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Dalwyn R. Davidson
VICE PRESIDENT
SYSTEM ENGINEERING AND CONSTRUCTION

March 22, 1982

A. Schwencer
Chief, Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Response to Request for
Additional Information -
Management Organization

Dear Mr. Schwencer:

This letter transmits our responses to a January 6 letter in which 18 questions were posed by the NRC Licensee Qualification Branch on the Perry Nuclear Power Plant Site and CEI Corporate organization.

We are currently revising Chapter 13 of the FSAR to incorporate our responses to the LQB's questions. An amended Chapter 13 will be transmitted to you as soon as it is completed.

Very Truly Yours,

Dalwyn R. Davidson

Dalwyn R. Davidson
Vice President
System Engineering and Construction

DRD: mlb

cc: Jay Silberg
John Stefano
Max Gildner
Eric Pedersen

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630.1
(13.1.1) Expand figure 13.1.1 "CEI Company Organization" to include the Independent Engineering Review Group as required by NUREG - 0694 Item I.B.1.2.

Response

Figure 13.1.1 "CEI Company Organization" will be revised to include the Independent Safety Engineering Group.

630.2
(13.1.1)

It is our position that a corporate officer should clearly be responsible for nuclear activities, without having ancillary responsibilities that might detract from his attention to nuclear safety matters. The System Engineering & Construction Group Vice President appears to have ancillary duties which conflict with our position. Please elaborate on his current ancillary duties and plans to meet our above position.

Response

Six months prior to fuel load of Perry Unit 1, the Nuclear Group Vice President will be named whose total responsibility will be nuclear power activities.

630.3
(13.1.1)

Perry Plant Department's responsibilities or indirect lines of communication with the Power Supply Group Vice President need to be explained as far as the interface between the System Engineering and Construction Group and the Power Supply Group as relates to the Perry Plant Department.

Response

Perry Plant Department's responsibilities or indirect lines of communication with the Power Supply Group Vice President are through the Systems Dispatcher in the System Operation and Test Department, similar to the lines of communication involving other CAPCO generating units. Outage scheduling is coordinated through the Maintenance Planning and Scheduling Section in the Production Engineering Department, likewise under the Power Supply Group Vice President. Other regular communications between the Power Supply Group and System Engineering and Construction Group as they relate to Perry Plant Department are disseminated through communications councils or directly between group vice presidents.

630.4 (13.1.1) Elaborate on the support services provided by the NSSS supplier during the fuel loading and startup testing phases of operations.

Response

Initial fuel loading and nuclear system start-up and operational testing will be performed by CEI. General Electric field representation will provide technical direction on a continuous three-shift basis from the loading of the first fuel assemblies into the reactor vessel until the full load warranty run.

As part of technical direction, General Electric will provide start-up test specifications, start-up test analyses and start-up test instructions for the nuclear boiler system.

The start-up test specifications define the minimum test program for safe and efficient start-up of the nuclear system. The specifications specify the performance of the described tests. Start-up test specifications provided include: chemical and radiochemical, control rod drives, fuel loading, shutdown margin, radiation measurements, vibration measurements, control rod sequence, source range monitor performance, intermediate range monitor calculations, reactor vessel temperatures, system expansion, main steam isolation valves, process computer, reactor core isolation cooling, high pressure core spray, recirculation pumps and jet pumps, flow control, turbine trip, generator trip, pressure regulators, bypass valves, feedwater pumps, flux response to rods, local power range monitor and average power range monitor calculations, calibration of rods, axial power distribution, rod pattern exchange, steam flow, and heat rate.

The start-up test analysis contains the data needed to carry out the start-up testing activities. The start-up analysis includes (1) methods, data, and calculational aids for use in the control room to determine critical core performance parameters such as fuel assembly flow, power, quality, etc.; (2) calculated core power distributions and control rod patterns; (3) control rod worths for use in determining shutdown reactivity margins; and (4) methods and data for calibrating in-core nuclear instruments.

The start-up test instructions present the recommended test method and describe the steps for performing the test defined in the start-up test specifications. The start-up test instructions also contain criteria for judging the test results, where applicable, and planned data and calculation sheets which provide for site analysis of the data. Instructions will be provided as a complete set for each test required by the start-up test specifications.

