

Table 13.5-5

TYPICAL HEALTH PHYSICS PROCEDURES

Surveying and Monitoring to Evaluate Radiation Hazards

Health Physics Indoctrination and Training

Ingress/Egress Requirements for Restricted Areas

Use and Maintenance of Protective Equipment

Recording, Storing and Reporting of Occupational Radiation Exposures

Use, Maintenance and Calibration of Fixed and Portable Health Physics Instrumentation

Personnel, Equipment and Area Decontamination

Control of Personnel, Equipment and areas to Mitigate the Spread of Radioactive Contamination

Radiation Work Permits

Receiving, Packaging and Shipping of Radioactive Material

Proper Use, Storage, and Testing of Radioactive Sources

TABLE 13.5-6

TYPICAL CHEMISTRY AND RADIOCHEMISTRY PROCEDURES

Laboratory Quality Control Procedures

Sampling Procedures

Calibration and Operation of Laboratory Equipment

Chemical and Radiochemical Analytical Procedures

Chemical Calibration of Inline Analyzers

Analysis, Documentation and Releasing of Liquid and Gaseous Radioactive Waste

Calibration of Process and Effluent Radiation Monitors |

13.6 INDUSTRIAL SECURITY

The information required by this section to describe the plans for the physical protection of the Wolf Creek Generating Station is described in a separate submittal of the application withheld from public disclosure pursuant to 10 CFR 73.21, "Requirements for the Protection of Safeguards Information." This separate submittal contains the Physical Security Plan, Security Training and Qualification Plan, and Safeguards Contingency Plan.