

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-306/81-12

Docket No. 50-306

License No. DPR-60

Licensee: Northern States Power Company  
414 Nicollett Mall  
Minneapolis, MN 55401

Facility Name: Prairie Island Nuclear Generating Plant, Unit 2

Investigation At: Red Wing, MN

Investigation Conducted: May 14-15, 1981

Investigators: J. E. Foster  
J. E. Foster

5/22/81  
Date

C. H. Weil  
C. H. Weil

5/22/81  
Date

Reviewed by: J. Streeter  
J. Streeter, Acting Director  
Enforcement and Investigation  
Staff

5/26/81  
Date

K. Baker  
K. Baker, Chief  
Management Programs Section

5/26/81  
Date

Investigation Summary

Investigation on May 14-15, 1981 (Report No. 50-306/81-12)

Areas Investigated: Special, announced investigation into the circumstances surrounding an NRC inspector's observation of a reactor operator who appeared to be asleep. The investigation involved 30 hours onsite by two NRC investigators.

Results: It could not be substantiated that the operator was asleep. Technical specification requirements were met. No items of noncompliance were identified.

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## REASON FOR INVESTIGATION

On the morning of May 14, 1981, NRC Region III (RIII) personnel were advised an RIII inspector had been in the Prairie Island Control Room earlier that morning, and had observed a reactor operator who appeared to be asleep. On the basis of this information, an investigation was initiated. RIII investigators arrived at the Prairie Island site at approximately 4:00 p.m. that afternoon.

## SUMMARY OF FACTS

On the morning of May 14, 1981, at approximately 5:37 a.m., RIII inspector James Peschel entered the Prairie Island Control Room. He observed a reactor operator with his feet on a computer console, leaning back in his chair, hands clasped behind his head, and eyes closed. The inspector observed the operator in this position for several seconds, and concluded the operator was asleep. A second operator noticed the inspector and inquired "can I help you" in a normal voice for the Control Room environment. At that time, the first operator opened his eyes, sat up, got out of the chair, and attended to Control Room duties. Inspector Peschel informed the Shift Supervisor for Unit 2 of his conclusion that the operator was asleep and subsequently contacted RIII.

On the afternoon of May 14, 1981, the investigators toured the Control Room, and discussed Inspector Peschel's observations with him. Interviews were then held with the Unit 2 personnel present on the shift in question, including the operator observed in the reclining position. Signed, sworn statements were taken in each case.

In addition to the above, the investigators reviewed the computer log of entries to the Control Room to establish the basic time sequence.

All of the statements obtained agreed as to the basic facts observed by the RIII inspector; the operator had been reclining and did have his eyes closed for a period of time. However, the operator stated he had recently been issued bifocal safety glasses which bothered his eyes (station records confirmed safety glasses were issued on approximately May 2, 1981) and he had relaxed for a moment to rest his eyes.

Statements received from the other operator and Shift Supervisor indicated the operator had been alert during the shift and had been talking with the other operator approximately five minutes prior to the entry in the Control Room by the RIII inspector.

A review of the evidence collected, including consideration of the operator's position, time since cessation of discussion with the other operator, time observed by the RIII inspector, and all statements received indicated that it could not be substantiated that the operator was asleep. A similar review by utility management personnel concluded disciplinary action against the operator was not indicated.

Plant Technical Specification. require that at least one qualified reactor operator be present at the control panel. Since two operators were present and only one operator was suspected of being asleep, there was no Technical Specification violation.

## DETAILS

### 1. Persons Contacted

#### Northern States Power Company

- \* F. P. Tierney, Plant Manager
- \* J. B. Brokow, Superintendent of Operations and Maintenance
- \* R. L. Lindsey, Operations Superintendent
- \* E. L. Watyl
- \* A. A. Hustad
  - D. W. Cragoe, Shift Supervisor
  - J. H. Bichel, Lead Plant Equipment & Reactor Operator
  - W. M. Mather, Senior Reactor Operator & Plant Equipment Operator

#### International Brotherhood of Electrical Workers

V. Guerting, Operations Steward, Local 949

#### NRC Region III

\*J. Peschel, Inspector

\*Denotes those present at exit meeting on May 15, 1981.