630.5
(13.1.2)

NUREG - 0737 Section I.A.1.1 establishes the requirement for a Shift Technical Advisor. In the future, this position may be phased out as operator training and experience are upgraded to a level which has not yet been established by the Commission. Based on the lack of operating commerical nuclear plant experience of the operating staff and the Commission's position, your proposal to fulfill the STA function with the Shift Supervisor is unacceptable at this time.

Provide a position description for the STA and include a description of the STA training program.

Response

The Shift Technical Advisor position description and training program are as follows:

Position Description - Shift Technical Advisor

Basic Functions

Provide shift technical support to the Shift Supervisor.

Advises the Shift Supervisor on the safety status of the plant, diagnose plant accidents and recommend actions to mitigate the consequences of accidents.

Reporting Relationships

Reports to the Shift Supervisor in an advisory capacity. As such, has no direct supervisory responsibility or authority over any employee.

Primary Responsibilities

1. Maintain an awareness of the safety status of the plant.

2. Assist the Shift Supervisor in the areas of thermal hydraulics, reactor engineering, plant transients and power response, emergency procedures and plant Technical Specifications.

3. Keep informed and updated on all problems, changes or trends important to the operation and safety of the plant including periodically reviewing specified documents.

4. Assist in the accident assessment function.

5. Maintain a log of events that includes statements of watch relief and turnover, significant plant changes, advice given to the Shift Supervisor and any other information of historical or training value.

6. Participate in shift turnover briefings of the Shift Supervisor.

7. Assure capability for reporting to Control Room within ten minutes of notification of an event requiring STA attention.

Qualifications

1. Bachelor Degree in Engineering or related sciences or High School diploma and sixty (60) semester hours of college-level education in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.

2. One (1) year professional level nuclear power plant experience. Six (6) months experience shall be on site.

Training Program - Shift Technical Advisor

The STA will complete instruction designed to provide the expertise delineated in the STA position description. This will be accomplished through completion of various levels of instruction (as indicated in FSAR Figure 13.2-1) including Perry BWR Technology (38) and pertinent portions of On-Site Training (X1) dealing with FSAR accident analyses, Technical Specifications, normal and off-normal operating procedures, and Perry systems construction and operating modes.

Additionally, the STA will receive training in the areas of:

1) Mitigating Core Damage (A5).

2) Emergency Plan provisions and procedures detailing the STA's actions and the actions of control room personnel in the event of a site emergency.

3) Formal instruction in the areas of reactor physics, thermal hydraulics, core flow, and core power response.

4) Specialized instruction in the theoretical subject areas of thermodynamics, heat transfer, fluid dynamics, and reactor theory. (This academic instruction shall not be repeated if the individual has completed college instruction in each area or is previously NRC licensed or qualified as a U.S. Navy Engineering Officer of the Watch (EOOW)).

5) Control Room Simulator instruction designed to provide familiarity with control room instrumentation, controls, procedures, and plant systems response.

630.6 (13.1.2) Operating experience has shown that units with five operating shifts have experienced problems with accomplishing training during their "training period" due to the use of personnel to cover on shift vacancies caused by sickness, vacations, etc. Explain in detail those measures taken to ensure uninterrupted training periods or go to six operating shifts.

Response

The Perry goal is to staff the operating positions to support a six shift operation. In spite of the industry manning shortage, the experience requirements, and the unknowns of the future (i.e., retention and licensing success rates), attainment of this goal is not viewed as impossible. However, adequate training periods can be provided at Perry through the use of five operating shifts plus two extra personnel. Since the operating crew is comprised of relatively young employees, most are entitled to only two weeks of vacation per year; in addition the sick absence rate of this group have been very low. Two extra operators, therefore, would be able to provide vacation and sick relief. This would allow the fifth shift to achieve four days of training per week. Hence, any one individual would receive 40 days per year of training, which is judged adequate.

630.7 (13.1.2) Expand Section 13.1.2.3 to show shift manning for both Unit 1 and Unit 2 to encompass up through full operations of both units.

