KANSAS GAS & ELECTRIC COMPANY
WOLF CREEK GENERATING STATION

SHIFT CONSULTANT DUTIES AND RESPONSIBILITIES

ADM 02-012

Revision 0

Classification: Major

Randall B. Cade PREPARED BY	5/29/84 DATE
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[signature] COGNIZANT GROUP SUPERVISOR	5/29/84 DATE
[signature] RESPONSIBLE SUPERINTENDENT APPROVAL	5/29/84 DATE
[signature] PSRC APPROVAL RECOMMENDATION	6-5-84 DATE
[signature] PLANT MANAGER APPROVAL	6-5-84 DATE

1.0 PURPOSE

1.1 This procedure identifies the qualifications for and responsibilities of all Shift Consultants.

2.0 QUALIFICATION CRITERIA

2.1 At the time of initial core loading or appointment to the position, whichever is later, a Shift Consultant shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience.

2.2 Has held or holds a Senior Reactor License or Reactor Operator License on a large PWR.

2.3 The competency of each applicant to operate the plant safely and competently shall be certified by corporate management. This certification shall include consideration of successful completion of training, demonstrated abilities, satisfactory health, dependability, stability, and trustworthiness.

3.0 NORMAL RESPONSIBILITIES AND AUTHORITY

3.1 The Shift Consultant functions at the Shift Supervisor level and is responsible to the Shift Supervisor for evaluating shift operating activities and providing appropriate recommendations concerning safe operation. He is assigned to assist the Shift Supervisor but reports to the Superintendent of Operations. He has direct access to plant management and is responsible for pursuing the resolution of disagreements affecting safe operation.

3.2 The Shift Consultant is responsible for assisting in the determination of the circumstances, analyzing the cause and determining that operations can proceed safely before recommending a return to power following a trip or an unplanned or unexplained power reduction.

3.3 Assist in on-shift training of operating personnel.

3.4 Participate in recurrent training.

3.5 Insure the Superintendent of Operations or the Call Superintendent has been informed of all events that affect, or could affect, the operation of the plant.

3.6 Assist in review and modification of operations procedures.

3.7 Assist in preparation and review of shift documentation and operating data.

3.8 Supervise or personally participate in any special tasks or assignments as may be established by the Superintendent of Operations. The assigned duties cannot include those requiring a license.

3.9 Remain as Duty Shift Consultant until properly relieved.

3.10 Order the immediate trip or shutdown of the reactor as he deems necessary.

3.11 Order the immediate cessation of any activity in the plant including maintenance, construction or testing which decreases station or personnel safety.

4.0 LIMITATIONS

4.1 Responsibilities will not include direct manipulation of equipment.

4.2 Responsibilities will also not include supervision of licensed operators in assignments which require an operator's license. This does not preclude Step 3.10.

5.0 REFERENCES

5.1 FSAR Ch. 18

6.0 RECORDS

6.1 Records regarding the qualification requirements of this procedure will be maintained by the Training Manager.

6.2 There are no QA Records generated as a result of this procedure.

SHIFT ADVISOR TRAINING COURSE

Course Overview:

This course is designed for Shift Advisor candidates with a background in PWR operation and who have held an NRC license at another PWR plant. The course will be six weeks in length with two weeks of plant systems; three weeks of simulator training; and one week of theory, procedure, and technical specifications review. A four hour written exam and a simulator oral exam will follow the course. Quizzes will be administered at the end of each classroom week.

Course Description:

Classroom Session:

The classroom portion of the course consists of nine major areas. These areas are:

1) Primary systems
2) Instrumentation & Control systems
3) Secondary systems
4) Electrical systems
5) Reactor support systems
6) Emergency core cooling systems
7) Plant support systems
8) Administrative review
9) Theory review

Each major area is described below.

Primary Systems:

The Primary systems covered will be very simular to the candidate's previous plant. However, the objective is to review the simularities and stress the Wolf Creek improvements and the Post-TMI modifications. The lessons presented in this

area are:

1) Reactor coolant system and Reactor vessel including reactor vessel level indication
2) Reactor coolant pump - model 93A-1
3) Incore instruments and sub-cooling monitors

Instrumentation and Control systems:

The lessons in this area will provide the necessary background information for understanding the protection, control, and interlocks associated with PWR control. The interrelations between the various systems will be stressed. Later, during the simulator training session, the I&C interrelationship will be illustrated. The I&C systems include:

1) RCS instrumentation
2) Nuclear instrumentation (excore)
3) Rod control system
4) Reactor protection system
5) Pressurizer pressure and level control
6) Steam generator water level control
7) Electro-hydraulic control system

Secondary systems:

The heart of this area is the secondary cycle. The systems covered are:

1) Main steam system including steam dumps and extraction steam
2) Condensate and feedwater with discussion on heater drains
3) Auxiliary feedwater system

Since the secondary system design changes greatly from plant to plant, the SNUPPS design will be stressed along with any interlocks and site specific operational requirements.

