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 50-323 Diabolo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
 AUTH. NAME AUTHOR AFFILIATION
 CRANE, P.A. Pacific Gas & Electric Co.
 RECIP. NAME RECIPIENT AFFILIATION
 MIRAGLIA, F.J. Licensing Branch 3

SUBJECT: Forwards current info re status of operator licensing,
 staffing & training-at facility.

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 TITLE: Operator Requalification Program

NOTES: 1 cy: J Hanchett (Region V).LPDR: 2cys 05000275
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	LPDR	03	2	2	VRC PDR 02	1	1
	NSIC	04	1	1	NTIS	1	1

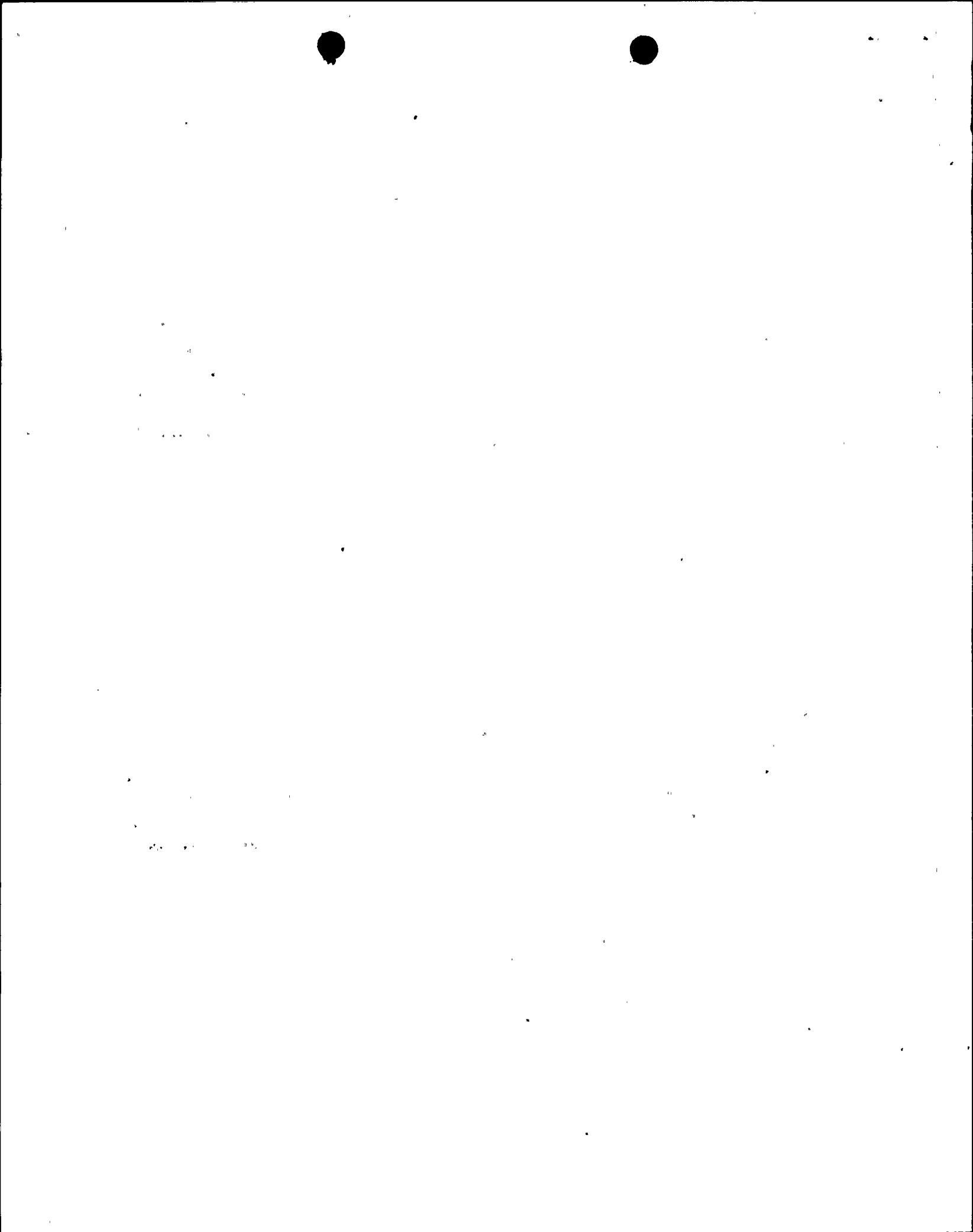
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PACIFIC GAS AND ELECTRIC COMPANY

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Mr. Frank J. Miraglia, Jr., Chief
Licensing Branch No. 3
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Docket No. 50-275
Docket No. 50-323
Diablo Canyon Units 1 and 2



Dear Mr. Miraglia:

The enclosure to this letter provides you with up-to-date information on the status of operator licensing, staffing, and training at Diablo Canyon.