Response

In the attached Manning Table, the column headed "Units 1 & 2" lists the intended manning levels with both units in operation. Note that this manning exceeds that specified in NUREG - 0737 for a two-unit plant with one control room. Whereas 0737 would require a total of 1 Unit Supervisor and 3 Supervising Operators, CEI intends to provide 2 Unit Supervisors and 3 Supervising Operators.

The shift staffing described in the FSAR Section 13.1.2.3 for the Perry Plant control room, with two units operating, provides for six licensed personnel for the two units; three SRO's and three RO's. This staffing exceeds the NUREG 0737 interim guidance staffing level for Two Units, One Control Room configuration by one SRO license and is less than the interim guidance staffing level for Two Units, Two Control Rooms by one RO license.

The original Perry Plant control room design was arranged for optimizing the human factors impact for operators moving from one unit to the other in the single control room. This was the basis for arranging the two control boards side by side with identical positioning of all operating devices located on each control board. As a result of fire protection considerations, a partition was installed between the two control boards with a normally closed door in the partition. To accommodate the impact of this partition and for more effective command and control during emergency operation, an SRO has been added to each shift crew.

For starting up or shutting down a generating unit, two RO licensed operators are normally required. With three RO's available each shift, one RO will be regularly assigned to each unit with the third RO available for assignment to the unit which may be starting up or shutting down. It is not normally expected that both units would be in that mode of operation at the same time. If such would be the case, an additional RO will be provided by calling out or holding over an extra person if not available on shift. Thus, it does not represent the proper utilization of critically skilled manpower to require full time on shift the fourth RO licensed operator for those rare instances when he or she would be needed. Therefore, exception is taken to the interim staffing guidance for Two Units, Two Control Rooms as tabulated in NUREG 0737 I.A.1.3-4.

630.6
(13.1.2) NUREG - 0654 requires that to meet the minimum staffing requirements for a nuclear power plant emergency, an electrical maintenance/instrument and control technician be on shift. Explain how this requirement is going to be implemented.

Response

As required by NUREG - 0654, the Perry Plant Department staff manning requirements have been revised to include an Instrument and Control Unit Technician on shift. This technician will be qualified to ANS 3.1-1978 requirements.

PERRY PLANT DEPARTMENT

SHIFT STAFFING

MODES 1, 2, 3

	UNIT 1	UNITS 1 & 2
Shift Supervisor (SRO)	1	1
Unit Supervisor (SRO)	1	2
Supervising Operator (RO)	2	3
Perry Plant Operator (AO)	1	2
Perry Plant Attendant (AO)	1	2
Radwaste Technician	1	1
Health Physics Technician	1	1
Chemistry Technician	1	1
I & C Technician	1	1
Shift Technical Advisor	1	1
Total	11	15

SRO - Licensed Senior Reactor Operator

RO - Licensed Reactor Operator

AO - Auxiliary Operator

630.9 (13.1.2) A review of the resumes of the Perry staff indicates a gross lack of operating nuclear plant experience.

In such cases, it is our position that the staff be augmented with personnel experienced with BWR start-up and power escalation. Present your plans in this regard detailing the staffing and qualification requirements you intend to implement.

