Florida Power
CORPORATION

April 22, 1996
3F0496-20

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Reference: Follow-up to Predecisional Enforcement Conference, March 27, 1996

Dear Sir:

Subsequent to the subject conference, FPC was requested to submit the management investigation report (also known as the "Poole Report") performed in August 1995 after the discovery of the September 4, 1994 Make-Up Tank Evolution. A redacted copy of that report is included as Enclosure 1. The report was edited to delete all names in the report and to delete Attachments A and C which contain interview summaries and investigation team resumes, respectively.

Also included as Enclosure 2 is a summary of FPC's additional corrective actions based on that report.

Please contact me if you have any further questions.

Sincerely,

P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

PMB:rmb

xc: J. Lieberman
S. D. Ebneter
Records Management

050037

IE14

Public for Juan Lee

ENCLOSURE 1

To: Mr. Kenneth E. Armstrong Date: September 6, 1995

c/o Mr. Gerald A. Williams

From: Daniel C. Poole
Jerry W. Carter
Richard David deMontfort
Victor A. Hernandez

Subject: Final Report on the Investigation of Possible Misconduct - Phase 1

Attached is the completed report of Phase 1 of the investigation of possible misconduct. The final report was prepared pursuant to the charter from Dr. P. M. Beard on July 22, 1995 as amended by Dr. Beard on August 4, 1995 and by Mr. Poole on August 14, 1995.

cc: P. M. Beard

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Background

On the mid-shift of September 5, 1994, the operating crew performed an evolution. They raised Makeup Tank (MUT) pressure and level to the upper limit of pressure and level on the curve of Operating Procedure (OP) -103B, "Plant Operating Curves," Curve 8, and allowed time for the tank parameters to stabilize. Per plant logs this was accomplished by adding water to the MUT, then adding hydrogen gas, and then making another small water addition. They then conducted a bleed down of the MUT to the low level limit (actually to 54 inches, 1 inch below the low level alarm). During this bleed down, the crew recorded the level versus pressure at several data points, and subsequently plotted these against the OP-103B, Curve 8. Once at the low level, they again allowed a period of time for conditions in the MUT to stabilize, then vented hydrogen to restore the pressure / level combination to the "acceptable" region of OP-103B, Curve 8. The transient resulted in the MUT pressure / level combination being outside the "acceptable" region for a period of approximately 1 hour. Since the alarm setpoint for the Main Control Board (MCB) annunciator is derived from Curve 8, it is also assumed that the annunciator was in for the period of time that the actual parameters exceeded the Curve.

Subsequently, one of the crew initiated Problem Report 94-267 to address perceived problems with the plant's actual performance versus the OP-103B, Curve 8. Also, issues were raised concerning the propriety of the evolution, first by FPC management, then by the Nuclear Regulatory Commission. During preparations for an NRC enforcement conference on the potential noncompliance issues related to this event, information came to light that a similar evolution, performed by the same crew, probably had been performed on the mid-shift of September 4, 1994. It had not been reported.

The September 4, 1994 evolution was very similar to a normal hydrogen addition to the MUT. The evolution began by decreasing the level in the MUT. The combination of level and pressure went from the acceptable region of Curve 8 to the unacceptable region. The MUT was then vented to drop the pressure into the acceptable region of Curve 8. The level could then be raised while remaining in the acceptable region of Curve 8.

This Team was chartered to investigate and evaluate the following issues related to the alleged September 4, 1994 evolution.

1. Did the operating crew conduct an unauthorized evolution on the MUT on September 4, 1994?

2. Did members of the operating crew agree among themselves not to disclose the September 4, 1994 evolution?

3. What are the generic implications or extent of condition, e.g., did the crew perform other unauthorized evolutions? Were unauthorized evolutions performed by other crews?

4. What FPC personnel other than the operating crew had knowledge of the evolutions conducted by the operating crew?

5. Did anyone talk about desire or need to withhold any information from either FPC or the NRC? (Note - this is related to FPC personnel other than the operating crew.)

6. Did anyone attempt to suppress or withhold this information from FPC Management or the NRC? Was there any "chilling effect?"

The Team was also given the freedom to pursue other pertinent issues that developed during the course of the investigation.

TEAM REPORT

Charter:

This Team was originally chartered by Dr. P. M. Beard via FPC Confidential IOC dated July 22, 1995. The charter was amended by Dr. Beard via FPC Confidential IOC dated August 4, 1995, and further by Confidential Memo from Daniel Poole to Gerald Williams, dated August 14, 1995.

Report Description:

This report is divided into 4 parts:

Part 1 Investigation Process - describes the team and methods used to carry out the chartered activities.

Part 2 Issue Evaluation - provides a compilation of facts, opinions formed, and conclusions drawn by the team in the process of carrying out the charge of the charter.

Part 3 Developed Issues - provides a description of issues developed by the team during the conduct of the investigation. Pertinent facts, opinions formed and conclusions drawn by the team are presented in a similar manner as those for the original issues.

Included as attachments are Personnel Interviews, Documents Review References, and Team Qualifications

Included as an attachment and a figure is the Time Line and Barrier Analysis.

Part 1 - Investigation Process

Team composition -

The team represented several years of nuclear industry and Crystal River - Unit 3 (CR-3) specific experience and experience in the conduct of investigations. Resumes of team members are contained in Attachment C, Team Qualifications. Guidance on legal issues was provided by the FPC Legal Department.

Interviews -

The primary means of data gathering was a series of interviews, augmented by review of documents and records.

The inability to interview the Nuclear Shift Supervisor [redacted] and the Assistant Shift Supervisor [redacted] during this specific investigation substantially hindered the investigation of this matter. Though we had access to prior statements of [redacted] and [redacted] and various records, documents, and other conversations, the inability to obtain direct statements from these two principals is particularly significant to the team's ability to form clear, unequivocal conclusions.

Attachment A is a catalogue of interview summaries, and also includes written summaries of recollections by applicable individuals. This catalogue is indexed in such a manner as to indicate who conducted the interview, when the interview was conducted, and whether or not the interview summary is accompanied by a summary of recollections by the interviewee. The interview summaries are not verbatim statements and are only the condensed summary notes of the interviewer. The team was provided with a copy of notes recorded by counsel for FPC during their interview with [redacted] and [redacted] on April 25, 1995. [92]

In order to protect his normal role in the FPC Employee Concerns Program, [redacted] participation in the investigation was limited to providing logistic or analytical assistance.

Document and Record Reviews -

Attachment B provides an index of documents and records used in whole, or in part, by team members. Due to the large volume of documents involved, copies (some with original comments) of the documents were retained by Nuclear Licensing. For those documents already indexed in Nuclear Records, copies (without original comments) may be discarded at Nuclear Licensing's discretion.

It is significant to note that a fairly large number of documents, mostly data plots or spread sheets, were obtained from various individuals' personal files which had

uncertain origin and data dates. In most instances the team was able to identify the data date and/or the data source, or both.

Where applicable, the document reference number from Attachment B is noted in square brackets, i.e., [ ].

Time Line and Barrier Analysis -

The team constructed a time line of key events from interviews, written summaries of recollections and historical documents. A barrier analysis was then performed to identify what, if any, barrier (e.g., program, policy or procedure) broke down and allowed an event to happen. If a barrier failed, then further analysis was required to determine the apparent root cause. Apparent root cause is used because of the amount of time that has passed since the events of interest. This makes the quality of information used to arrive at conclusions somewhat questionable. As an example, one individual interviewed was certain that he was on duty on the night of September 5, 1994, based on conversations he has had with others since the event. However, a review of plant logs, coupled with reconstructions of other events showed conclusively that the individual was not on shift that night as he believed. Attachment D and Figure 1 depict the time-line and illustrate where barriers failed that could have prevented the inappropriate outcome.

NOTE -

The team accepted as an undisputed fact FPC management's determination that the evolution conducted on September 5, 1994 was an "unauthorized evolution."

Part 2 - Issue Evaluation

Discussion of methodology

Facts:

The team assessed each "issue" identified in the charter by listing pertinent facts pertaining to that issue. Qualitative assessment or judgement of the facts was avoided to the maximum extent possible. An attempt was made to avoid any qualitative judgement, e.g., a "fact" is neither good or bad, just a fact. Statements were taken at face value and treated as "fact."