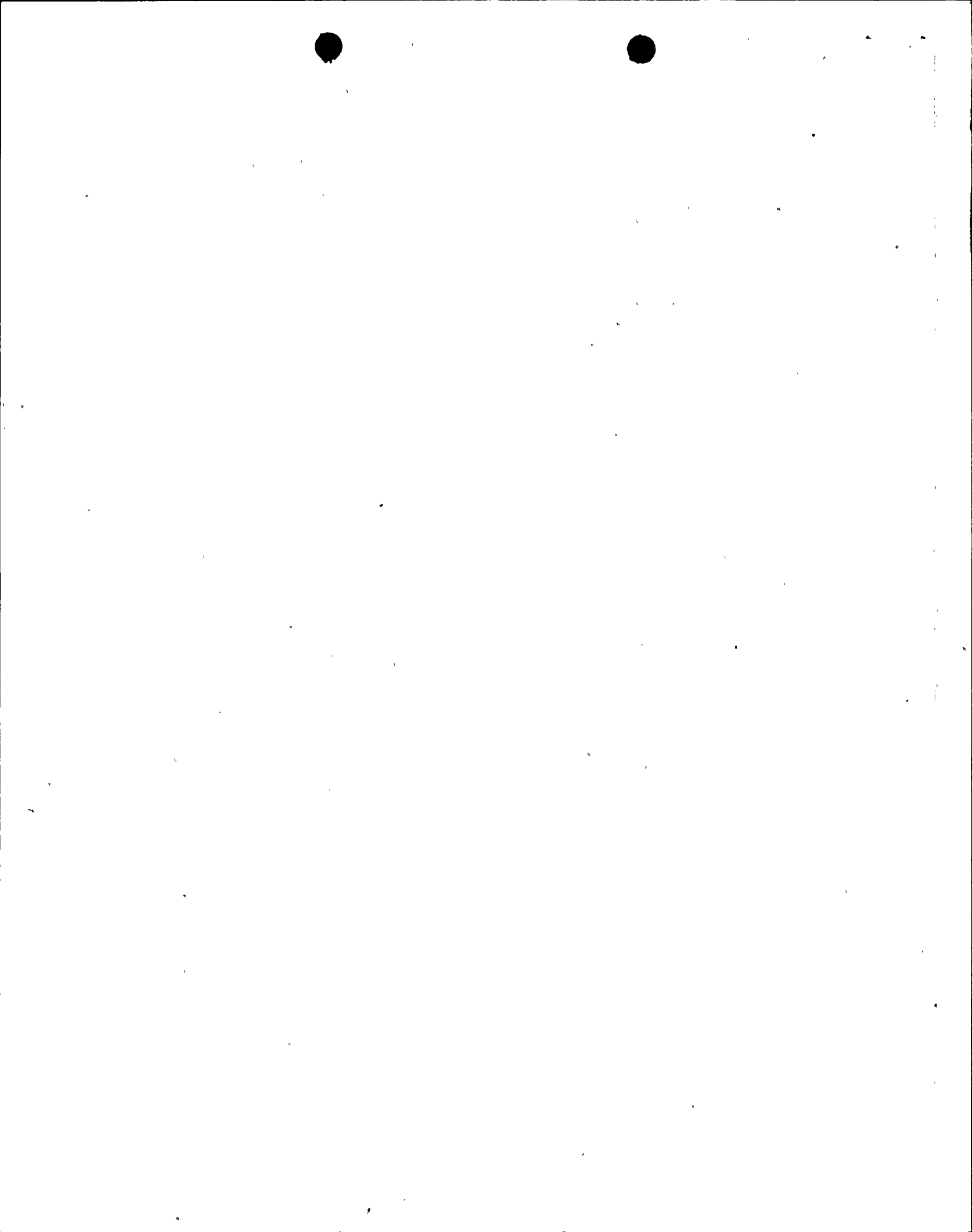
Sincerely,

Philip A. Crane, Jr.

Enclosure (40)

cc: Service List (w/enclosure)

11003
5/1/22



OVERVIEW OF OPERATOR LICENSING EXPERIENCE AND
TRAINING AT DIABLO CANYON POWER PLANT

1. REQUIREMENTS AND CURRENT STATUS

The requirements for shift manning are delineated in Table 6.2-1 of the Technical Specifications. These requirements are identical to those specified in Supplement 12 of the Diablo Canyon SER and are presented below.

Table 6.2-1

<u>Position:</u>	<u>Minimum Shift Crew Composition</u>	
	<u>Number of Individuals Required to Fill Position Modes 1, 2, 3 & 4</u>	<u>Modes 5 & 6</u>
SS	1	1
SRO	1	None
RO	2	1
AO	2	1
STA	1	None

Key:

SS = Shift Supervisor with a Senior Reactor Operators License on Unit 1

SRO = Individual with a Senior Reactor Operators License on Unit 1

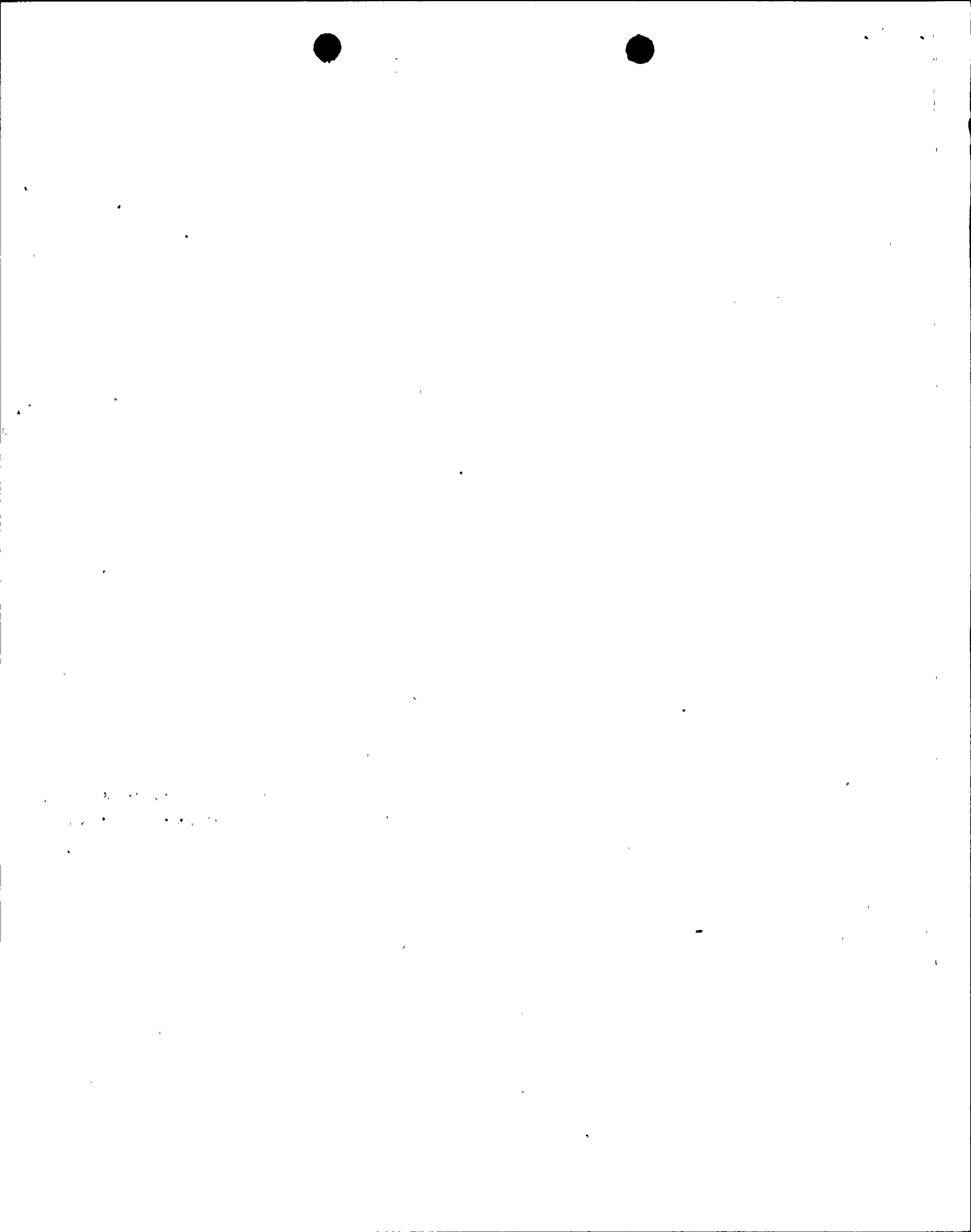
RO = Individual with a Reactor Operators License on Unit 1

AO = Auxiliary Operator

STA = Shift Technical Advisor

In addition, the SER Supplement 12 states that:

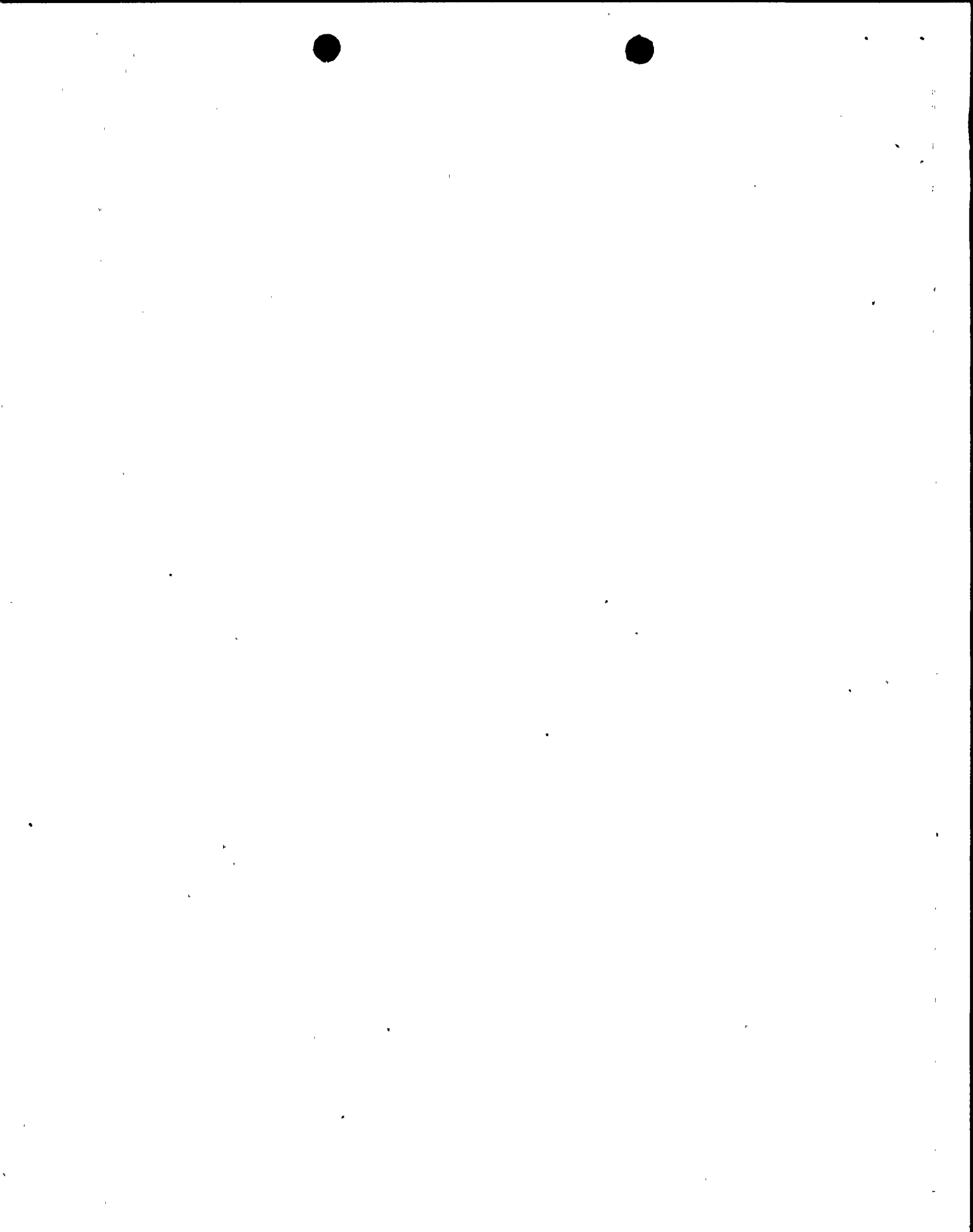
"PG&E, by letter dated February 13, 1981, submitted its licensed operator staffing plans for the Diablo Canyon Station. As of February 1981, there were a total of 25 candidates (to be assigned on shift) in training for cold license Senior Reactor Operator (SRO) and Reactor Operator (RO) examination. Ten additional candidates for SRO



examination are management and training personnel, who normally would not be expected to work on an operating shift and, therefore, are not considered available for meeting the minimum shift staffing requirements cited above. In the event that later shortages of licensed operators occur, consideration may be given to the temporary use of some of these licensed individuals to fill in on shift operations. In such cases, the staff will review the proposed use of these individuals and will ensure that the regularly assigned duties of these individuals are adequately covered by other qualified personnel." (Emphasis added.)

This requirement translates into a requirement for 8 SRO-licensed personnel and 8 RO-licensed personnel for operation in Modes 1, 2, 3 & 4.

Diablo Canyon presently has 13 SRO-licensed personnel and 13 RO-licensed personnel. This is obviously an adequate number provided that all 13 are available for shift operations. Of the 13 SRO licenses, 5 are individuals whose normal duties involve shift operations and 2 are "operations engineers" whose normal duties would be to stand shifts during a test program of this nature. Under some circumstances we propose to use personnel who are not normally assigned to shift coverage to fill the one remaining required SRO license. This is discussed further in Section 3 of this submittal.