### 2. Interview of NRC Inspector

On May 14-15, 1981, James M. Peschel, Reactor Inspector, Nuclear Regulatory Commission, Region III (RIII), was interviewed and provided the following information:

On May 11, 1981, he began a maintenance inspection at the Prairie Island Nuclear Generating Station. At approximately 5:00 a.m., May 14, 1981, he arrived at the site to begin his work for that day and at approximately 5:45 a.m. he entered the Control Room to speak to a shift supervisor about the interface of the plant's operations and maintenance departments.

He entered the Control Room through the Unit 2 entrance. He proceeded into the Control Room where he observed an operator, wearing a blue checked shirt (later identified as Jon H. Bichel), leaning back in a chair with his feet on the computer console. The operator's eyes and mouth were closed, his hands were behind his head with his fingers interlaced, and he appeared to be sleeping.

Approximately 30 seconds passed before the second operator on duty (later identified as William M. Mather), who was looking at the control board, turned and spoke to Peschel. Mather moved his chair towards Peschel, saying to the effect, "Can I help you?" in a normal "control room voice." At about this time, Bichel "perked-up, like coming out of sleep," stood up and walked to the control board. Bichel appeared to be somewhat groggy to Peschel.

Shortly thereafter, the Unit 1 shift supervisor approached Peschel and they spoke of the technical matter (equipment tag-out procedures) for which Peschel had originally gone to the Control Room. During the conversation with the Unit 1 supervisor, Peschel was approached by the Unit 2 supervisor, Don Cragoe. Peschel advised Cragoe that Bichel had been asleep, and Cragoe responded by saying he could not believe Bichel had been sleeping. Peschel then contacted RIII and plant management.

Subsequently, Peschel provided a signed, sworn statement (Exhibit I).

3. Interview of Lead Plant and Reactor Operator

On May 14, 1981, Jon H. Bichel, Lead Plant Equipment and Reactor Operator was interviewed and provided the following information:

He began his employment at the Prairie Island Nuclear Generating Station in 1971 as a Plant Attendant, and has progressed to his present position as a Lead Plant Equipment and Reactor Operator.

On the night of May 13-14, 1981, he and the other members of his crew were completing the last night of a five day "relief" shift. The crew's work cycle consisted of:

Seven afternoon shifts; Six day shifts, followed by two days off; Seven midnight shifts, followed by three days off; Five relief shifts, followed by three days off.

The midnight shift began at 11:00 p.m. on May 13, 1981, and ended at 7:00 a.m. on May 14th. The plant was running at 100% power and only normal surveillances (i.e., daily log, reactor output, chemistry sheet) were conducted during the shift. He was in good health, and he felt fine during the shift. He was not taking any medication, either prescribed or non-prescribed, other than a daily multi-vitamin tablet.

During the course of the May 13-14 shift he completed a "Mind Jogger," which he described as a four question quiz prepared by the plant's training department. While completing the "Mind Jogger," he read the plant's Technical Specifications to check his answers.

After completing the "Mind Jogger," his supervisor, Cragoe, informed him that he (Cragoe) would be leaving the Control Room to check on the temperature in the plant's offices. Shortly after Cragoe left, the other operator on duty, Mather, advised him that he (Mather) was leaving the Control Room to go to the vending machines to purchase some candy.

Bichel estimated Mather was absent from the Control Room for approximately three to four minutes. During Mather's absence, Bichel made a surveillance tour of the Unit 2 control panel, and found a light bulb on the Ventilation Control Panel had burned out. Bichel replaced the light bulb during Mather's absence.

Upon Mather's return to the Control Room, Bichel noticed Mather had not purchased candy, but had returned with a fruit pie. Bichel kidded Mather about the fruit pie and the extra calories. At the conclusion of this conversation, Bichel sat in his chair, propped his feet on the computer console, placed his hands behind his head, leaned back in his chair, and closed his eyes to rest them. Bichel stated he had recently received a new pair of bifocal glasses, which he was wearing at the time, and his eyes were having difficulties in adjusting to the new prescription. Bichel advised he had closed his eyes for rest because of the problems with his new lenses.