Electrical systems:

The electrical systems covered are:

1) Service Power including site power
2) Safeguards power
3) Emergency diesel generator
4) Main generation
5) Generator & turbine support systems

The above lesson will describe the site specific electrical system including normal operation, control features, and breaker interlocks.

Reactor support systems:

This group of lessons will present:

1) Chemical and Volume Control system
2) Reactor make-up control system
3) Component cooling water system

The Post-TMI changes presented in the above lessons include: the safety related letdown; the safety grade RCP seal supply; and other design changes to the systems.

Emergency core cooling systems:

This area of concentration includes a lesson on safeguard intergrated operations. Stress will be placed on the various line-ups of the ECCS system. RHR operation and system interrelations will be discussed. The systems to be presented are:

1) Residual heat removal system
2) Containment spray system
3) Emergency core cooling system

Plant support systems:

The plant support systems include:

1) Radwaste systems

2) Building ventilation systems
3) Radiation monitors

Radwaste will include gaseous, solid, liquid, and secondary liquid waste systems. The building ventilation lesson will look at the fuel, auxiliary, and control building HVAC systems. The condensor air removal system will also be covered.

Administrative review:

This area of study will cover:

1) WCGS Technical Specifications
2) WCGS Emergency Response Guidelines based on revision 1 on the Westinghouse Owners Group EMG's.
3) WCGS Emergency Plan including implementing procedures.
4) An overview of the major WCGS administrative procedures.
5) Health Physics Procedures

The above areas will be emphasized during the simulator portion of the course.

Theory review:

The theory review will include reactor theory and heat transfer-fluid flow. Topics include:

1) Reactor theory
   - Reactivity effects
   - Control rod effects
   - Soluable boron effects
   - Power defects
   - Fission product poisons
   - Fuel burn-up
   - 1/M plots

2) Heat transfer-fluid flow
   - Review of methods of heat transfer

- Coolant heat transfer
- Steam generator heat transfer and flows
- Secondary cycles

3) Core limits on thermal power
   - Thermal design
   - Power density
   - Hot channel factors

4) Natural circulation
   - Requirements
   - Theory
   - Indications

Simulator training:

Simulator training will be conducted on the WCGS site specific simulator. Each session will last four hours. During the session communications, procedural compliance, and technical specifications will be stressed. Sessions will include individual evolutions, group evolutions, as well as malfunctions of various types. Sessions are broken down as follows:

Week One:

Day 1: Control board familiarization with emphasis placed on CVCS and support systems (BTRS, Rx Make-up, and excess letdown)

Day 2: Control board familiarization - emphasis on ECCS and electrical systems.

Day 3: Control board familiarization - emphasis on control system and turbine control system.

Day 4: Plant heat-up - from prior to removing RHR to 557°F as time permits. At least two RCP's must be started

Minor malfunctions will be initiated as conditions allow.

Day 5: Continuation of day 4 to the point of Rx start-up.

Week Two:

Day 1: Reactor start-up and secondary plant start-up with malfunctions.

Day 2: Same as day 1 but with different malfunctions.

Day 3: Holiday - July 4, 1984.

Day 4: Plant shut down from 100% to hot standby. Shutdown is required due to a malfunction that will require a cooldown to cold shutdown.

Day 5: Continue plant cooldown from Day 4. RHR will be placed in service. Malfunctions initiated as cooldown progresses.

Week Three:

Day 1: Plant ramps with malfunctions and Rx trip as the major event.

Day 2: Plant ramps with malfunctions and a LOCA as the major event.

Day 3: Plant ramps with malfunctions and a secondary break as the major ending event.

Day 4: Plant ramps with malfunctions and a steam generator tube rupture as the major event.

Day 5: Plant ramps with malfunctions leading to a loss of all AC power.

Weekly Schedule

Class Shift Advisor Phase Classroom Date: From June 25 to June 29

Week ONE

	Monday	Tuesday	Wednesday	Thursday	Friday
8 AM	Introduction	RCP NPS-215-4	PRZ Control NPS-215-3 NPS-215-6	Condensate and Main Feedwater NPS-223-3	Main Generator NPS-213-1
9 AM	RCS and RX Vessel NPS-215-1 NPS-215-2 NPS-215-3		SGWLC NPS-223-6		Generator and Turbine Support System NPS-225-3 NPS-225-4
10 AM		Incore Inst. & Core Sub-cooling Monitor NPS-227-1		Aux. Feedwater NPS-223-5	
11 AM			Study		
12 AM	Lunch	Lunch	Lunch	Lunch	Lunch
12:30 PM	RCS Instrumentation NPS-215-5	Nuclear Instruments NPS-227-2	Main steam -MSR -Extraction System -Steam dumps	Electrical system -Service power -Safeguards power -Diesel Generator	Study
1:30 PM			NPS-223-2 NPS-223-4	NPS-213-2 NPS-213-3 NPS-213-4 NPS-213-5	
2:30 PM		Rod Control NPS-227-4			QUIZ
3:30 PM	Study				
4:30 PM					