Opinions:

Opinions were formed by the team based on cogitative processing of "facts." Naturally during this process, value judgements had to be made concerning the validity or importance of "facts." In order to maintain the distinction , "Opinions" are presented separately.

Conclusions:

Where the team formed some overall opinion about a specific aspect of the investigation, event, cause or contributing condition, these were presented as "conclusions." In general, one or more "conclusions" were reached on each "Issue" included in the charter.

Specific Issue

1. Did the operating crew conduct an unauthorized evolution on the MUT on September 4, 1994?

Facts:

a. The same shift members were on duty on 09/04/94 and 09/05/94 except that [redacted] and [redacted] were on shift on 09/04/94 as the in-plant Assistant Nuclear Operators (ANOs) and [redacted] was on shift on 09/05/94 as the in-plant ANO. [3]

b. Review of RO Logs for 09/04/94 and 09/05/94 indicates that very similar evolutions occurred on the mid-shifts. [3]

c. MU-14-LIR1 strip chart clearly indicates similar evolutions occurred on the mid-shifts of 09/04/94 and 09/05/94. [9,10]

d. REDAS (Replacement Emergency Dose Assessment System) data reveals a similar evolution occurred on the mid-shift of 09/04/94 and 09/05/94. [12 - 17, 19]

e. Interviews and shift logs indicate that there was no operational need for MUT evolution on mid-shift 09/04/94. [3, 7, 79, 80, 83]

f. The 09/04/94 and 09/05/94 evolutions were different in the following aspects:

1. Multiple water additions were made on 09/05/94 [3]

2. The time interval between water additions and start of bleed was longer on 09/05/94. [3, 12 - 17, 19]

3. The time interval between end of bleed down and recovery was longer on 09/05/94. [12 - 17, 19]

4. The ANOs on shift on 09/04/94 do not recall any pre-job briefing or special instructions. [70, 82]

5. No ANO was stationed at the MUT vent valve to vent the MUT in case of an accident on 09/04/95. [70, 82]

g. The ANO Log Book did indicate a MUT vent, similar to that of 09/05/94, was performed on 09/04/94. [5]

h. The MUT evolution of 09/04/94 did violate the OP-103B, Curve 8 and Alarm Setpoints. [25]

i. Control Room Operators [Reference Interview Summaries] recall having a pre-job briefing on both 09/04/94 and 09/05/94. [79, 80, 83]

j. The In-Plant ANO recalls a pre-job briefing on 09/05/94. [55]

k. Limitations on operator performance was defined in Administrative Instruction (AI) -500, "Conduct of Operations" and AI-400A, "Description and General Administration of Plant Procedures." [52, 53]

l. Alarm Setpoints for MCB Alarm is assumed to be equal to OP-103B, Curve 8.

Opinions:

a. The MUT evolution on 09/04/94 mid-shift was an unauthorized evolution in that it exceeded the limits of Curve 8 of OP-103B with no action taken to

recover prior to reaching the low level limit.

Conclusions:

a. Yes, the operating crew did conduct an unauthorized evolution on the MUT on 09/04/94.

2. Did members of the operating crew agree among themselves not to disclose the September 4, 1994 evolution?

Facts:

a. No interviews to date reveal any collusion between bargaining unit operators not to disclose the September 4th evolution. (All interviews conducted with members of that operating crew included direct questions on this topic)

b. There was no documentary evidence of any intentional coverup of any information that could have led FPC management to discover the September 4th evolution. (Logs books were accurately kept, chart recorders recorded the evolution, the plant computer recorded the evolution, etc.) [3, 5, 7, 9, 10, 12 - 14, 19]

c. No interview to date revealed any indication that shift members asked any other personnel not to discuss the September 4th evolution. (Interviews included direct questions on this topic.)

d. When asked during turnover, a crew member explained the September 4th evolution to a relieving RO. [76]

e. None of the operating crew interviewed recall any discussion of the September 4th evolution except the RO who relieved on the morning of September 4th.

f. Prior to this Charter, the Nuclear Shift Supervisor (NSS) and the Assistant Nuclear Shift Supervisor (ANSS) were questioned at length by the Management Review Team in September 1994, following the report of the September 5, 1995 evolution and specifically asked to detail everything related to the evolution. Additionally, the NSS and ANSS were interviewed by Corporate Counsel on April 15, 1995 in relation to the NRC investigation and asked to provide details on "everything they did" regarding the MUT issue. Despite the seriousness of the management review and the NRC investigation, neither the NSS nor ANSS mentioned the evolution of September 4, 1994. When asked specifically why they had not sought authorization from the Shift Manger for the make-up tank evolution on September 5, 1994, they suggested that it had

not been planned in advance of September 5, 1994, and thus they had no chance to talk to the Shift Manager.

g. Bargaining unit operators' counsel contacted FPC on July 18, 1995 to ensure FPC was aware of the September 4, 1994 evolution.

h. Through more than 10 interviews and 11 months of elapsed time, there was no mention of the September 4th evolution.

i. Questions by the NRC Office of Investigations (OI) to the bargaining unit operators were very focused on the September 5, 1994 evolution. [54 - 57]

j. [redacted] testimony about the events leading up to the September 5, 1994 evolution to the OI investigators was quite similar to that provided to FPC Corporate Counsel by [redacted] and [redacted] in an April 25, 1995 interview. [redacted] told the OI that the evolution on September 5 was an "off-the-cuff" decision which had not been planned before that evening. [57 p. 9] He also testified that the crew had spent several days after receiving the September 2 correspondence from Engineering evaluating the MUT issue. [57 p. 8] In giving his narrative account of the September 5 evolution, he had ample opportunity to disclose the September 4 evolution. [57, 92]

Opinions:

a. It is hard to rationalize how, through more than 11 months, during which this event has been treated with a lot of emotion and visibility, the September 4th evolution was not disclosed to FPC management or to co-workers.

b. Examination of the event indicates that adequate opportunities for the disclosure process to bring the first event to light were somewhat inhibited by personnel involved in the review of the September 5, 1995 event trying to resolve the technical aspects of the event.

c. The description of the events leading up to the performance of the September 5, 1994 evolution provided by [redacted] to the OI and the description provided to FPC Corporate Counsel by [redacted] and [redacted] on April 25, 1995 are very similar, quite detailed, and both omit any mention of the September 4, 1994 evolution.

Conclusions:

a. The team found no direct evidence that indicates that the bargaining unit operators agreed to not disclose that September 4th evolution. To the contrary, the only direct evidence indicates that they did not.

b. The Nuclear Shift Supervisor and the Assistant Nuclear Shift Supervisor were apparently not candid with the Management Review Team in September 1994 and with Corporate Counsel in April 1995. It appears both had ample opportunity to disclose the September 4, 1994 evolution but intentionally chose to not do so for their personal self-interest.

c. The bargaining unit operators could have been more forthcoming with the NRC OI investigators with respect to the September 4, 1994 evolution. Though the questions were focused on September 5, at least one of the bargaining unit operators provided an historical account of the events which led to the September 5 evolution which excluded the September 4 evolution. Consequently, his account of their activities on September 5 is somewhat misleading.

3. What are the generic implications or extent of condition, e.g., did the crew perform other unauthorized evolutions? Were unauthorized evolutions performed by other crews?

NOTE: The following set of facts are based primarily on information received during interviews. Interviews included a routine question along this line. No actual research of crew's performance was conducted.