Bichel stated at about the time he was resting his eyes, an NRC inspector entered the Control Room. Bichel advised the NRC inspector was carrying a hardhat and a notebook in his hands. Mather asked the inspector if he (Mather) could help the inspector. At about that time, Bichel stood up and began a surveillance tour of the control board. Bichel never spoke to the NRC inspector and was not aware the inspector had thought Bichel was sleeping in the Control Room until later informed of this by Cragoe.

Bichel stated he was never asleep during the shift of May 13-14, 1981. Bichel further stated he was aware he could ask for relief from the control panel and he could leave the Control Room to rest, if that had been necessary.

Subsequently, Bichel provided a signed, sworn statement (Exhibit II).

#### 4. Interview of Senior Reactor Operator

On May 14, 1981, William M. Mather, Senior Operator and Plant Equipment Operator was interviewed and provided the following information:

He and Jon Bichel were the two reactor operators on duty on the mid-night shift, May 13-14, 1981, at the Prairie Island Nuclear Generating Plant Unit 2. Their shift started at 11:00 p.m. May 13 and ended at 7:00 a.m. May 14. The plant was operating at 100% power and they had not encountered any problems during the course of the shift.

At approximately 5:35 a.m. Mather had left the Control Room to purchase candy. Prior to his departure from the Control Room, Mather told Bichel that he (Mather) was going to purchase M&M candies. However, Mather purchased a fruit pie and upon his return to the Control Room with the fruit pie, instead of the candy, Bichel kidded him about the "junk food." Mather turned away from Bichel and looked at the control board. Mather began to clean up his work area in preparation for shift change and plant turnover at 7:00 a.m.

At about 5:45-5:50 a.m. while Mather was cleaning up, he looked up and saw someone standing between the console and the shift supervisor's office. Mather noticed the person's identification badge first, and then asked if he could help the person. The person, an NRC inspector, asked to speak with a shift supervisor, and at about this time the Unit 1 supervisor entered the Unit 2 side of the Control Room. Shortly after the NRC inspector had left the Control Room, both he (Mather) and Bichel

learned the NRC inspector had thought Bichel had been asleep in the Control Room. While speaking with the NRC inspector, Mather looked in Bichel's direction. Mather observed Bichel leaning back in his chair with his feet up. Mather also observed Bichel's eyes were open. Mather estimated he was five to seven feet away from Bichel at the time.

Earlier in the evening Bichel had been reading the plant's Technical Specifications in order to answer a questionnaire prepared by the plant's training department. Both he and Bichel were conducting normal plant surveillances throughout their shift. Mather described Bichel as awake and alert throughout the entire shift, and stated that Bichel was never asleep during their shift.

Subsequently, Mather provided a signed, sworn statement (Exhibit III).

5. Interview of Shift Supervisor

On May 14, 1981, Donald W. Cragoe, Shift Supervisor, was interviewed and provided the following information:

He was the Shift Supervisor for the Prairie Island Nuclear Generating Station, Unit 2 on the night of May 13-14, 1981. The operators on duty in the Control Room during that shift were Jon H. Bichel and William M. Mather.

Cragoe advised the plant's procedures called for a minimum of three licensed reactor operators in the Control Room to operate the plant's two units. On the night of May 13-14, four operators were on duty, two operators assigned to each unit plus two shift supervisors. Cragoe advised the reason for the extra operators in the Control Room was to provide relief operators so the operators could be excused to take a break.

During the course of the shift on May 13-14, Bichel read the plant's Technical Specifications and procedures. At about 5:30 a.m. Cragoe left the Control Room to check the temperature in the plant's offices, where he walked past an NRC inspector, Peschel. Upon returning to the Control Room, he observed the NRC inspector talking to the Unit 1 shift supervisor. Upon completion of their conversation, Peschel informed Cragoe that he (Peschel) had found Bichel asleep in the Control Room.