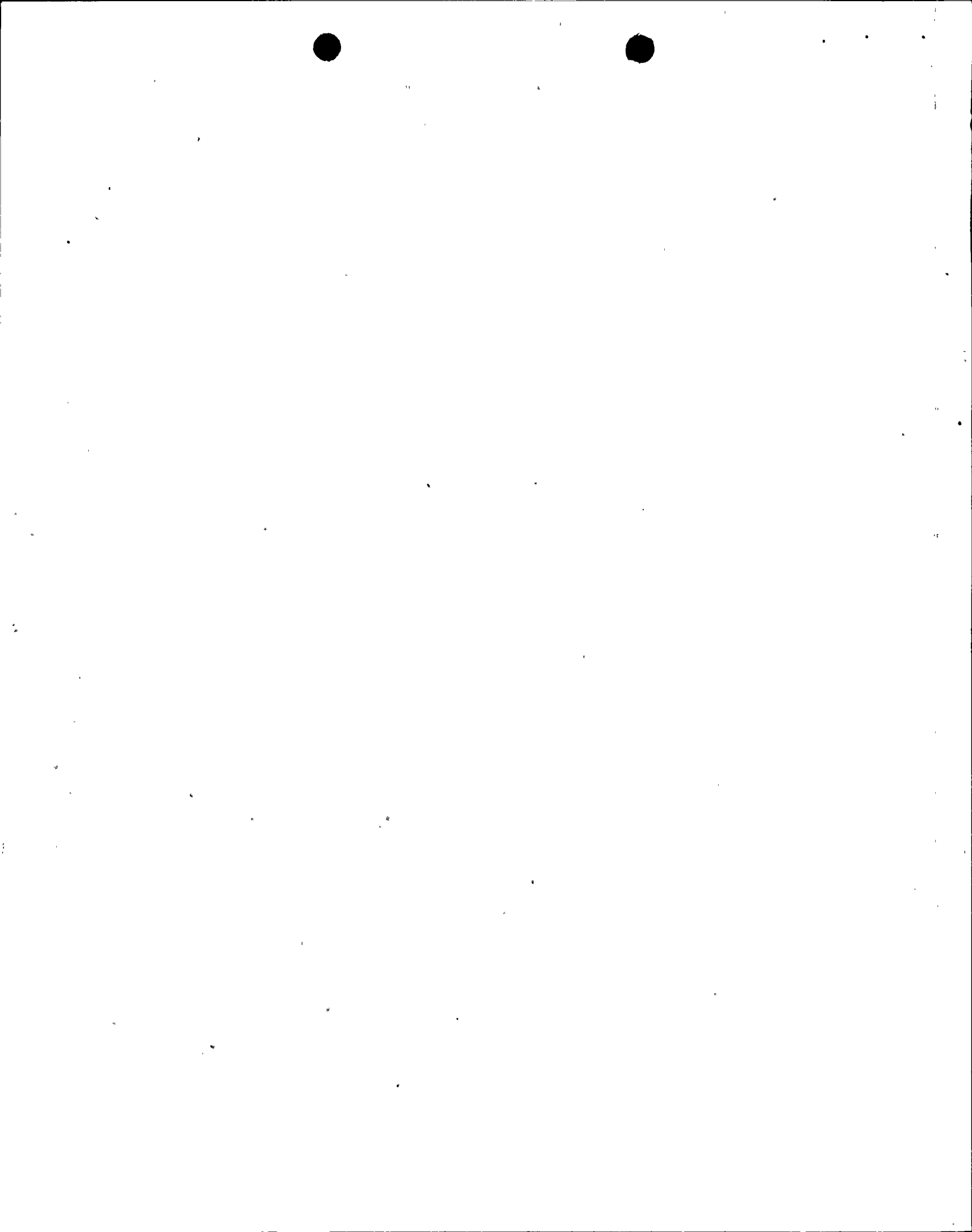
2. SHORT-TERM LICENSING PROGRAM

The NRC examinations given in February, 1981 yielded 13 SRO and 13 RO-licensed personnel at Diablo Canyon. A second round of examinations is currently scheduled for the week of August 31, 1981 for persons who failed to receive the desired license in the February examinations. In this round of examinations we will have 6 SRO candidates and 8 RO candidates. Of the 6 SRO candidates, 5 are normally assigned to shift operations and one is a nuclear engineer. The 5 shift operators currently hold RO licenses and need only upgrade to the SRO level. In the February tests, one of these individuals scored over 80% overall and needs only to retake a single section of the SRO written exam. The other 4 all scored between 70 and 80% on the SRO written examination. We are confident that they will do well in the August reexamination, since the candidates were close to passing in February, and they have received considerable training since then. However, even assuming for the sake of argument that only 3 of the 5 pass, we will still have 8 SRO-licensed people who are normally shift workers, plus 2 "operations engineers" who will be on shift during this program. We understand that the results of these exams will be available by September 21, 1981. Furthermore, if a low-power license were received in the immediate future, we would not enter mode 4 until well after this date.

In addition, we presently have 12 personnel completing the cold license certification program at the Westinghouse Training Center in Zion, Illinois. Nine of these persons are normally assigned to shift operations. Based on our previous experience at the training center, and reports from the Westinghouse evaluators, we expect 8 of the 9 to certify at the SRO level. This group is scheduled to take the NRC examination in December, 1981. In addition to this group of new candidates, we plan to upgrade 6 RO licenses to SRO licenses at that time. Again counting only personnel normally assigned to shift operation, this will give us approximately 14 SRO candidates taking the NRC examination in December, 1981. We anticipate that at least 8 of these personnel will pass.

Depending on the results of the December, 1981 examinations, we will schedule retakes for those who do not pass probably around May, 1982.

A hot license preparation training program is scheduled to begin in January 1982, and we anticipate having 12 RO candidates in this program. These personnel should be licensed in late summer, 1982.



3. PROPOSED SHORT-TERM SHIFT STAFFING PLAN

Should it become necessary to load the reactor and perform low-power testing with only the licensed personnel currently available, we propose the following personnel schedule:

We have 5 personnel who normally man operating shifts who have SRO licenses. This leaves 3 positions to be filled by persons who are normally not full-time shift workers. It is our intention to utilize 2 of the "operations engineers" (Messrs. Crockett and Fisher) to fill 2 of these positions. These personnel have extensive operating experience and are capable of filling these positions. During major test programs their normal function would be to supplement the shift operating crews, accordingly, their on-shift duty during this period does not deviate from normal practice.

The third position will be filled by the Supervisor of Operations (Mr. J. A. Sexton). He will be assigned to work day shift only so that he is available for consultation during this period. His management duties will be assumed by the Plant Superintendent during the relatively short period that he is on shift.

We emphasize that this is a short-term/worst-case situation. In this scenario, the existing shift supervisors who are not licensed at the time will be available to assume the duties of the operations engineers. They will also be able to assume some of the duties of the Supervisor of Operations, thereby relieving the Plant Superintendent of some of this additional workload.

Additionally, the other senior plant management personnel both with and without NRC licenses are available to assist.



4. RATIONALE FOR SHORT-TERM COMPENSATORY MEASURES

As discussed in Section 2, the Company currently has in progress a retraining and relicensing program for Diablo Canyon operations personnel which should provide at least 8 SRO-licensed shift operators prior to the time that Diablo Canyon initially enters modes 1, 2, 3 or 4. However, in the event of unforeseen difficulties, Section 3 describes a proposed shift schedule which employs a maximum of 3 SRO-licensed personnel who have "management and/or training" responsibilities (from the 8 such personnel who are available) to fill shift SRO vacancies which may still exist after the August, 1981 reexaminations. Should such a program be necessary, it would have to continue until the third set of examinations is given in December, 1981. However, in judging the appropriateness of this proposal, two important points need to be emphasized:

1. The assumption that one management or training person would be required is a conservative one which assumes that no shift operators pass the SRO examination in August. As discussed in Section 2, this eventuality is considered to be highly unlikely.
2. Although the third set of examinations will not be given until December, 1981, the schedule for the fuel loading and low-power testing program includes only 25 days of testing in modes 1, 2, 3 or 4 during which a shift schedule such as that described in Section 3 would actually have to be in effect.

There are several other factors which lead the Company to conclude that the current status of operator licensing does not compromise the capability to effectively conduct the fuel loading and low-power test program simultaneous with normal management and training activities. Among these are:

1. It is highly desirable that management personnel be on shift during the initial loading and low-power test program in order to provide close management control over this program and to assure that management personnel are integrated into daily operations. Regardless of whether or not the licenses of these people are counted, it is a longstanding Company practice to have management personnel on shift during all major outages and test programs, and this is considered to be one of their normal duties.
2. Without counting any overtime, we have 6 people available to cover one position on shift. On a per week basis this involves 40 hours of work, which could be divided among 6 people such that any single individual would have over 80% of his time to devote to routine management or training responsibilities.