Facts:

a. Information available to FPC associated with the interviews with [redacted] shift members revealed no other evolutions that exceeded FPC established limits.

b. Interviews with other operations personnel revealed no other MUT evolutions had been conducted that intentionally exceeded FPC established limits without timely and appropriate action being taken.

c. Interviews with other operations personnel indicated that several plant evolutions, primarily to gather data and which did not exceed limits, have been performed at various times in the past. Including:

1. Securing Spent Fuel (SF) Cooling to determine SF pool temperature rise. [67]
2. Securing Reactor Cavity Cooling to determine reactor cavity temperature rise. [67]
3. Securing Reactor Building (RB) Penetration Cooling to determine penetration temperature rise. [67]
4. Securing Circulating Water Box Air Removal to determine plant

response. [67]

5. Determining alternate means of resetting the 4160 volt Engineered Safeguards (ES) Under-Voltage (UV) relay during abnormal conditions. [83]

One evolution (securing Instrument Air (IA) to plot IA pressure decrease over time) was noted. It was not determined whether plant limits had been exceeded. [67]

d. The following guidance is provided in plant procedures:

1. AI-500 states in part that:

4.3.2.3.1 AI-400A, "Description and General Administration of Plant Procedures," must be utilized to determine if a procedure is required for an evolution.

4.3.2.3.2 Written procedures are also needed for those evolutions that would affect a change in the system flowpath or operating parameters.

o The boundary between an evolution and a task may not always be clear and as such, it is expected that plant operators will encounter situations where the adequacy of existing procedures may be questioned

a. In these instances, shift supervision will make the determination as to what procedural requirements are applicable.

4.3.2.3.3 For procedures performed by Plant Operations, the Shift Supervisor or his designee shall ensure the principles of Enclosure 19, Pre-Job Briefing Checklist, are met:

o Using his judgement in regard to plant safety, the SSOD may elect to formally complete Enclosure 19, Pre-Job Briefing Checklist, for the applicable procedure. [52]

2. AI-400A states:

4.1.1 Managers / Superintendents are responsible for identifying which activities require approved procedures.

o Use NOD-12 Implementation of Technical Specifications to

identify and determine which activities require procedures. [53]

e. Insufficient team resources were available to research evidence of evolutions within the last five years which may have exceeded FPC established limits. This research was deemed to be beyond the scope of the charter.

f. Several MUT evolutions, apparently conducted for hydrogen control, exceeded Curve 8 for periods of time less than 10 minutes; one evolution brought MUT level 7 inches below minimum (55 inches) for approximately 10 minutes. These evolutions occurred in the March through July 1994 timeframe. [10, 11]

g. Review of MUT pressure / level strip chart recorder from March 1994 to December 1994 revealed no other unexplained MUT evolutions. [9, 10, 11]

h. Interviewed members of [redacted] crew state that they felt that the nuclear shift supervisor (NSS) had the authority to exceed established plant limits. [79, 80, 83]

i. Interviews revealed that no other on-shift operations personnel felt that it was acceptable to exceed an established operating limit without a test procedure or taking appropriate corrective action to restore compliance with the established limit.

j. One former NSS felt that this authority existed. [67]

k. One evolution resulted in entering Technical Specification 3.0.3. (This was documented in LER 90-018). [67]

Opinions:

a. The operating crew needs to have some latitude for plant manipulations, within operating limits, for performing evolutions not specifically required for megawatt production or compliance with regulatory requirements.

b. The industry, including CR-3, norms or values associated with NSS authority to operate within plant limits has clearly changed (become more conservative) in the past several years.

c. Other MUT evolutions that exceeded FPC established limits may be considered an example of imprecise operation but not unauthorized evolutions.

d. Additional investigation would need to be performed to determine if these other evolutions exceeded plant limits. For issues prior to 1990, the man hours

required to do the historical document search, and with the recognition that CR-3 operating standards have matured along with the rest of the nuclear industry, would add very little value.

Conclusions:

a. There were no other unauthorized evolutions performed in 1994 on the MUT.

b. There were other evolutions performed on other plant systems without direct procedural guidance.

c. AI-500 and AI-400A do not provide to the NSS a clear level of authority to perform plant manipulations that are not directly covered by procedure such as raising and lowering the MUT level within limits, securing SF cooling for temperature trending, etc.

4. What FPC personnel other than the operating crew had knowledge of the evolutions conducted by the operating crew?

Facts:

a. Several members of the system engineering group had knowledge of the September 4th evolution (two evolutions) in the September 1994 time frame. [61, 69, 72, 78]

b. One Reactor Operator had received a shift turnover briefing explaining the MUT evolution. It was not apparent to the RO from the shift turnover briefing he received on the morning of September 4th that this evolution was unnecessary and was thus an unauthorized test. It was not until further review of the shift logs during this Phase I Investigation that he learned this was related to the September 4th evolution. [76]

c. During the investigation, information was obtained that other MUT "test" evolutions might have been performed by other crews. [59, 66, 67, 86] (Note: These assertions were resolved; see Conclusion 3.a. above.)

d. Some members of the operating crew stated that they tried to give information to [redacted] regarding earlier MUT evolutions. The crew members do not state conclusively that they told [redacted] about the September 4, 1994 evolution. [redacted] only recalls discussion related to the July 1994 MUT evolutions. [66] [redacted] did investigate the July 1994 MUT evolution and did review various records, charts, and logs regarding the evolution. He did not look at the data for September 4, 1994 because he was not told about any

earlier evolutions except for July 1994.

e. No plot was found of the September 4, 1994 evolution. This was supported by statements made that the crew didn't plot this data.

f. One member of the operating crew stated that he believed that the ANSS had told [redacted] from Licensing about the September 4 and September 5 evolutions. Though [redacted] did not deny being told about two evolutions, he stated that he had no such recollection and had only focused on the September 5 evolution. In fact, [redacted] had originally suggested that the crew write a problem report upon learning from the ANSS about the September 5 evolution. [redacted] day timer from September 1994 refers only to one evolution.

g. Twenty-six people were interviewed, aside from the operating crew. [Reference Attachment B, INTERVIEW REFERENCES]

Opinions:

a. The engineering staff that were aware of both evolutions (September 4 and September 5, 1994) were not focused on the operational propriety of the evolutions. They assumed that Operations Management was addressing these aspects, based on hearsay at work. They were focused on the technical issue dealing with the validity of OP-103B, Curve 8.

b. The Reactor Operator mistakenly concluded that the information he received on the morning of September 4, was actually related to the September 5 event.

c. Suggestions made by the operating crew that they "tried to give [redacted] the information about the September 4 evolution and others" was suspect since the September 4, 1994 evolution wasn't plotted except by the System Engineer. Operators admit only to talking to [redacted] of "other evolutions," but never specifically referenced to 09/04/94. Also, [redacted] later indicated that when he referred to the other evolution, he intended to talk about the July 1994 evolution. [redacted] believed that the data that the operating crew members tried to give him was related to that July evolution, which he had already researched. [66]

d. There is no evidence to indicate that [redacted] had any direct knowledge of the September 4 evolution. However, the investigating team was unable to interview [redacted]

Conclusions:

a. Several engineering personnel were aware of the fact that two evolutions were performed, although the significance of this information was lost in the need to resolve the technical questions surrounding OP-103B curve 8 and their understanding that Operations Management was addressing the human performance and operability issues.

b. Although one Reactor Operator, had first hand knowledge of the September 4, 1994 evolution, he associated it with the September 5, 1994 evolution that was the center of controversy. In fact, he was unaware of two evolutions, which for all practical purposes was like having no knowledge of the September 4, 1994 evolution.

c. It does not appear that [redacted] n Licensing had any knowledge that there were two distinct evolutions between September 4 and September 5. In fact, [redacted] day timer entry for the September 5 evolution refers to only one evolution.

5. Did anyone talk about desire or need to withhold any information from either FPC or the NRC? (Note - this is related to FPC personnel other than the operating crew.)