Cragoe stated he found it very difficult to believe Bichel would be asleep in the Control Room, as Bichel was one of the three best operators at the plant. Cragoe advised he has known Bichel in excess of five years and considered Bichel to be a very thorough and competent reactor operator. Cragoe stated he has never observed Bichel asleep in the Control Room.

Subsequently, Cragoe provided a signed, sworn statement (Exhibit IV).

6. Control Room Access Log Review

The Prairie Island plant utilizes a card-key computerized access control system to provide security for vital areas within the plant. The Control Room entrances are each equipped with a card reader which

allows access to the Control Room and logs entries. A copy of the computer printout was utilized to establish actual times of entry to the Control Room. The following information was obtained:

<u>Time</u>	<u>Action</u>
5:29:19	Operator Mather enters
5:30:33	Supervisor Cragoe enters
5:35:31	NRC Inspector Peschel enters
5:37:12	Supervisor Cragoe enters

The computer does not log exits from the Control Room. Exits from the Control Room could not be accurately determined except in the case of Peschel whose exit at approximately 5:42 caused an alarm which was on the computer printout and which was responded to by a guard.

From the information obtained, Inspector Peschel observed the operator at approximately 5:35:31, talked to the one operator and then the Unit 1 Shift Supervisor (from his statement), talked to Cragoe at approximately 5:37:12, and exited the Control Room at approximately 5:42:00 a.m. (While time estimates provided in statements differ slightly from those recorded in the computer log, the differences were considered insignificant.)

#### 7. Review of Plant Procedures

A review of Section Work Instruction No. SWI-0-2, "Section Work Instructions Operations Section; Shift Organization, Operation and Turnover," dated October 17, 1980, disclosed the following information:

##### "1.0 PURPOSE AND SCOPE

The instructions establish the shift organization by which the plant will be operated, requirements for shift control room operations, relief turnover and minimum manning requirements.

##### 3.0 REQUIREMENTS

###### 3.1 Minimum Shift Manning

3.1.1 Each on duty crew SHALL be composed of at least the minimum shift crew composition shown in Figure 1...(Exhibit V).

3.1.3 Normally, two licensed operators should be in the control room for each operating unit.

3.1.4 There SHALL be a minimum of one licensed reactor operator in the control room for each reactor which contains fuel. The operator SHALL be within the boundaries shown of Figure 2 (EXHIBIT VI).



- 3.1.5 There SHALL be a minimum of three licensed operators in the control room. These operators SHALL be within the boundaries shown on Figure 3...
- 3.1.6 The presence of licensed Shift Supervisors or NRC licensed staff personnel will satisfy the legal requirements on control room or site manning."

8. Discussions with Plant Management

On May 14-15, 1981, the progress and results of this investigation were discussed with Mr. F. P. Tierney, Plant Manager. Tierney advised Bichel's personnel records had been reviewed. This review disclosed Bichel had been issued a new pair of prescription, bifocal, safety glasses which were made available to Bichel on May 2, 1981. Tierney further advised he had conducted an inquiry into this matter and his inquiry did not dispute any of the facts of the matter, but did not support Peschel's conclusion that Bichel had been asleep. Tierney stated he felt the facts supported a conclusion that Bichel had not been asleep and he did not contemplate taking any administrative actions against Bichel.

EXHIBITS:

- I Copy of typed transcript of Peschel's statement.
- II Copy of typed transcript of Bichel's statement.
- III Copy of typed transcript of Mather's statement.
- IV Copy of typed transcript of Cragoe's statement.
- V Copy of Minimum Shift Crew Composition List.
- VI Copy of Control Area Boundaries Diagram.
- VII Copy of Control Room Boundaries Diagram.

I, James M. Peschel, hereby make the following voluntary statement to J. E. Foster, who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Mr. Foster is writing this statement with my concurrence.

I am an Inspector with the Region III Office of the NRC, a position I have held since August, 1980.