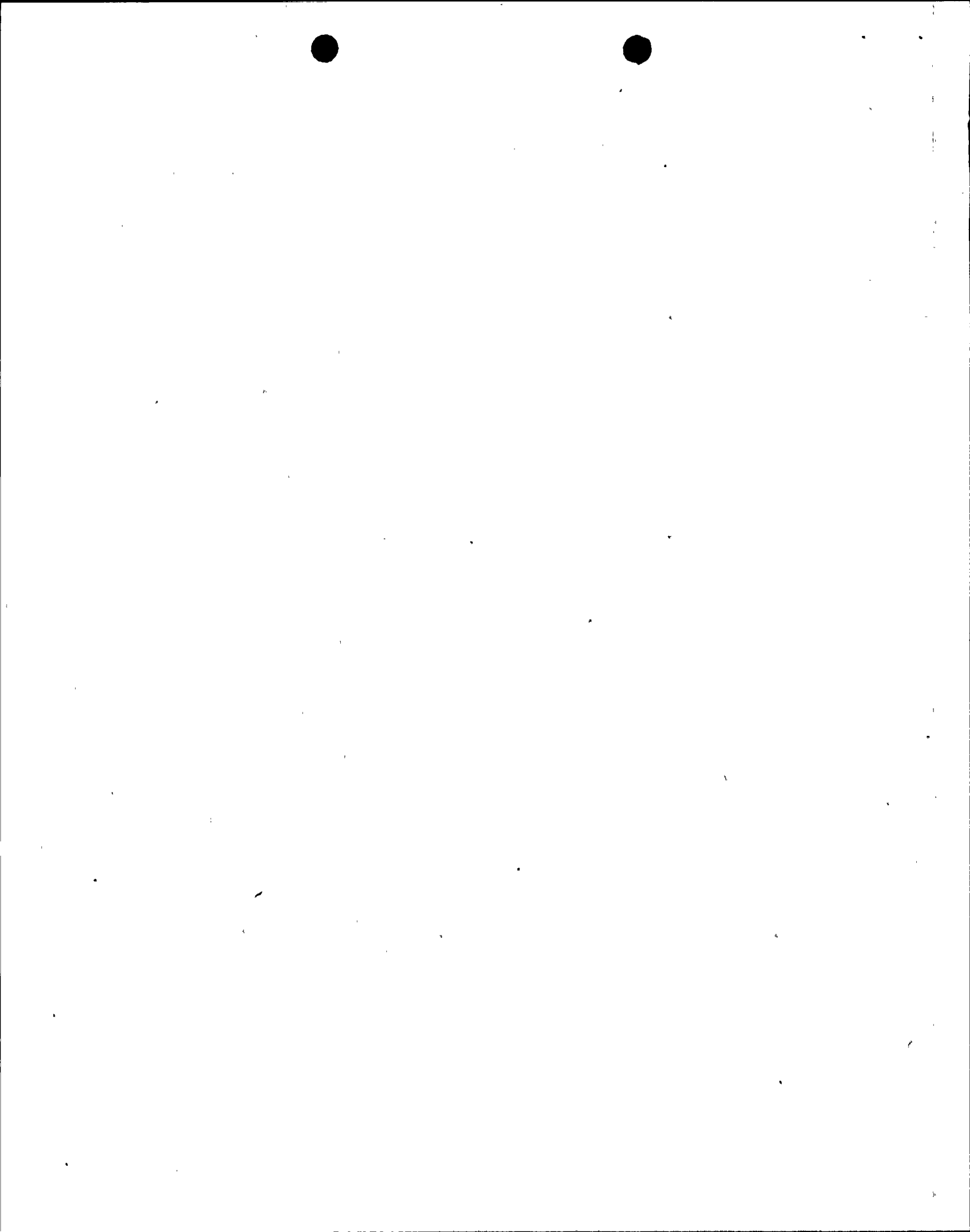


If overtime is used, and staying within the guidelines of the regulations, the involved personnel can easily spend a full 40-hour week on their management or training duties and still provide on-shift coverage.

It should be reemphasized that these personnel are going to spend this amount of time, or more, on shift anyway; because we believe that this is their management responsibility and enhances the overall conduct of the program.

3. The training burden will have decreased somewhat by the time we load the core. In addition to this, we have increased the training staff by 3 full-time people, one full-time consultant, and one part-time consultant since January 1, 1981. In addition, 2 experienced, full-time training personnel will be reporting to Diablo Canyon in August and September, 1981 respectively. We believe that with this increase, we can easily commit one or 2 training personnel to shift coverage for the limited time involved without compromising ongoing training activities.
4. It is our opinion that of the 8 personnel who are not normally assigned to shift operations, only 4 (the Plant Superintendent, Power Plant Engineer, Supervisor of Operations, and Technical Assistant to the Plant Manager) are considered to be key management personnel whose management function might be compromised by extended assignment to an operating shift. As noted above, the proposed shift assignments in Section 3 only include the use of the Supervisor of Operations, even though the others are expected to be intimately involved in the conduct of the program. Of the remaining 4 persons, the 2 who are used are "operations engineers" whose function is to closely monitor the conduct of shift operations. Thus, these latter persons are scheduled to work shifts during this program regardless of the number of other licensed personnel who are available.

In summary, we believe that in the unlikely event that any compensatory measures are required during fuel loading and low-power testing, our proposed schedule provides the necessary licensed personnel with minimal impact on normal management and training activities. We further note that the SER specifically provides for such a contingency.



5. EXPERIENCE

The attached table lists the appropriate experience of Diablo Canyon personnel in various areas of commercial and military nuclear power plant operation. (Attachment A)

1. As indicated in the attached table, our personnel have extensive BWR experience. We understand that this is equivalent to PWR experience for licensing purposes.
2. In addition to this experience, we have sent our employees to a simulator that most closely resembles Diablo Canyon (Westinghouse Zion Simulator) in excess of the NRC requirements.
3. Therefore, we believe that this operating experience and simulator training exceeds the personnel background of the typical NTOL plant.

In addition to the plant personnel experience discussed above, the operating organization will be augmented during the initial loading, low-power testing and power escalation test programs. This augmentation results from 3 separate personnel sources.

PGandE maintains a separate group of startup engineers (in our Construction Department). The group at Diablo Canyon includes 10 engineers with varying amounts of nuclear plant experience. Seven of these people have participated in initial loading and/or low-power testing experience at either Salem, Sequoyah, or North Anna plants.

To supplement the PGandE startup group, the Company has contracted with Bechtel Corporation to provide 4 additional startup engineers. These personnel all have extensive commercial nuclear plant experience.

In addition to the augmented startup group, PGandE has contracted with our NSSS vendor, Westinghouse, to supply operational assistance, on shift, throughout the startup. These are highly-qualified personnel whose resumes are attached. (Attachment B)



6. MISCELLANEOUS OPERATOR TRAINING PROGRAM DEVELOPMENTS

At the time of formation of the Nuclear Plant Operations Department in March of 1980, operator training at Diablo Canyon Power Plant was conducted by 2 full-time training instructors with part-time assistance from other members of the plant engineering staff. Since that time, there have been several significant developments which will enhance our ability to conduct a comprehensive operator training program in the future. Among these are:

1. There are now 5 full-time operator training instructors on the plant staff with one new instructor scheduled to start on August 31 and a second scheduled to start in September. We also have employed several consultants in the operator training area and 2 consultants are currently working at the plant. In addition, the plant is authorized, and is actively recruiting, 5 additional operator training personnel.
2. Specifications have recently been prepared for a new operator training facility which will include a plant specific simulator. This facility will also include the most modern classrooms and audio-visual teaching aids which are available.
3. Since July, 1981, the operating staff has been on a 5-shift rotation to permit increased operator training time. This 5-shift rotation will be continued permanently with the granting of a full-power license.
4. In the last week, the Manager of Nuclear Plant Operations approved 46 new plant operation staff positions. These additions to staff will produce sufficient new operators in lower classifications to assure that trained operators are available to cover any attrition or license exam failure rate, and in addition will permit a 6-shift rotation (i.e., operators in training 2 weeks out of every 6) if this becomes necessary or desirable.
5. There are now 4 full-time training personnel assigned to the corporate General Office on the staff of the Manager of Nuclear Plant Operations. In addition, there is a fifth position authorized, and a simulator specialist is being actively recruited.
6. There have been substantial increases in all areas of the plant and General Office staffing. For example, the number of nuclear engineers on the plant staff has increased from 5, when the Nuclear Plant Operations was created in March, 1980, to a current level of 11, with several additional positions having recently been authorized. Similar increases have taken place in other plant and General Office sections. While these personnel are not engaged full-time in operator training activities, they do become involved as instructors in areas of their specialty, and this increase in personnel enhances our capability to conduct operator training.



OVERVIEW OF OPERATOR LICENSING
AND TRAINING AT DIABLO CANYON
POWER PLANT

- 9 -

August 25, 1981

In our opinion, the measures which have been taken in the last 18 .
months will assure a continuing supply of well-trained and competent
operating personnel at Diablo Canyon Power Plant.