Facts:

a. A total of 26 interviews were conducted of personnel not actually a part of the operating crew involved with the September 4 and September 5 evolutions. [Reference Attachment B, INTERVIEW REFERENCES]

b. Of those 26 interviews only four individuals acknowledged having any knowledge prior to July 12, 1995 that more than one MUT evolution occurred. [61, 69, 72, 78]

c. One of these 26 individuals was the Reactor Operator (RO) who relieved the operating crew on the day shift of September 4. He was told about the evolution when he questioned the log entries. Later, he associated this evolution with the "unauthorized evolution" on September 5, 1994, not realizing that there were two separate events. [76]

d. The four individuals who admitted knowledge of the two evolutions each stated that they were either focused on the technical issues associated with the data and / or they assumed operations management was addressing the operator issues involved. [61, 69, 72, 78]

e. Some members of the operating crew stated that they tried to give information to [redacted] regarding earlier MUT evolutions. The crew members do not state conclusively that they told [redacted] about the September 4, 1994 evolution. [redacted] only recalls discussion related to the July 1994 MUT evolutions. [redacted] did investigate the July 1994 MUT evolution and did review various records, charts, and logs regarding the evolution. He did not look at the data for September 4, 1994 because he was not told about any earlier evolutions except for July 1994. [66]

f. There was no data plot found for the September 4 evolution. (No reference document. Moreover, a large number of MUT pressure / level plots were obtained from various personal files, but none matched the REDAS data for September 4, 1994.)

Opinions:

a. Based on the long standing issue of the MUT pressure / level curve, the engineers directly involved had a fairly significant emotional investment in the technical issues raised by Problem Report PR94-267, and could easily lose sight of the operational proprieties involved.

b. [redacted] and [redacted] were expecting to be interviewed by the Management Review Panel, and would probably have presented the panel with the REDAS data showing both the September 4 and September 5 evolutions, had they been summoned to talk to the Management Review Panel (MRP). [69, 78]

c. At the time of the interview, [redacted] thought that he first became aware of the September 5 event when he relieved the watch that morning. A review of the RO Logs [3] showed that he was not on shift on September 5, 1994, but since he did recall noting the evolution in the logs and discussion with the off-going shift, it appears that he related the September 5 event with the one he knew about.

Conclusions:

a. There was no evidence that anyone talked about any desire or need to withhold any information from either FPC or the NRC. (Note - this is related to FPC personnel other than the operating crew.)

6. Did anyone attempt to suppress or withhold this information from FPC Management or the NRC? Was there any "chilling effect?"

Facts:

a. A total of 26 interviews were conducted of personnel not actually a part of the operating crew involved with the September 4 and September 5 evolutions. [Reference Attachment B, INTERVIEW REFERENCES]

b. Of those 26 interviews only four individuals acknowledged having any knowledge prior to July 12, 1995 that more than one MUT evolution occurred. [61, 69, 72, 78]

c. One of these 26 individuals was the RO who relieved the operating crew on the day shift of September 4. He was told about the evolution when he questioned the log entries. Later, he associated this evolution with the "unauthorized evolution," not realizing that there were two separate events. [76]

d. Interviewees were asked if they knew of anyone withholding information from FPC or NRC. No one responded in the affirmative.

e. Some members of the operating crew stated that they tried to give information to [redacted] regarding earlier MUT evolutions. The crew members do not state conclusively that they told [redacted] about the September 4, 1994 evolution. [redacted] only recalls discussion related to the July 1994 MUT evolutions. [redacted] did investigate the July 1994 MUT evolution and did review various records, charts, and logs regarding the evolution. He did not look at the data for September 4, 1994 because he was not told about any earlier evolutions except for July 1994. [66]

f. There was no data plot found for the September 4 evolution. (No reference document. Moreover, a large number of MUT pressure / level plots were obtained from various personal files, but none matched the REDAS data for September 4, 1994.)

g. [redacted] thought that the data that the operating crew members tried to give him was related to the July 21, 22 MUT evolutions, which he had already researched. [66]

h. [redacted] was contacted by [redacted] with the information about the September 4th test. [redacted] informed [redacted] (Manager, Nuclear Plant Maintenance and [redacted] supervisor) of the information. [redacted] was off-site the next day and [redacted] wrote an anonymous letter to [redacted] (Employee Concern Representative) to ensure the information would

get to appropriate management. [redacted] indicated that his motivation for the anonymous notification to [redacted] was not motivated by any concern with management but possible retribution from the affected parties. [61]

i. [redacted] indicated the he did not feel that [redacted] would try to withhold or cover up the information about the second MUT evolution. He had never known [redacted] to "sweep anything under the rug." [redacted] learned from [redacted] that [redacted] had passed the information to [redacted] (Director, Nuclear Plant Operations). [61]

Opinions:

a. The only persons (other than the operating crew) who had an opportunity to intentionally withhold the knowledge of the second evolution, e.g., the systems engineering personnel, did not have any motive to withhold the information.

b. [redacted] wasn't aware of a second evolution. He was convinced that he had relieved the watch on the morning of the September 5 evolution.

c. Statements made by the operating crew suggesting they "tried to give [redacted] the information about the September 4 evolution and others" were suspect since the September 4, 1994 evolution wasn't plotted except by System Engineering.

f. [redacted] was sincerely concerned about fear of reprisal from workers, but felt that management needed to know about the second evolution. This motivated the anonymous notification to [redacted]

Conclusions:

a. Neither the operating crew nor anyone outside the operating crew talked about the desire or need to withhold information regarding the September 4, 1994 MUT evolution.

b. The evolution on September 4, 1994 was not discovered until mid-1995 but this was not due to a "chilling effect"on the operating crew or on Nuclear Operations as a whole.

Part 3 - Developed Issues

During the course of the investigation, an accumulation of facts, and / or opinions have indicated that other issues needed to be investigated. These included:

Developed Issue 1. What broke down in FPC's corrective action processes such that the September 4th evolution went undetected and unreported?

Facts:

a. The individual assigned to develop corrective actions for PR94-267 was instructed only to resolve the technical issue of the curve not the human performance problem. This was to be dealt with by operations management. Nothing from 09/04/94 was intentionally or specifically excluded from the corrective action plan. [78] Problem Report PR95-0150 was initiated on August 17, 1995 to document the inadequate problem root cause investigation of Problem Report PR94-267.

b. There was no documented use of Compliance Procedure (CP)-144, "Root Cause Analyses," or the Human Performance Enhancement System (HPES) evaluation. [91]

c. If invoked, CP-144 states that "Supervisors and Managers must use the HPES during procedural violations." [51]

d. There was no Problem Report written specifically dealing with the human error aspect of the September MUT evolutions.

e. One Nuclear Shift Supervisor recalls the Director, Nuclear Plant Operations (DNPO) being given a plot of the MUT pressure / level curve on the morning of September 6, 1994. [81]

f. The DNPO has no recollection of being given the plot of the data, but can not say with absolute certainty that he wasn't. [68]

g. Interviews with the DNPO revealed that he was not aware of the "Test" for several days after FPC personnel were questioning it's appropriateness. [68]

h. The MRP limited their interviews to [redacted] [62, 66, 68, 85]

i. The MRP did not review the RO logs, MUT charts and the annunciator alarm printout. [62, 66, 68, 85]

j. The MRP did not specifically ask about other tests. [62, 66, 68, 85]

k. Sometime between January and February 1995, [redacted] the Manager, Nuclear Plant Operations (MNPO), was instructed to look into the issue of previous evolutions. [66, 68]

l. The MNPO performed his assignment to "run the issue to ground" by looking at shift logs of July 21 and 22, 1994. He looked at the operator logs for July 1994 and determined that the evolutions appeared to have been conducted within approved operational procedures. However, he did not interview any of the operators. He sent a one paragraph memorandum up the chain of command advising that the issue of other evolutions was resolved. [66, 68]

m. The log entries for 07/21/94 and 07/22/94 are very similar to the log entries for 09/04/94 and 09/05/94. Many Operations personnel reviewed the entries for 09/04/94 and 09/05/94 and found the entries so routine that no questions were asked. [1-5, 7]

n. REDAS data and data plots for 07/21/94 and 07/22/94 indicate similar results to those obtained by the 09/04/94 and 09/05/94 evolutions, including crossing into the unacceptable region of OP-103B, Curve 8. [20, 21, 23, 26]

o. The MNPO issued an e-mail to the Operations staff on 09/18/94 (several days after the 09/05/94 evolution was determined to be an unauthorized test). The memo discusses the 09/05/94 evolution in a positive light. [66, Attachment D, Figure 1]

Opinions:

a. Proper use of CP-111, CP-144, and the HPES evaluation, would have led to additional research possibly identifying both MUT evolutions.