Response

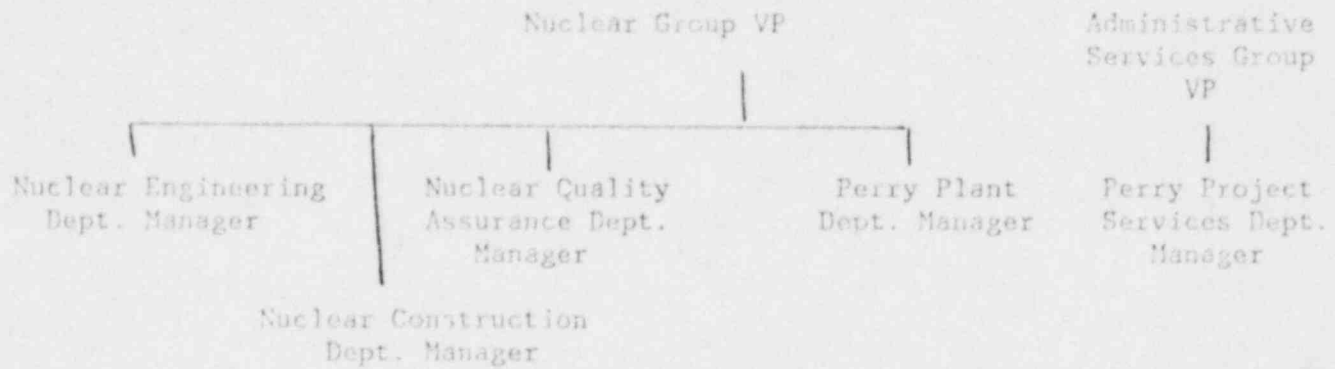
A person with operating nuclear power plant experiences will be obtained in either an advisory capacity or integrated into the plant organization as Superintendent, Plant Operations for at least one year in advance of fuel load. This person will serve as a member of the Plant Operation Review Committee, and if not a permanent member of the Plant Staff, will remain in place at least for 12 months following fuel load.

In addition, each operating shift will have assigned to it a person with commercial BWR start-up experience during the period from fuel load until 100% power is attained or for one year, whichever comes first.

630.10 (13.1.2) Explain plan for staffing support positions at the time of post start-up of Unit 1 when resources will be split between operational support on Unit 1 and start-up support for Unit 2.

Response

The Perry Nuclear Power Plant Site Organization will reorganize prior to fuel load for Perry 1 to separate the support functions for Perry 1 start-up and operation from the support functions for construction of Perry 2. Six months prior to fuel load for Perry 1, the site organization will be as follows:



Engineering support for Perry 1 will be provided by the Nuclear Engineering Department; engineering support for Perry 2 construction will be provided by the Nuclear Construction Department. Similarly, Nuclear Quality Assurance Department staff will be divided into two sections: the Construction Quality section will support Perry 2 construction and the Operational Quality section will support Perry 1 start-up and operation.

630.11 (13.2.3) In order to properly determine the type of training required for each staff position, a task or job analysis of that position must be made and training requirements defined. Please make these position analyses available for NRC staff review prior to SER issuance.

Response

Job/position descriptions for each Perry plant position have been prepared and are in use to determine training requirements in conjunction with commitments in the Perry FSAR. Institute of Nuclear Power Operation (INPO) is preparing generic job and task analyses for nuclear power plant positions. Upon completion of the INPO effort, specific task analyses for Perry positions will be prepared and appropriate modification to individual training programs will be implemented.

COURSES

A1	SIMULATOR TRAINING
A4	SIMULATOR REFRESHER
A5	DEGRADED CORE TRAINING
A6	SIMULATOR TRAINING (STA)
B6	DRESDEN BWR TECHNOLOGY
B7	OBSERVATION TRAINING
B8	PERRY BWR TECHNOLOGY
B13	APPLIED HEALTH PHYSICS
C1	RADIOLOGICAL ENGINEERING
C2	STATION NUCLEAR ENGINEERING
C3	BWR CHEMISTRY
C4	NUCLEAR INSTRUMENTATION
C5	PROCESS INSTRUMENTATION
C6	BWR MAINTENANCE
C7	ROD CONTROL & INFORMATION
C8	RECIRCULATION FLOW CONTROL
S1	BASIC NUCLEAR THEORY
S2	RESEARCH REACTOR OR EQUIVALENT EXPERIENCE
X1	ONSITE TRAINING (SYSTEMS PROCEDURES & STARTUP TESTING)
X1	ONSITE TRAINING (DESIGNATED PORTIONS)
X2	EXAM PREP
X3	NRC EXAM
X4	PREOPERATIONAL TESTING
X5	REQUALIFICATION PROGRAM (NRC LICENSE)
X6	GENERAL EMPLOYEE
X7	NRC LICENSE ACADEMIC UPGRADE
X8	FIRE BRIGADE TRAINING (DESIGNATED PERSONS)
X9	EMERGENCY PLAN TRAINING
X10	SHIFT EXPERIENCE TRAINING

* OPERATORS CERTIFIED AT DRESDEN SIMULATOR WILL RECEIVE ADDITIONAL TRAINING ON PERRY SIMULATOR.