Beginning on Monday, May 11, 1981, I began an inspection at the Prairie Island site. This inspection involved maintenance activities and required occasional contact with control room personnel.

On the morning of Thursday, May 14, 1981, I arrived at the site at approximately 5:00 a.m. At approximately 5:40 a.m. I wished to discuss a procedure with a Shift Supervisor, and entered the Control Room on the Unit 2 side.

I approached the Unit 2 Shift Supervisor's office. As I did so, I observed an operator in a blue checked shirt. The operator was on the opposite side of the computer console, with his feet up on the console, leaned back in his chair, hands behind his head, with his eyes closed. I believe his mouth was closed and his glasses on.

The operator made no movement, and I observed him for some time while trying to see a Shift Supervisor so I could have him look at the man. I believe this observation and search time was approximately 30 seconds. I believe that the operator was asleep.

A second operator noticed my presence, and spoke to me. I believe he said "can I help you" or something similar. He turned his chair in my direction to speak to me, and spoke in what I would consider a normal volume for a control room.

At this time the other operator opened his eyes, sat up, and walked away from his chair. While I was talking to the other operator the Unit 1 Shift Supervisor approached me and we began a technical discussion while I waited for the Unit 2 Shift Supervisor to return as the operator informed me he would be back soon.

Mr. Cragoe, Unit 2 Shift Supervisor, arrived in approximately 1-1½ minutes. I advised him that I believed the noted operator was asleep, and was advised of the operator's name, Bichel. Mr. Cragoe stated that he did not believe that operator Bichel had been asleep.

I have not spoken with the operator. I advised the Region III office of this event, and then plant management.

I have read the foregoing statement consisting of two handwritten pages and this page. I have made any necessary corrections and have initialled them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

/s/ 5/15/81  
James M. Peschel

Subscribed and sworn to me this  
15th day of May, 1981 at the  
Prairie Island Station.

/s/  
James E. Foster      5/15/81  
Investigator

I, Jon H. Bichel, hereby make the following voluntary statement to J. E. Foster, who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Mr. Foster is writing this statement for me with my concurrence.

I have been employed at the Prairie Island plant since 1971, and presently am a Lead Plant and Reactor Operator.

I was on duty for Unit 2 during the shift from 11:00 p.m. on 5/13/81 until 7:00 a.m. on 5/14/81. This was the last evening shift in our current shift rotation.

Plant operation was at 100% and normal. Other than routine alarms and logging, I studied several "mind jogger" questions provided by the training department, utilizing the Technical Specifications as references.

I am in good health and not taking medicines. I was awake and alert. Approximately two weeks ago I received a pair of bifocal safety glasses, and they were bothering my eyes somewhat.

At approximately 5:30 Operator Mather went to go to the candy machine. I toured the control board and changed a light bulb in his absence.

When he returned with a fruit pie, I kidded him about it. I then sat in my chair, leaned back and stretched, and closed my eyes for a few seconds to rest them. I was fully awake.

I heard Mr. Mather say "may I help you", opened my eyes and saw an individual holding a white safety helmet. I was later advised that this individual was an NRC inspector. This inspector did not speak to me then nor subsequently. I have been advised that the inspector was of the opinion that I was asleep. This is in error.

I have provided this same information to station management personnel reviewing the inspector's comments.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialled them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

\_\_\_\_\_  
/s/ 5/14/81  
Jon H. Bichel

Subscribed and sworn to before me  
this 14 day of May 1981, at Prairie  
Island site

\_\_\_\_\_  
/s/  
Investigator  
NRC Region III

Exhibit II  
Page 1 of 1

I, William Mather, hereby make the following voluntary statement to J. E. Foster, who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement fully with no threats or promises of reward having been made to me. Mr. Foster is writing this statement for me at my request.

I am a Senior Reactor Operator at the Prairie Island Nuclear Plant, and was on duty from 11:00 p.m. on 5/13/81 until 7:00 a.m. on 5/14/81 as Plant Equipment and Reactor Operator for Unit 2.

I worked with Mr. Jon Bichel on this shift, and he appeared alert and attentive during the shift.