b. If a problem report specifically dealing with the human performance error in accordance with CP-111 had been generated, upper plant management would have learned of the problem through proper means instead of through rumors. This might have allowed the normal process of dealing with personnel errors to be used. Such a problem report should be generated if for no other reason than to provide a historical perspective and for trending.

c. The MRP was too focused on the event of September 5, 1994 in their attempt to develop corrective actions.

d. If the MRP had reviewed the RO logs, MUT charts, annunciator alarm printout or had interviewed [redacted] or the bargaining unit members of the operating crew, the evolution on September 4th may have been discovered.

e. Limiting the scope of the corrective actions for PR94-267 to the technical issues (e.g., not amending it to address the human performance issues) prevented a full evaluation of the events. No one should have the authority to instruct an individual assigned to develop a correction plan to do less than the requirements of CP-111. (If another process is used to accomplish part of the corrective actions, then the CAP should reference the process as an acceptable alternative. In no case should an uncontrolled board, such as an MRP, replace a formal HPES evaluation.)

f. The MNPO does not appear to have regarded the issue of previous evolutions with much seriousness. The facts associated with the log entries do not seem to support or deny whether or not the evolutions were authorized. This team expended considerable research and interview effort and analysis to reach a conclusion that the July 1994, events were not a further example of unauthorized evolutions. If the MNPO had engaged in such an effort, the ensuing discussions may have provided additional opportunities to learn of the 09/04/94 evolution.

g. Aside from rumor, hearsay, and opinion, the MNPO's journal to Operations may be the only documented information available to the Operations staff. Since the document treats the issue very lightly, another documented expression of management's position may be in order.

Conclusions:

a. FPC management failed to perform a detailed event review and root cause analysis. This appeared to result from a failure to implement the basic corrective action processes for human performance problems. The next logical step may seem to be a conclusion that this was motivated by attempts to "down play" the event. But, to the contrary, the failure to implement basic corrective processes appears to be more related to management's zeal to deal with the issue at a high level, and with dispatch. Once the conclusion was made that an unauthorized evolution had occurred, and the Nuclear Shift Supervisor and Assistant Nuclear Shift Supervisor had conceded their responsibility in the event, more thorough investigation into the root cause did not appear needed.

Developed Issue 2. Was the envelope defining the freedom to act for Nuclear Shift Supervisors sufficiently clear that such an evolution should not have occurred?

Facts:

a. There is little written guidance provided to the Nuclear Shift Supervisors defining their freedom in performing tasks that do not have direct procedural guidance. The following guidance is provided in plant procedures:

1. AI-500 states in part that:

4.3.2.3.1 AI-400A, "Description and General Administration of Plant Procedures," must be utilized to determine if a procedure is required for an evolution.

4.3.2.3.2 Written procedures are also needed for those evolutions that would affect a change in the system flowpath or operating parameters.

- o The boundary between an evolution and a task may not always be clear and as such, it is expected that plant operators will encounter situations where the adequacy of existing procedures may be questioned

  a. In these instances, shift supervision will make the determination as to what procedural requirements are applicable.

4.3.2.3.3 For procedures performed by Plant Operations, the Shift Supervisor or his designee shall ensure the principles of Enclosure 19, Pre-Job Briefing Checklist, are met:

- o Using his judgement in regard to plant safety, the SSOD may elect to formally complete Enclosure 19, Pre-Job Briefing Checklist, for the applicable procedure. [52]

2. AI-400A states:

4.1.1 Managers / Superintendents are responsible for identifying which activities require approved procedures.

- o Use NOD-12 Implementation of Technical Specifications to identify and determine which activities require procedures. [53]

b. Management's position is that everything must be done in accordance with procedure. (as evidenced by the recently issued Nuclear Operations Event Free Operations Program).

c. Interviewed members of [redacted] crew state that they felt that the nuclear shift supervisor (NSS) had the authority to exceed established plant limits. [79, 80, 83]

d. Interviews revealed that no other on-shift operations personnel felt that it was acceptable to exceed an established operating limit without a test procedure or taking appropriate corrective action to restore compliance with the established limit.

e. One former NSS felt that this authority existed. [67]

f. The position of Shift Manger to be the around-the-clock onsite representative of Plant Management was instituted when the plant tripped several times immediately after the Mid-Cycle 8 Outage. This management presence was designed to give the Operations Shift Management someone with whom to discuss problems or potential problems so that plant events might be anticipated and avoided.

Opinions:

a. The limit of the Nuclear Shift Supervisors's authority is somewhat defined by industry events such as the September 1994 evolutions.

b. Norms or values within the industry, including CR-3, have clearly changed in the past several years. Specifically, they have become more conservative and this is reflected by the NSS standards to operate within plant limits.

c. The operating crew needs to have some latitude for plant manipulations, within operating limits, for performing evolutions not specifically required for megawatt production or compliance with regulatory requirements.

Conclusions:

a. The predominant response from operations personnel was that the envelope defining the freedom to act for the NSS was adequately defined. However, one must keep in mind that they have the benefit of hindsight to improve their perception. Overwhelming agreement among licensed personnel interviewed supports a cultural belief that intentionally entering the alarmed condition, and not taking timely action to restore acceptable conditions were the improper actions taken by the crew on September 4th and 5th.

b. Management needs to address the issue of following a procedure while not following the procedure's intent. In other words, if a procedure has a section to start and stop system pumps and it has a limit and precaution stating the maximum system temperature, this is not adequate procedural guidance for securing system flow until the temperature limit is approached.

Developed Issue 3. What broke down in the corrective action process that allowed the various MUT pressure / level issues to remain open for such an extended time period without reaching consensus between Operations and Engineering. Also, was there a "chilling effect" on Operations at play by management directive to operate at the 25 cc/kg of hydrogen?

The Team was left with a sense that insufficient communication was employed by management to implement the directive to maintain the Reactor Coolant Hydrogen equal to or greater than 25 cc/kg. It appears that the directive was essentially "passed on" to the operating crews, without much upfront dialogue on the associated issues and problems with meeting the directive. The emphasis here is on the word "communication", meaning "the passing of information, thought or feeling so that it is satisfactorily received and understood." A logical extension of this question is: Was middle management willing to approach senior management and present the valid barriers to achieving the 25 cc/kg in such a manner that the overall risk/benefit could be assessed? or was there a "chilling effect" at play?

The Team was also left with a feeling that the issue of the plant's performance not following the OP-103B, Curve 8, wasn't resolved in a timely manner, at least in the mind of one or more operators.

The Team did not have the time or the resources to pursue these questions to adequately provide actionable answers to management. They are very important from a nuclear safety standpoint and are valid questions for FPC management to pursue.

ATTACHMENTS

Interviciw Summaries

DOCUMENT REVIEW REFERENCES

REFERENCE NUMBER

LOGS:

1 NSS Control Room Logbook Pages
16-24, 07/05/94 through 16-24, 07/06/94
16-24 continued 07/20/94 through 16-24, 07/25/94

2 RO Log Book Pages 06/30/94 & 07/20 through 07/25/94

3 RO Log Book Pages 09/03 through 09/06/94

4 ANO Log Book Pages 07/18 through 07/26/94

5 ANO Log Book Pages 09/02 through 09/07/94

6 Shift Manager Log Book Pages 09/02 through 09/07/94

7 NSS Log (Full/Text) 07/06/94, 07/21/94, 07/22/94, 07/23/94, 07/24/94, 07/25/94, 09/04 through 09/06/94

8 Chemistry Log Book Pages 07/01 through 09/02/94

STRIP CHARTS:

9 MU-14-LIR Trace Copies 09/03 through 09/07/94

10 MU-14-LIR Trace Copy of 06/01/94, 03/16/94, 04/07/94, 05/30/94, 05/31/94, 09/04/94, 09/05/94, 06/02/94, 06/19/94, 12/04/94

11 MU-14-LIR Trace Copies 07/01 through 07/26/94

MUT REDAS (Replacement Emergency Dose Assessment System):