+ DESIRABLE BUT NOT MANDATORY.

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POSITION	TO DATE	FSAR SUBMITTAL		(5/83) FUEL LOAD	(5/84) UNIT 1 COMMERCIAL
PLANT MANAGER	S1, S2, B7	B8 A1	X1	X9	X4
SUPERINTENDENT PLANT OPNS.			B5+, A1+, X1, A5	X9 A4 X2+ X3+	X4 X5+
OPERATIONS GENERAL SUPERVISOR	B6, A1*	B8	X1, A5, X10	X9 A4 X2 X3	X4 X5
ASSOC. GENERAL SUPV. ENGINEER		B8 A1	C2, X1, A5	X9 A4 X2+ X3+	X4 X5+
REACTOR ENGINEER	C2	B8 A1	X1, A5	X9 A4 X2+ X3+	X4 X5+
TRAINING SUPERVISOR		B8 A1	X1, A5, X10	X9 A4 X2 X3	X4 X5
TRAINING COORDINATOR			B8, A1, X1, A5, X10	X9 A4 X2 X3	X4 X5
TRAINING INSTRUCTORS (NRC LICENSED)			B8, A1, X1, A5, X10	X9 A4 X2 X3	X4 X5
I & C SUPERVISOR	C4, C5		C7, C8, X1		X4
MAINTENANCE GENERAL SUPV.	S1, S2		B8		X4
SHIFT SUPERVISOR	S1, S2, B6, B7, A1*	B8	X7 X1, A5, X10	X9 A4 X2 X3	X4 X5
SHIFT SUPERVISOR	S1, S2, B6, B7, A1*	B8	X7 X1, A5, X10	X9 A4 X2 X3	X4 X5
SUPERVISING OPERATOR	S1, S2, B6, B7, A1*	B8	X7 X1, A5, X10	X8 X9 A4 X2 X3	X4 X5
RAD. PROT. GEN. SUPV. ENGINEER	C1, C3			X9	
CHEMIST	C3				
HEALTH PHYSICS SUPERVISOR			B8, B13	X9	
MAINTENANCE PERSONNEL				C6	
INSTRUMENTATION (UNDESIGNATED)				X6	
SHIFT TECHNICAL ADVISOR			B8, A6, X1', A5, C2+	X9	
[illegible]			X1'	X8 X9	
SECURITY OFFICERS				X8	
HEALTH PHYSICS TECHNICIANS				X8	

630.12 (13.2.3) Add Fire Portection Training to the PNPP Training Schedule figure 13.2.1.

Response

Fire Portection training will be added to the training schedule for PNPP, Figure 13.2.1.

630.13 (13.2.3) Expand the description of the initial fire brigade described in Section 13.2.5.1.

Response

A fire brigade consisting of a licensed Senior Reactor Operator, who functions as the brigade leader, a Nuclear Plant Attendant from the Operations Section, a Radiation Protection Technician and two Security personnel will be available on all shifts. The fire brigade members will have no duties during a fire except those directly related to manual fire-fighting. Prior to assignment to the fire brigade and annually thereafter, each member will receive a physical examination that will ensure that no physical condition exists that would prevent proper performance of strenuous fire-fighting activities.

The fire brigade will be equipped with sufficient quantities of personal protective equipment, manual suppression equipment and other equipment necessary for effective fire-fighting. Equipment will meet criteria stipulated in 10CFR Part 50, Appendix R, Section h (1) (2) (3).

The fire brigade training program provides for classroom training, practice sessions and drills. The fire brigade training program will meet criteria stipulated in 10CFR Part 50, Appendix R, Section I. A sufficient number of on-shift personnel will receive the same basic training and retraining as that received by the fire brigade. These on-shift personnel will be available and trained to assist or replace designated members of the fire brigade as necessary.

630.14 (13.2.3) 10CFR 50, Appendix R has recently been deemed to be the Commission's requirements in the area of Fire Protection. Review the PNPP Fire Protection Program against 10CFR 50, Appendix R and incorporate any provision presently missing from PNPP Fire Protection Program.