DIABLO CANYON POWER PLANT EXPERIENCE TABLE

Name	No. of Hot Functionals Individual Participated In	No. of Hot Functional Days Individual Participated	No. of Preoperational Test Days Individual Participated In	Present Classification	NRC Operator License June 1981	Commercial PWR Startup Experience	PWR Observation Experience	Previous BWR Licensed Personnel	Remarks
N..J..Aiken	3	165	675	ACO	RO				
D. A. Bearden	3	165	816	SCO	RO				
O. A. Cole	3	119	1,000	SFH	RO		R. E. Ginna	SRO	
W. J. Dilbeck	3	119	1,000	SFH	RO		Point Beach	SRO	
T. S. Haueter	2	92	550	SCO	RO				6-Year Navy Nuclear Program as Machinist Mate
G. E. Lugo	2	92	483	CO	RO				2-1/2 Yrs. Navy Nuclear Program as Machinist Mate
H. A. Navarro	1	33	366	ACO	RO				
H. A. Price	0	0	149	SCO	SRO				6 Yrs. Navy Nuclear Program as Reactor Operator/ET
J. A. Sexton	1	16	400	Supervisor of Operations	SRO		THI 1	RO	Startup Experience at JAFitzpatrick & WPPS Unit 2 Nuc. Units



DIABLO CANYON POWER PLANT EXPERIENCE TABLE

Name	No. of Hot Functionals Individual Participated In	No. of Hot Functional Days Individual Participated	No. of Preoperational Test Days Individual Participated In	Present Classification	NRG Operator License June 1981	Commercial PWR Startup Experience	PWR Observation Experience	Previous BWR Licensed Personnel	Remarks
.. Patterson	3	119	625	Plant Superintendent	SRO	R. E. Ginna		SRO	Startup Experience at Dresden, Vallecitos and Humboldt
I. B. Kaefer	3	119	625	Technical Assistant to the Plant Manager	SRO		Point Beach		6 Yrs. Navy Nuclear Program, EOOW.
.. Smith	2	92	450	C. O.	RO				6 Yrs. Navy Nuclear Program as Reactor Operator/ET
r. J. Martin	3	119	816	Training Supervisor	SRO			RO	
. E. Newman	3	165	757	C. O.	RO				
J. M. Raab	2	23	183	C. O.	RO				6 Yrs Navy Nuclear Program as Mechanist Mate
R. L. Roos	1	33	360	ACO	RO				20 Yrs Navy, 12 Yrs Navy Nuclear Program as Reactor Operator/ET
C. P. Schulze	3	119	925	SFM	RO		Zion	RO (Vallecitos) RO (Humboldt)	
W. F. White	3	119	1,000	SFM	RO		R. E. Ginna	RO	
L. R. Collins	3	165	758	SFM	SRO				



DIABLO CANYON POWER PLANT EXPERIENCE TABLE

Name	No. of Hot Functionals Individual Participated In	No. of Hot Functional Days Individual Participated	No. of Preoperational Test Days Individual Participated In	Present Classification	NRC Operator License June 1981	Commercial PWR Startup Experience	PWR Observation Experience	Previous BWR Licensed Personnel	Remarks
. Crockett	0	0	135	SPPE (Operations)	SRO			DOE, Senior License Engineer	Shift Supervisor at Hanford N Reactor
. Ewing	3	119	814	SFM	SRO			RO	
. Fisher	0	0	110	PPE (Operation)	SRO			SRO	6 Yrs Navy Nuclear Program as Reactor Operator/ET, Senior Operator on Triga Reactor at Penn. State
t. Fridley	3	148	716	SFM	SRO			RO	
. Glaslon	3	119	625	Power Plant Engineer	SRO	HBRobinson			
. Kensingers	3	165	750	SCO	SRO				6 Yrs Navy Nuclear Program as Electricians Mate
. Molden	2	92	450	Assistant Training Coordinator	SRO				6 Yrs Navy Nuclear Program as Reactor Operator/ET



Legend:

RO = NRC Reactor Operator License

SRO = NRC Senior Reactor Operator License

ACO = Assistant Control Operator

CO = Control Operator

SCO = Senior Control Operator

SFM = Shift Foreman

SPPE= Senior Power Production Engineer (Operations)

PPE = Power Production Engineer (Operations)

NL = Non Licensed

ET = Electronics Technician

EOW= Engineering Officer of The Watch



PERSONAL DATA: Age 46, married, 6 dependent children

EXPERIENCE:

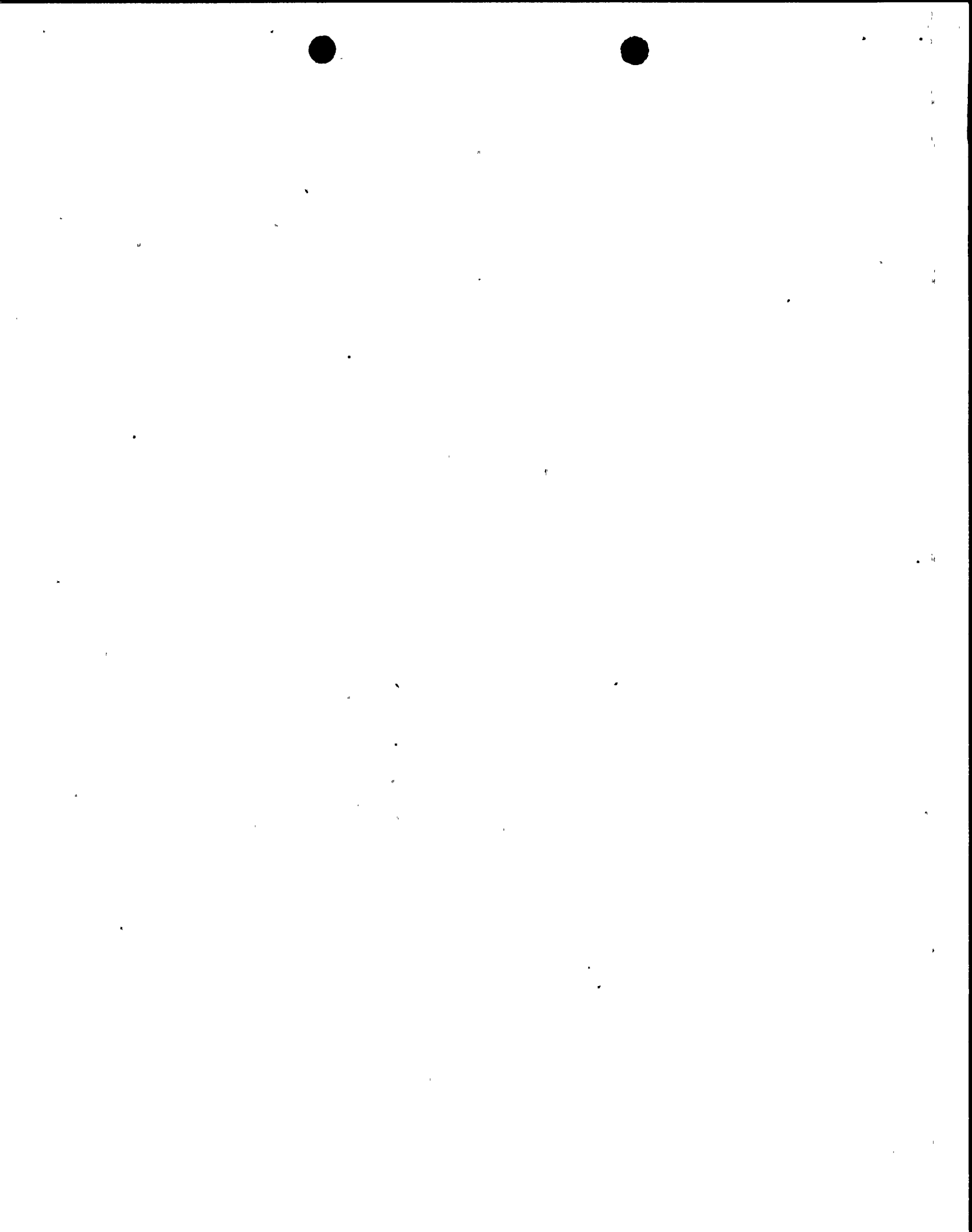
Westinghouse Nuclear Service Division (Pittsburgh, PA)