12 REDAS.TXT CHART 1 09/04 through 09/05/94 level plot

13 REDAS.TXT CHART 1 09/04/94 MUT-1, Temperature, Level, and Pressure Plot

14 REDAS.TXT DATA 09/04/94 (2 pages)

15 REDAS.TXT CHART 1 09/05/94 MUT Temperature, Level, and Pressure Plot

16 REDAS.TXT DATA 09/05/94

17 REDAS.TXT DATA 09/05/94 from [redacted] 07/22/95

18 REDAS.TXT Chart 1 MUT Level and Pressure Plot Covering 5 days of data from [redacted] 07/22/95 - dates unknown

19 REDAS.TXT Chart 1 and Data MUT Temperature, Level, and Pressure Plot for 09/04/94 from [redacted] 07/22/95

DATA PLOTS:

20 MUT Hydrogen Over-pressure Files - Unidentified Source 07/22/95 covering MUT 07/20 through 7/27/94

21 MUT Pressure Level plots with pressure limit (3 plots) from [redacted] 07/22/95 - dates unknown

22 Plot of MUT pressure is pressure limit or / data for 09/05/94 from [redacted] 07/22/95

23 OP-103B plot from [redacted] 07/22/95 - 3 curves - date unknown

24 OP-103B plot from [redacted] 07/24/95 - 2 curves - date unknown

25 OP-103B plot developed by [redacted] on 07/25/95 from 09/04/94 and 09/05/94 REDAS data

26 OP-103B, 3 pages of REDAS: MUT.PRN, x359/x401 plot (From [redacted] 07/22/95)

REPORTS:

27 Letter [redacted] to [redacted] 05/23/95

28 Letter [redacted] to [redacted] 12/02/94, 3F1294-09

29 IOC, [redacted] to [redacted] 03/17/95, SUBJ: OP-103, Curve 8

30 Speed Letter [redacted] to [redacted] 08/08/94

31 E-MAIL [redacted] to [redacted] 09/09/94

32 Licensee Event Report (LER) Draft comments [redacted] to [redacted] pulled from [redacted] LER 94-009-00 file. 07/22/95

33 IOC, [redacted] to [redacted] 12/06/94

34 E-MAIL [redacted] to [redacted] 08/03/94

35 Speed Letter [redacted] to [redacted] 08/08/94

36 IOC, [redacted] to [redacted] 08/11/94

37 IOC, [redacted] to [redacted] 09/02/94, NPTS94-0429

38 Letter [redacted] to NRR, 08/06/85

39 IOC, [redacted] to [redacted] 06/22/89, NEA89-0879

40 MAR 85-04-09-01, Attachment A to MOP-502

41 MAR 89-03-12-01

42 MAR 92-07-21-01

43 AI-500 NSS / ANSS (Assistant Nuclear Shift Supervisor) Shift Relief Checklist 06/21/94

44 AI-500 NSS / ANSS Shift Relief Checklist 07/20/94

45 AI-500 NSS / ANSS Shift Relief Checklist 07/21/94

46 AI-500 NSS / ANSS Shift Relief Checklist 08/07/94

47 Nuclear General Review Committee (NGRC) Minutes #219, NGRC Meeting Announcement for #219, NGRC Agenda for Special #219 Meeting

48 NGRC Minutes #221

PROCEDURES:

49 OP-103B, Plant Operating Curves, Rev. 10 through 11 Procedure Review Record (PRR)

50 CP-111, Initiation and Processing of Precursor Cards and Problem Reports

51 CP-144, Root Cause Analyses, Rev 3

52 AI-500, Conduct of operations, Rev 85

53 AI-400A, Description and General Administration of Plant Procedures, Rev 11

INTERVIEW REFERENCES

54 [redacted] by [redacted] - 12/01/94

55 [redacted] by [redacted] - 12/01/94

56 [redacted] by [redacted] - 12/01/94

57 [redacted] by [redacted] - 12/01/94

NOTE: Summaries of the following interviews may be found in Attachment A.

58 [redacted]

59 [redacted]

60 [redacted]

61 [redacted]

62 [redacted]

63 [redacted]

64 [redacted]

65 [redacted]

66 [redacted]

67 [redacted]

68 [redacted]

69 [redacted]

70 [redacted]

71 [redacted]

72 [redacted]

73 [redacted]

74 [redacted]

75 [redacted]

76 [redacted]

77 [redacted]

78 [redacted]

79 [redacted]

80 [redacted]

81 [redacted]

82 [redacted]

83 [redacted]

84 [redacted]

85 [redacted]

86 [redacted]

87 [redacted]

88 [redacted]

89 [redacted]

90 [redacted]

MISCELLANEOUS

91 Problem Report PR94-0267

92	FPC Counsel Notes of interview with [redacted] and [redacted]	

Team Qualifications

Time Line and Barrier Analysis

The following Time Line was constructed from review of documents and records, interviews with parties directly, or indirectly associated with the events (September 4 and 5, 1994 MUT pressure / level manipulations). Some parts of the time line are extremely accurate because they are constructed from plant records. Others are less precise because they are based on personal recollections. Super-imposed on the dates are the various recollections of interviewees.

After the sequence of events was constructed, a barrier analysis was conducted. The time line is annotated where, in the opinion of the team, a barrier broke down, or a potential barrier was not present, and allowed the undesirable results.

1993 -

Sep 1994 - Engineering working on a technical resolution of OP - 103B, Curve 8 (Calc 90-24) per corrective actions of Problem Report PR93-149.

Jul 22, 1994 - Operations plots MUT level and pressure during a routine MUT level decrease. This data was provided to engineering to help resolve PR93-149.

Sep 2, 1994 - IOC from [redacted] to [redacted] informing him that PR93-149 was going to be closed if there were no objections.

Sep 4, 1994 - [redacted] crew determines that they are not satisfied with the closing of PR93-149 and decided that a MUT draw down test might keep this issue open.

BARRIER - The corrective action process of CP-111 should resolve all outstanding issues.

ROOT - The engineering corrective action for resolution of PR93-149 produced a resolution that operations felt was inconsistent with MUT operation.

ROOT - Engineering was unable to achieve consensus with operations as to why actual MUT evolutions did not follow Curve 8.

Sep 4, 1994 - [redacted] crew reviews plant procedures and determines that a MUT draw down test was within the Nuclear Shift Supervisors authority.

BARRIER - Shift Technical Advisors (STAs) and Shift Managers are available for consultation at all times.

ROOT - The crew felt that the evolution was within the Nuclear Shift Supervisor's authority.

BARRIER - Operating limits and operating curve are usually conservative relative to the plant actual design bases.

ROOT - Plant staff was not aware of the fact that this curve was actually a design bases curve.

ROOT - OP-103B, Curve 8 was not labeled as an design bases curve.

ROOT - The MUT high pressure alarm was based on a design basis curve. Alarms are usually designed to provide warning prior to exceeding a design basis.

BARRIER - AI-500 and operator training states that the crew should operate the plant in accordance within approved plant procedures.

ROOT - The crew's perceived need to resolve this safety concern overrode the crews ability the see that the evolution was outside approved plant procedures.

ROOT - There was no clear written guidance describing the limit of NSS's authority to perform evolutions without direct procedural guidance. This was more of an unwritten philosophy.

Sep 4, 1994 - [redacted] crew performs the first MUT draw down test to obtain data to keep PR93-149 open. Data was erratic.

Sep 5, 1994 - [redacted] crew performs the second MUT draw down test.

Sep 5, 1994 - [redacted] takes the MUT data home and produces a graph.

Sep 6, 1994 - [redacted] shows his graph to on-coming shift members.

Sep 6, 1994 - [redacted] remembers [redacted] showing the graphed data to [redacted]

Sep 6, 1994 - [redacted] discusses the plot with [redacted] prior to going home (0800).

Sep 6, 1994 - [redacted] raises the issue of an unauthorized test with [redacted]

BARRIER - CP-111 requires a precursor card or a problem report describing the human

error aspect of the MUT evolution. A proper root cause analyses specifically dealing with the human error aspect might have resulted in a more formal HPES evaluation and a more formal notification of plant management resulting in more detailed information and quicker management notification.

ROOT - [redacted] focused on the technical issue when PR94-267 was written.

ROOT - [redacted] felt that [redacted] would have included the human error aspect and failed to follow up on the issue.