At approximately 5:30 a.m. on 5/14/81 I told Jon I was going to the candy machines to get some M&M's. I returned some four minutes later with a fruit pie. John said "that does not look like M&M's to me", and was alert.

Several minutes later I noted an individual in the control room who was unknown to me, but was wearing a company I.D. card. I now know him to be NRC Inspector Peschel.

I turned to my left to observe Inspector Peschel, who was standing on the opposite side (Shift Supervisor's office side) of the lead desk.

Mr. Bichel had been in a position with his feet on the computer console leaned back in his chair, with his hands clasped behind his head. I do not believe that he was asleep or inattentive to his duties.

The NRC inspector then asked to see the Shift Supervisor. I have been advised that the inspector stated he believed Mr. Bichel to be asleep.

After I observed the NRC inspector I look at Jon Bichel and his eyes were open at that time.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialled them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

/s/ 5/14/81  
William M. Mather

Subscribed and sworn to before me  
this 14th day of May, 1981, Prairie  
Island site.

/s/ 5/14/81  
James E. Foster  
Investigator  
NRC Region III

Exhibit III  
Page 1 of 1

I, Don Cragoe, hereby make the following voluntary statement to J. E. Foster, who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Mr. Foster is writing this statement for me at my request.

I am a Shift Supervisor at the Prairie Island Nuclear plant, a position I have held since 1969. I was on duty for the shift from 11:00 p.m. on 5/13/81 until 7:00 a.m. on 5/14/81 as Shift Supervisor for Unit 2.

Mr. John Bichel was on this shift, and spent a good portion of the shift he was engaged in receiving specifications and procedures. At all times when he was under my observation, he was awake and alert. John is one of our best operators.

I was out of the control room when NRC Inspector Peschel entered, and did not observe Mr. Bichel with the inspector. Mr. Peschel contacted me shortly after observing Mr. Bichel, and stated that Mr. Bichel had been seen, leaned back in his chair, hands clasped behind his head, or in an inattentive position, apparently asleep. I advised the inspector I did not believe Mr. Bichel had been asleep, as he had been awake, alert and busy shortly before this. I do not believe that John could have gone to sleep in the position described without his hands dropping due to relaxation. Conditions in the Prairie Island control room are good, although shift work can create some drowsiness on the late shift, due to difficulties involved with sleeping in the daytime.

If a man were intending to sleep in the position described it would be more likely that he would put his head back on the chair with his hands across his stomach. The hands, behind his head would actually prevent him from falling asleep.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialled them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

/s/ 5/14/81  
\_\_\_\_\_  
Donald W. Cragoe

Subscribed and sworn to before me  
this 14th day of May 1981, at  
Prairie Island site.