Response

PNPP will follow Appendix R guidelines pertaining to the Fire Brigade organization, training and administrative controls.

630.15 (13.2.3) Describe the training program for SIA's and include same in the INPO training schedule.

Response

The training program for Shift Technical Advisor will be as described in Item 630.5.

630.16 (13.2.3) Detail the extension of INPP training to encompass training for Unit 2 additional personnel and/or pipeline path of Unit 1 personnel to Unit 2 with subsequent replacements training.

Response

Unit 2 will require an additional six (3) licensed Reactor Operators and six (6) licensed Senior Reactor Operators. These licensed operators shall be a blend of personnel licensed on Unit 1 and non-licensed Plant Operators reassigned as licensed operator candidates on Unit 2. To support this program, sufficient personnel to provide for progression from the non-licensed job of Plant Assistant to licensed candidate shall be recruited with hiring expected to begin in 1982. All Unit 2 license candidates, including sufficient candidates to allow for attrition, should be named two years before the Unit 2 scheduled fuel load date.

Due to the symmetry between Unit 1 and Unit 2, the majority of the training completed by Unit 1 personnel shall not need to be repeated for Unit 2 licensing. Candidates not previously licensed on Unit 1 shall complete the same programs as were required of Unit 1 personnel except that technical systems instruction shall be Unit 2 specific. Previously licensed personnel shall receive intense instruction on the design and operational differences and the Technical Specifications, Emergency Plan, and procedural differences for Unit 2 compared to Unit 1. Furthermore, they shall be provided simulator refresher and exam preparation instructions prior to the licensing examination.

All site personnel shall receive training as appropriate to perform the transition to a two-operating unit site. Specifically, non-licensed personnel assigned to Unit 2 and those assigned to both Units shall receive training which shall upgrade their required training as shown in the FSAR for Unit 2 specifics. Where non-licensed personnel are specifically assigned to Unit 2 there shall be a blend of previous Unit 1 and newly hired personnel such that sufficient expertise is maintained for safe and efficient plant operation.

630.17 (13.4) Explain what would be considered as "not directly responsible for plant operations" or "having line responsibility for operation of the plant" for purposes of serving as a member of the Nuclear Safety Review Committee.

Response

"Not directly responsible for plant operations" pertaining to the Nuclear Safety Review Committee means the individuals required to have this degree of independence must not report to the Perry Plant Department Manager.

630.18 (13.4) NUREG - 0737 Section I.B.1.2 establishes the requirement for an Independent Safety Engineering Group. Present your plans for complying with this requirement.

Response

The Perry Nuclear Power Plant will have an on-site Independent Safety Engineering Group (SEG) which will meet the intent of NUREG 0737, I.B.1.2.

The ISEG will form a part of the Nuclear Engineering Department. The group will be staffed by engineers and other technically oriented personnel, all of whom will have qualifications comparable to the requirements set forth in ANSI/ANS 3.1, Sections 4.1 and 4.2 (December 1981). The staff will consist of 5 individuals from Mechanical, Electrical, Chemical/Environmental and Quality Assurance disciplines, one of whom will be designated as chairman. The chairman of the ISEG will report directly to the Manager of Nuclear Engineering Department.

The group will not be dedicated full time to the activities of ISEG, however, other assignments will be minimized to assure that time expenditure required to meet the intent of NUREG 0737 will not be impacted.

The charter of the ISEG will include the following scope:

1. The principal function of the ISEG is to examine plant operating characteristics, NRC issuances, LIS advisories, and other functions of design and operating experience information that indicate areas for improving plant safety.

2. The ISEG is to perform periodic, independent review of plant activities including maintenance modifications, operational problems and operational analyses.

   As deemed necessary by the ISEG, detailed recommendations regarding improvements will be presented to management.

3. Periodic surveillance of operations and maintenance audits will be conducted to verify that these activities are performed correctly. These activities do not include detailed audits of plant operations; but rather, represent an overview function.

4. The ISEG will evaluate the effectiveness of the operational Quality Assurance program independent of normal functions of the Quality Assurance Department.

Nuclear Engineering Department procedures will be developed to assure that the requirements of the charter and the intents of NUREG 0737 are met.

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