2 years - Field Service Engineer
Assigned as startup engineer at the South Texas Site with complete startup responsibility for several systems in the HSSS. This included system construction follow, flushing and cleaning, integrity testing, preoperational testing, troubleshooting and startup testing. The activities associated with this work included preparation of test procedures, participation during the test, evaluating the test data and preparing final test result reports.

4 1/2 years Senior Engineer - Headquarters Startup Services
Lead Engineer, Startup Testing & Equipment with overall responsibility for Steam Generator Moisture Carryover Testing temporary core loading equipment and services, reactivity computers and services, and inverse count rate ratio monitoring. Participated in site moisture carryover tests, initial core loadings and refuelings.

6 years Senior Field Service Engineer - Headquarters Startup Services
Prepared Generic Startup Procedures for over twenty-five plants and detailed startup procedures for six plants. Served as lead Westinghouse engineer for Turkey Point Unit 4 Hot Functional Testing. Performed systems flushing, hydrostatic testing and cold and hot functional testing at various plant sites. Performed or assisted in performing startup scheduling for five plants.

6 1/2 years Westinghouse Astronuclear Laboratory (Jackass Flats, Nevada and Sandusky, Ohio)
Engineer - Team leader for post-operation analysis and testing of three Herva reactors with responsibility for all post-test examinations and analysis of results. Acted as team member for post-operative analysis and testing of two Herva reactors and two Kiwi reactors. Also performed such non-destructive testing as radiography, magnetic particle and dye penetrant testing. Also served as a shift engineer for water and cryogenic loops at Plum Brook Reactor Facility and supervised materials testing after operations.



7 years

Westinghouse Atomic Power Department (Forest Hills, PA and Waltz Mills, PA)

Metallographer - Performed materials testing, X-ray diffraction analysis, and metallographic analyses of reactor components.

EDUCATION:

St. Thomas High School (Braddock, PA) - 1949

Duquesne University - 2 years, Pharmacy

Westinghouse Tech - 5 years, Certificate, Mechanical Engineering, 1961

Westinghouse Schools

Special PWR Simulator Course for Field Engineers (1 week)



PERSONAL DATA:

Age 43, Married, 3 children

EXPERIENCE:

Westinghouse Nuclear Service Division

1 Year

Institute of Nuclear Power Operations (INPO)
Performing evaluations of nuclear power plants in the area of technical support.

2 Years

Senior Startup Engineer
Farley Unit II Nuclear Power Plant
Acting capacity of lead startup engineer for writing, reviewing, and conducting startup procedures for primary, secondary, and auxiliary systems starting at the construction phase and continuing through cold hydrostatic testing, hot functional testing, and initial criticality. Duties included indirect supervision of startup engineers, reviewing test results, and recommending completed test procedures be approved by upper management. Assistance was also provided for scheduling and coordinating the efforts between startup personnel and crafts personnel for conducting predetermined startup tests.

3 Years

Field Service Engineer
Farley Unit I Nuclear Power Plant
Served as startup engineer with system(s) responsibility for construction follow and testing, hot functional testing, customer acceptance, and procedure writing for all the above.

2 Years

Operations Engineer
Westinghouse Headquarters
Prepared Phase I, II and III startup procedures for the nuclear steam supply system.

2 Years

Combustion Engineering
Design Engineer II
Design responsibility for fluid systems for pressurized water nuclear power plants

MSA Research

2 Years

Engineer
Design and project responsibility for charcoal filtration systems and experimental liquid metal heat transfer loops.



Elliott Company

3½ Years

Junior Applications Engineer for steam turbines, centrifugal compressors, and steam jet air ejectors. Design Engineer for Lubrication and Seal Oil Systems supplying compressors and turbines.

MSA Research

6 Years

Laboratory Technician

Performed inorganic chemical analysis, radiochemical analysis, and thermodynamic properties of alkali metals.

EDUCATION:

Sewickly Township High School (Herminie, Pa.)

Grove City College (Grove City, Pa.)

2 Years, Chemical Engineering

Carnegie Mellon University (Pittsburgh, Pa.)

BS, Chemical Engineering 1968



PERSONAL DATA:

Age 38, Married, 3 children

EXPERIENCE:

Westinghouse Nuclear Service Division

2 1/2 Years

Field Service Engineer - Farley Site

Assigned to startup group. Responsibilities include preparation and implementation of detailed NSSS Phase I and II startup test procedures; planning and scheduling of activities required to complete startup testing of the following NSSS and Secondary Systems: CVCS Letdown, CVCS Demineralizers, CVCS Recycle Holdup Tanks, CVCS Recycle Evaporator and Auxiliary S/G, Residual Heat Removal, and Steam Generator Blowdown; direction of utility and construction craft personnel during startup testing of assigned NSSS and Secondary Systems; evaluation of startup testing data for acceptability of results and evaluation and resolution of any observed discrepancies; supervision of craft workers involved in completion of construction turnover discrepancies and NSSS repair work; Shift Supervision of NSSS Hot Functional Testing.

Westinghouse Nuclear Technology Division

4 1/2 Years

Test Engineer - North Anna, Prairie Island, D.C. Cook, Indian Point, Beaver Valley, Turkey Point, and R.E. Ginna Sites

Assigned to startup physics testing group. Responsibilities included preparation of Phase III physics test acceptance criteria and revisions to physics test procedures; providing on-site test assistance and direction during initial core loading reactivity monitoring and the physics testing associated with initial criticality and power escalation from hot zero power to full power; analyzing and documenting initial plant startup physics testing activities; on-site direction and assistance with special physics testing and re-start physics testing following plant refueling.

U.S. Navy

8 Years

Electrician - USS Daniel Webster (SSBH 626) and USS John C. Calhoun (SSBH 630)

Qualified as electrical plant control panel operator, propulsion panel operator, and shutdown reactor systems watch. Duties included operation, testing and maintenance of the generation, distribution and control equipment associated with the ships service electrical system; repair and maintenance of ships electrical rotating machinery; providing electrical plant training for ships crew; performance of electrical division supervisory and administrative functions; assisting with electrical plant startup testing following initial shipyard overhaul.