/s/  
\_\_\_\_\_  
James E. Foster  
Investigator  
NRC Region III

FIGURE 1

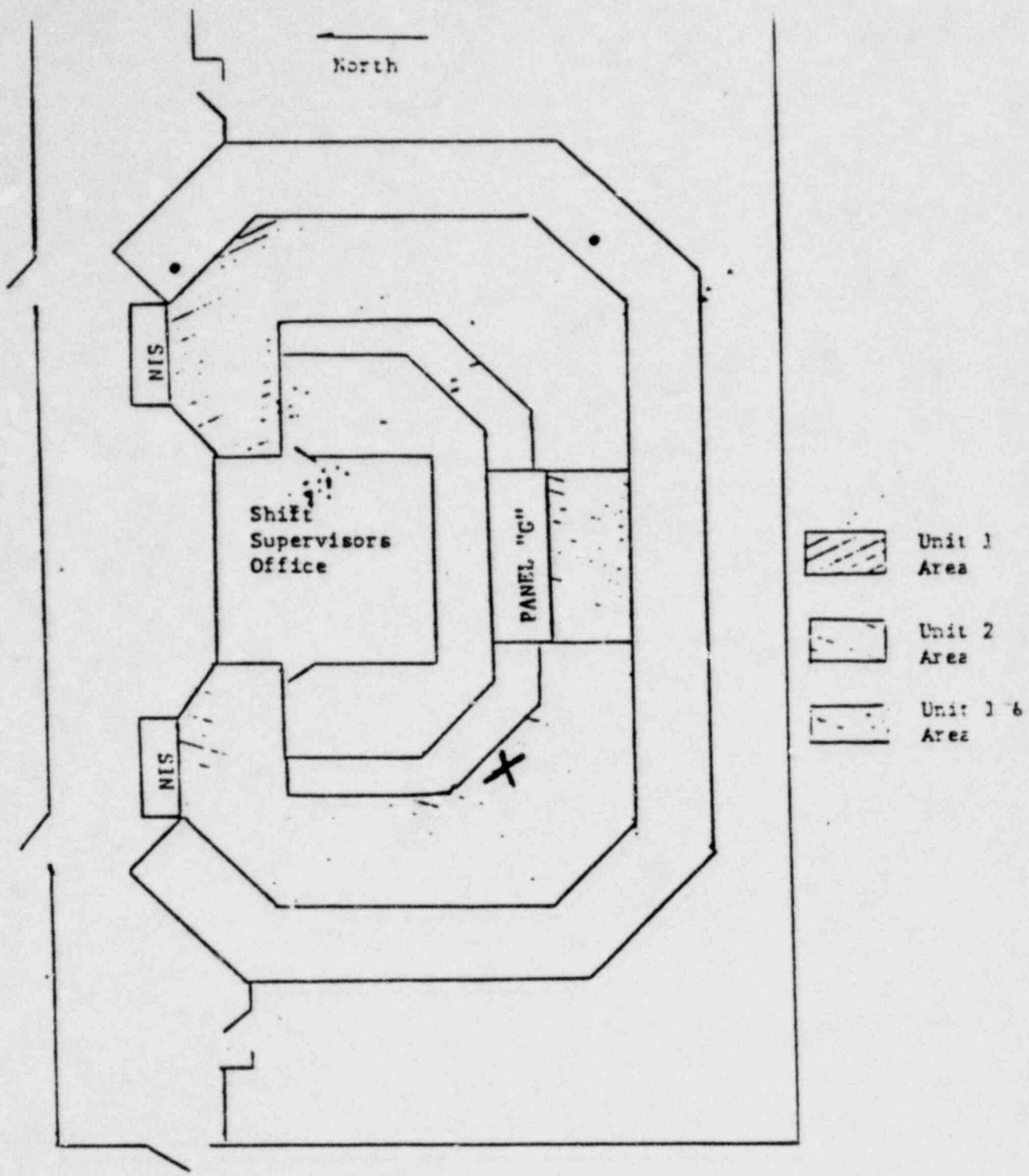
MINIMUM SHIFT CREW COMPOSITION (Note 1 and 3)

CATEGORY	BOTH UNITS IN COLD SHUTDOWN OR REFUELING SHUTDOWN	ONE UNIT IN COLD SHUTDOWN OR REFUELING SHUTDOWN AND ONE UNIT ABOVE COLD SHUTDOWN	BOTH UNITS ABOVE COLD SHUTDOWN
No. of Shift Supv. (LSO)	1	1	1
Total No. Licensed Senior Operators (LSO)	2 (Note 2)	2 (Note 2)	2
Total No. Licensed Operators (LSO & LO)	4	5	5
Total No. Licensed & Unlicensed Personnel	6	8	8

NOTES:

1. Shift crew composition may be one less than the minimum requirements for a period of time not to exceed two hours in order to accommodate an unexpected absence of one duty shift crew member provided immediate action is taken to restore the shift crew composition to within the minimum requirements specified.
2. Does not include the licensed Senior Reactor Operator, or Senior Reactor Operator Limited to Fuel Handling, supervising refueling operations.
3. Each LSO and LO shall be licensed on each unit.