ROOT - Management decided to deal with the human error aspect outside the normal CP-111 guidance.

Sep 6, 1994 - [redacted] directs [redacted] to ensure [redacted] is aware of licensing's concern of an unauthorized test. ([redacted]s in training for an INPO E&A visit)

Sep 7, 1994 - Problem Report PR94-267 is written by [redacted] and reportedly given to the resident NRC inspector and [redacted].

Sep 8, 1994 - [redacted] first awareness was a E-Mail from [redacted] which included a plot of the data.

Sep 8, 1994 - [redacted] discusses "test" aspect with [redacted]

Sep 12, 1994 - [redacted] becomes aware of an unauthorized test through a casual off-site conversation with [redacted]

Sep 13, 1994 - [redacted] contacts [redacted] about the test, [redacted] informs him that he is already looking into the situation.

Sep 13, 1994 - FPC deems the MUT evolution an unauthorized Test.

BARRIER - CP-111 problem report identification and corrective action program should have resulted in a HPES and root cause analysis of the event.

ROOT - Management Review Panel supplanted the application of this established Barrier.

ROOT - Once the evolution was identified as a unauthorized test, FPC failed to initiate a new Problem Report documenting the human error nonconformance.

Sep 15, 1994 - FPC management convenes a Management Review Panel to look into

the situation of an unauthorized test and to determine corrective actions.

BARRIER - The Management Review Panel does not perform a documented HPES evaluation as required in CP-144.

ROOT - Because a Problem Report was not generated, CP-144 was not invoked which precluded the performance of an HPES evaluation.

Sep 18, 1994 - [redacted] provides his view of the situation to the Operations department via an informal journal entry.

BARRIER - Proper counseling of the operations staff in accordance with the prescribed Management Review Panel's corrective actions.

ROOT - [redacted] journal did not reflect the seriousness of the violation per the MRP corrective actions. If the seriousness was properly reflected other details surrounding the evolutions may have come to light at this time.

Nov 8, 1994 - FPC receives NRC Inspection Report IE 94-22 including unresolved item (UNR) 94-22-01.

Nov 16, 1994 - FPC engineering concludes that OP-103B, Curve 8 is actually a design bases curve.

Nov 29, 1994 - NRC Office of Investigation announces an investigation into the September 5, 1994 MUT evolution.

Dec 1, 1994 - NRC Office of Investigations interviews available shift members.

BARRIER - Pre-briefing by FPC Legal Department should prepare individuals in how to cooperate within their rights.

ROOT - Advice to answer questions directly may have influenced withholding of September 4, 1994 information.

Dec 2, 1994 - [redacted] issues a letter to NRC Region II stating FPC's position.

Dec 14, 1994 - NRC Office of Investigations interviews remaining shift members.

Dec 19, 1994 - FPC generates LER 94-009

May 5, 1995 - [redacted] issues a second letter to NRC Region II stating FPC's position.

May 23, 1995 - [redacted] provided a letter to NRC Region II stating his views on the issues.

Jul 10, 1995 - NRC inspection report, IE-95-13.

Jul 12, 1995 - [redacted] reads IE-95-13 and feels that the evolution on September 4, 1994 was being ignored.

BARRIER - The FPC practice of distributing NRC information was directly responsible for an engineering staff member recognizing the need to acknowledge complete information surrounding the events of September 1994.

Jul 13, 1995 - [redacted] discusses the September 4, evolution and IE-95-13 with [redacted]

Jul 13, 1995 - [redacted] discusses the September 4, evolution and IE-95-13 with [redacted]

Jul 17, 1995 - [redacted] receives anonymous mail implying that there may have been other tests.

Jul 17, 1995 - [redacted] receives information from the bargaining unit employees' attorneys stating that there was another test on September 4, 1994.

Jul 18, 1995 - [redacted] discusses anonymous mail with [redacted]

Jul 19, 1995 - [redacted] discusses anonymous mail with [redacted] again and is overheard by [redacted]

Jul 19, 1995 - [redacted] informs [redacted] that engineering has knowledge of a September 4, 1994 MUT evolution.

Jul 19, 1995 - [redacted] confronts [redacted] with question about September 4, 1994 event, and [redacted] confirms it happened. [redacted] notifies [redacted] and NRC.

Jul 19, 1995 - [redacted] receives July 1994 MUT plots from [redacted]

Jul 20, 1995 - [redacted] assembles a Management Review Panel (MRP) to investigate issues surrounding the MUT tests.

End of Time Line

FIGURES

Figure 1
Time Line and Barrier Analysis

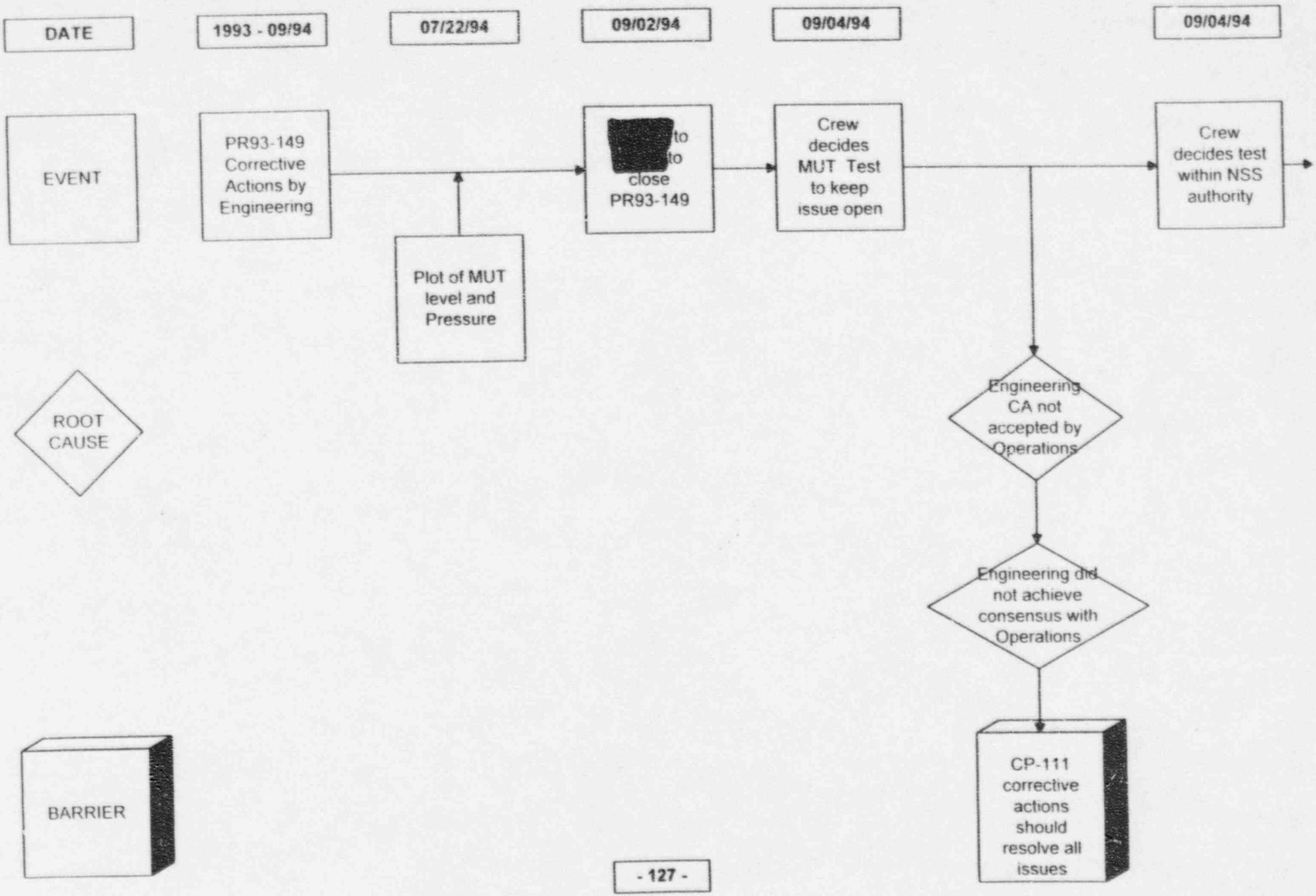


Figure 1
Time Line and Barrier Analysis
(continued)