EDUCATION:

CivilianAttachment B
Sheet 6 of 809/57 - 05/60 Harlow High School
Grad - College Preparatory09/60 - 01/63 University of New Mexico
Core Engineering Courses06/71 - 05/74 University of Oklahoma
B.S. Nuclear Engineering.03/79 - Pres. Troy State University
MBA ProgramMilitary08/63 - 11/63 Electrician's Mate, Class A, School
Basic Electrical Theory and Maintenance12/63 - 02/64 Enlisted Submarine School
Submarine Construction and Operation05/64 - 10/64 Naval Nuclear Power Engineering School
Basic Nuclear Power Engineering11/64 - 05/65 Naval Nuclear Prototype Training (AIW)
Nuclear Power Plant Operations

Class "C" Schools:

Electrical Plant Control Panel & Switchgear
Operation and MaintenanceInstructor Training
Classroom Presentation TechniquesCPO LMET
Leadership and ManagementWestinghouse

PWR Information

Professional Development (494)

Control & Protection Systems (ES-F-501)

Creative Problem Solving

Core Nuclear Engineering

Simulator IPPO Course

Special Simulator Course for NSD - Startup Services

MISCELLANEOUS:

1971 - Pres. EMC (SS) U.S. Naval Reserve
Currently attached to Shore Intermediate Maintenance Activity
(DET-1008), Electrical/Electronics Dept., Head, responsible
for departmental administration and training.



PERSONAL DATA:Date of Birth: August 14, 1944
Citizenship: U. S.

Health: Excellent

TRAINING:Nuclear Utility Service
SR/RO License ProgramCombustion Engineering
Simulator Training CourseWestinghouse
Simulator Evaluation ProgramWORK EXPERIENCE:August 1977
to
PresentCONSUMER POWER CORPORATION

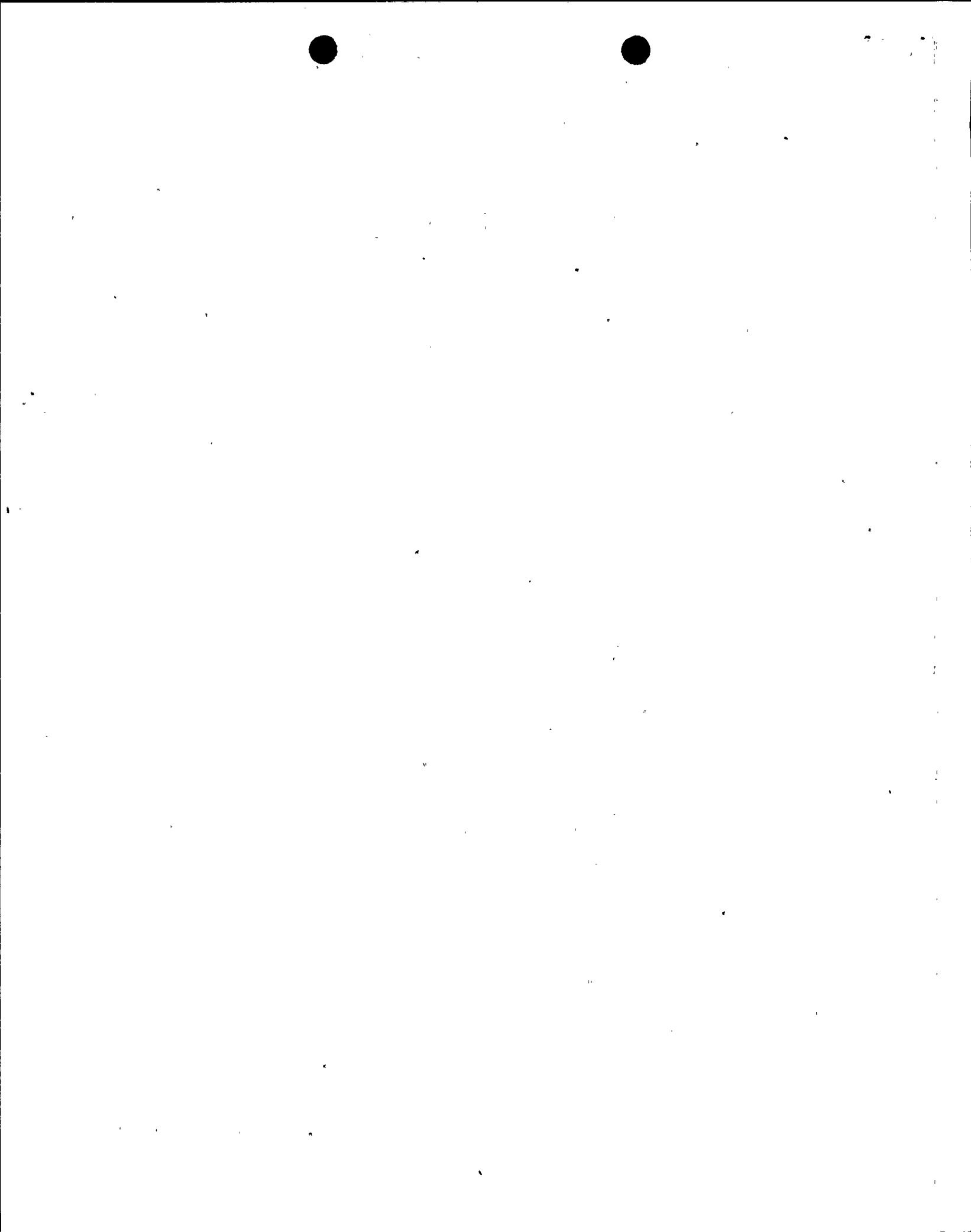
Directions of Plant start-up and shut-down, reactor turbine, cooling towers and all associated auxiliary equipment. Insure proper procedure application under normal and emergency conditions. Correct and complete administration of all technical and plant testing. Supervising and directing the operation of the control operator #2; the auxiliary operators in their job functions and the safe operation of the plant at all times. Participated in refueling operations (Reactor) low power physics testing as necessary pre-operational testing of systems and equipment prior to plant start-ups. Assign clearances and write switching and tagging orders for plant systems having maintenance performed on its components. Operate and do necessary switching in a 345 KV Switchyard, and interchange between two utilities.

Assigned to special task force that was formed to review, rewrite and analyze existing standard operating procedures (SOP'S), emergency operating procedures (EOP'S), off normal procedures (OHP'S), technical specification tests and required plant testing. Also involved in the final approval in the Plant Review Committee (PRC) of the above mentioned procedures.

Assigned to Training Staff, charged with requalifications program, for all personnel holding Senior Reactor Operator and Operator Licenses. Instituted a system training program, intermediate level for plant personnel. Did other various and related plant training as necessary.

November 1976
to
October 1977CONTROL OPERATOR #2, HOLDING A VALID REACTOR OPERATORS LICENSE

Safe operation of the reactor and associated auxiliary systems, performance of testing as required. Participated in refueling operations, low power physics testing and preoping of various systems.



WORK EXPERIENCE: (Cont'd)

January 1967

to

November 1976

AUXILIARY OPERATOR

Charged with the safe operation of all auxiliary equipment, participated in the preoperational testing of radwaste systems, evaporators and packaging. Liquid and gas transfer and storage systems, participated in refuel testing and operations. Extensive testing and preoperational testing of the following systems: Emergency core cooling, iodine removal, hydrogen recombining, emergency diesel generators, main feed water, auxiliary feed water, cooling towers (forced draft 18 cell units), turbine generator seal oil unit (Westinghouse) main steam and main condensate.