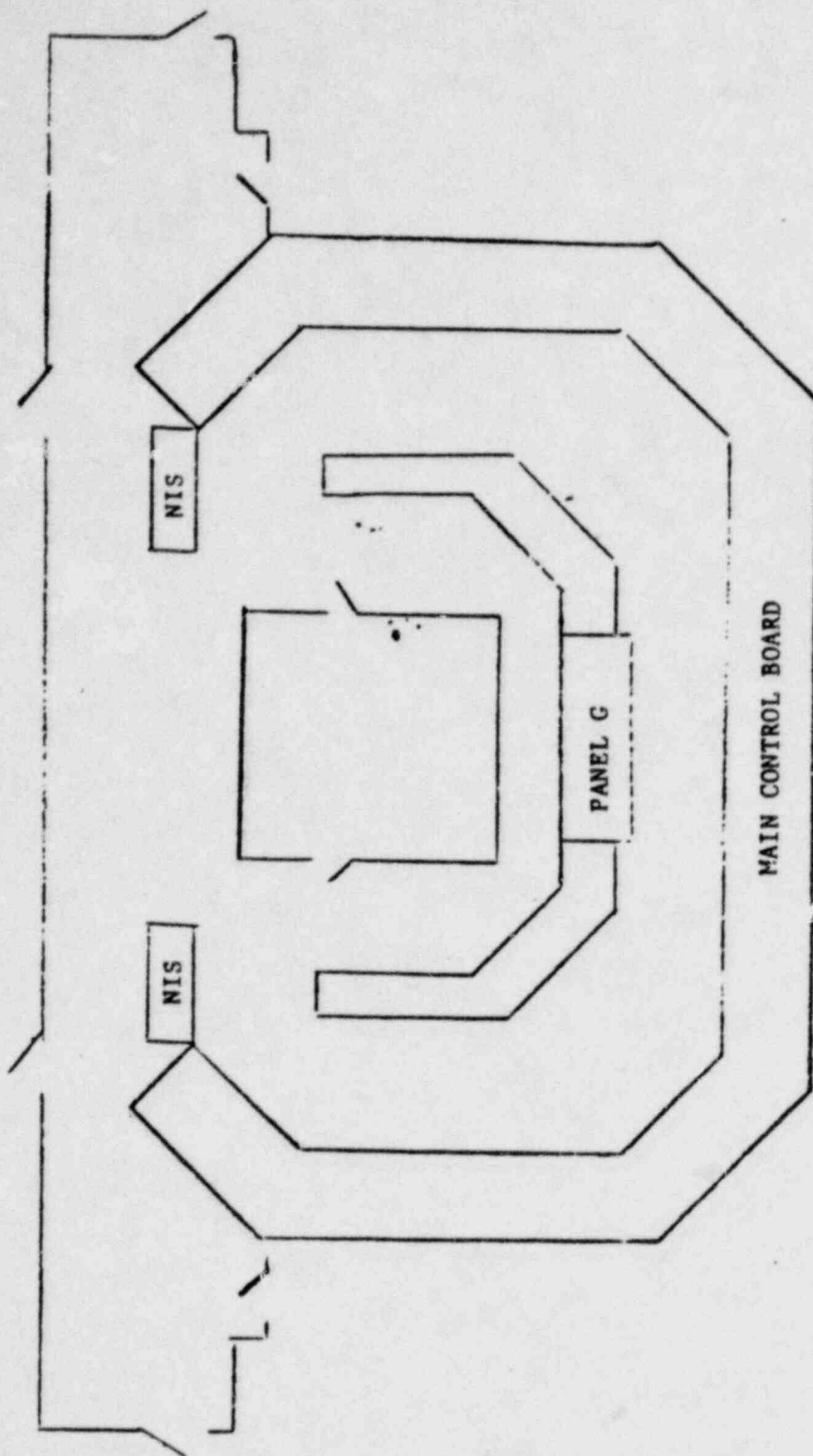
EXHIBIT V



At least 1 licensed operator must be within the boundary designated at all times for each unit that contains fuel.

CONTROL AREA BOUNDARIES  
FIGURE 2





There SHALL be a minimum of three (3) licensed operators within the area shown above.

FIGURE 3