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Weekly Schedule

Class Shift Advisor Phase Classroom Date: From July 2 to July 6

Week TWO

	Monday	Tuesday	Wednesday	Thursday	Friday
8 AM	CVCS - Rx make-up NPS-217-1 NPS-217-2	ECCS NPS-221-2	HOLIDAY	EHC NPS-225-5	E-Plan
9 AM					
10 AM					
11 AM	Component Cooling Water NPS-217-5				
12 AM				Study	
12:30 PM	Lunch	Lunch	Lunch	Lunch	Lunch
1:30 PM	RHR NPS-217-4 NPS-217-4	Rx protection NPS-227-5		Radwaste Systems NPS-219-3	Rad Monitors
2:30 PM					
3:30 PM	Containment spray NPS-221-3				QUIZ
4:30 PM		Study			

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Weekly Schedule

Class Shift Advisor Phase Classroom Date: From July 30 to Aug. 3

Week SIX

	Monday	Tuesday	Wednesday	Thursday	Friday
8 AM	HVAC Systems NPS-221-4	Rx theory Review	H.T.F.F. Review	Adm. Procedures	EMG Procedures
9 AM					
10 AM					
11 AM					
12 AM					
12:30 PM	Lunch	Lunch	Lunch	Lunch	Lunch
1:30 PM	Tech Spec Safety Limits	Tech Spec & Bases	Tech Spec & Bases	H.P. Procedures	EMG Procedures
2:30 PM					
3:30 PM					QUIZ
4:30 PM	Study				

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Class Shift Advisor

Phase Simulator

Date: From July 9 to July 27

Week 3 - 5

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
10-14		9 GROUP 1	10 1	11 1	12 1	13 1	
14-18		GROUP 2	2	2	2	2	
1830-2230		GROUP 3	3	3	3	3	
10-14		16 GROUP 2	17 2	18 2	19 2	20 2	
14-18		GROUP 3	3	3	3	3	
1830-2230		GROUP 1	1	1	1	1	
10-14		23 GROUP 3	24 3	25 3	26 3	27 3	
14-18		GROUP 1	1	1	1	1	
1830-2230		GROUP 2	2	2	2	2	

SIMULATOR OUTLINE

WEEK 1

Day 1 - Control board familiarization - CVCS and support systems
Day 2 - Control board familiarization - ECCS
Day 3 - Control board familiarization - Rod Control and turbine control
Day 4 - Plant heat-up*
Day 5 - Plant heat-up (cont)*

WEEK 2

Day 1 - Reactor start-up*
Day 2 - Reactor start-up*
Day 3 - Plant ramps*
Day 4 - Plant shutdown* and cooldown
Day 5 - Plant cooldown (cont)*

WEEK 3

Day 1-5 - Plant ramps with major accidents

*with malfunctions

SHIFT CONSULTANT EVALUATION

Evaluation of Shift Consultant performance involves a four part program. Because of the nature of the Shift Consultant's responsibilities, the measure of performance is very qualitative in nature. The evaluation must also be broken down in terms of their performance as it relates to monitoring of plant operational activities and to other activities assigned by the Superintendent of Operations.

The four elements of this evaluation include, but are not limited to:

1) Participation in plant activities. The main input to this portion of the evaluation revolves around reports by the Shift Supervisor concerning the participation of the Shift Consultant in his advisory capacity. For example, has the Shift Consultant been active and effective in advising the Shift Supervisor in operational matters in the plant. It would also involve the same type of evaluations by other personnel (Superintendent of Operations, Operations Coordinator-Operations, Lead Shift Supervisor) to obtain a less biased opinion.

2) The second element involves the personnel inter-relationship of the Shift Consultant with those individuals he interfaces with. The technique is the same as described in 1) above. The emphasis would concentrate however, on the individual's ability to communicate effectively and maintain satisfactory relationships with the personnel he monitors and advises.

3) Obviously, the Shift Consultant's performance in Training and ongoing activities would be evaluated. The impact would come primarily from the Operations Coordinator-Operations, Superintendent of Operations and Training Department. This evaluation would ensure the Shift Consultant is maintaining a level of knowledge consistant with his job responsibilities.

4) The final element would consist of random interviews with the Operations Coordinator-Operations or Superintendent of Operations. In these interviews, the Shift Consultant would provide feedback on the effectiveness of his position and other items which would be useful in improving the competence of his position.

These evaluations could be made at any time but would be done at least annually. No specific form or procedure would be used due to the subjective nature of this type of evaluation. The results of the annual evaluation would be reviewed by the Superintendent of Operations and by the Plant Manager.

James A. Zell
Superintendent
of Operations

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