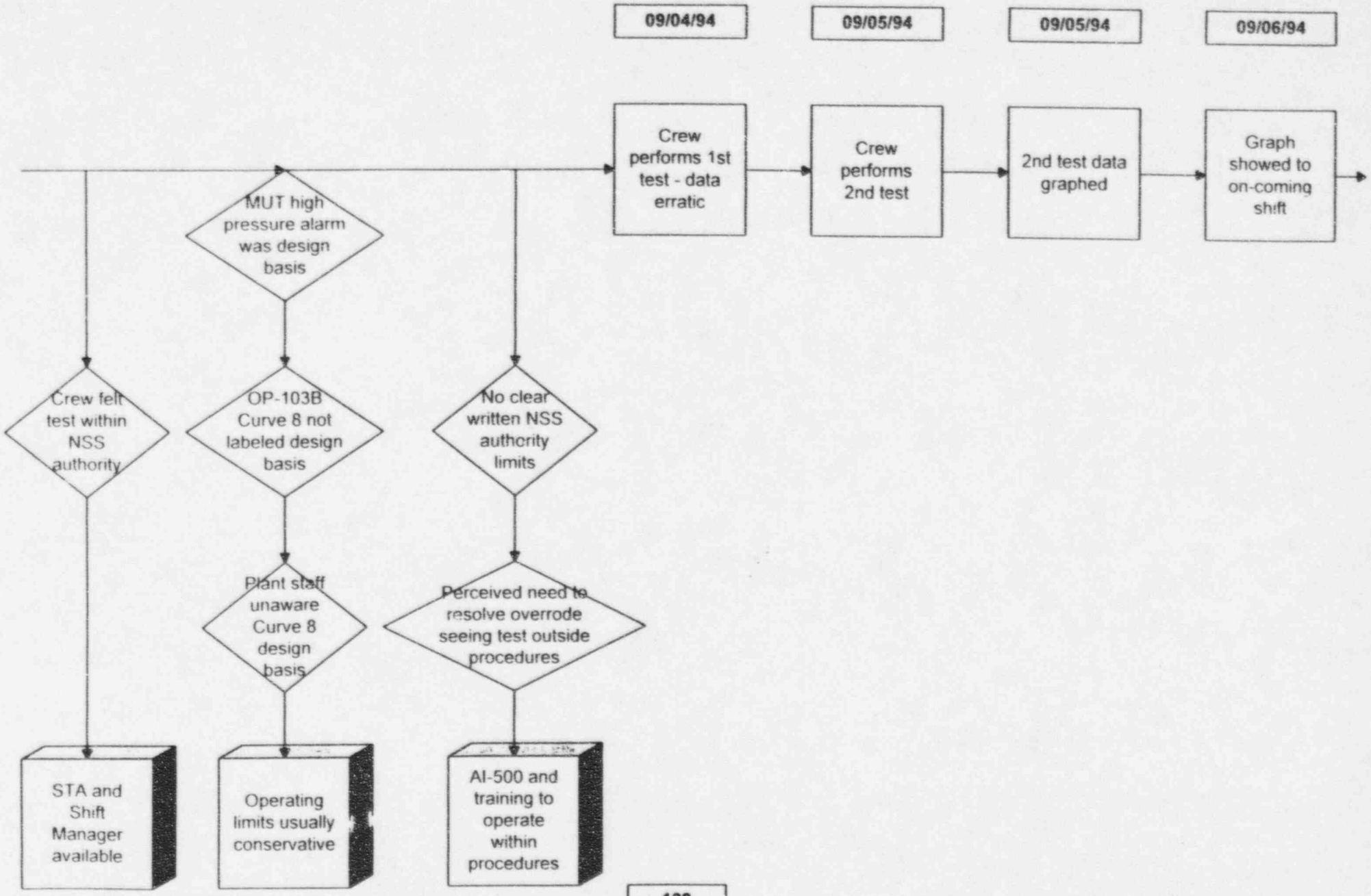


Figure 1
Time Line and Barrier Analysis
(continued)

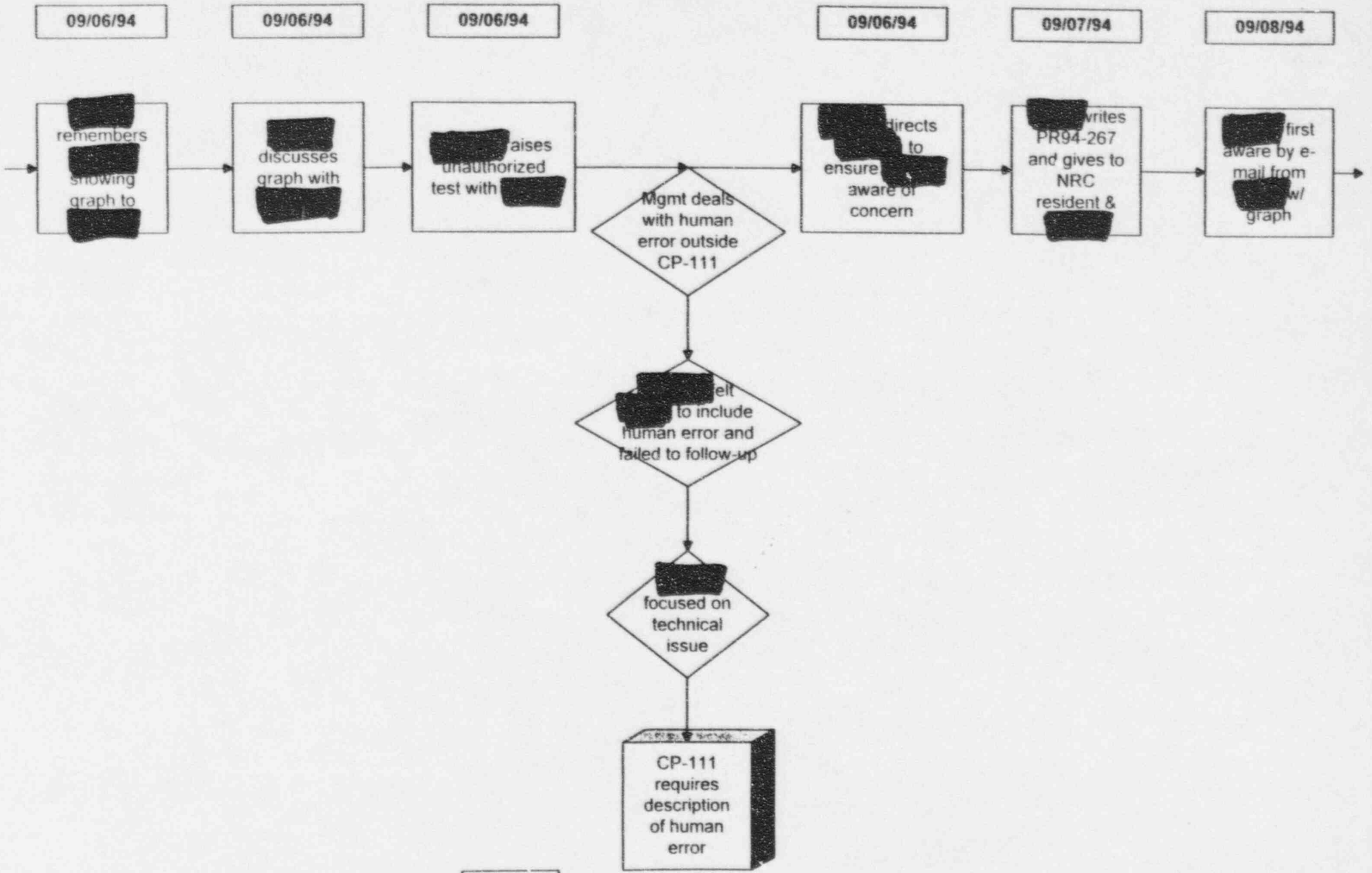


Figure 1
Time Line and Barrier Analysis
(continued)

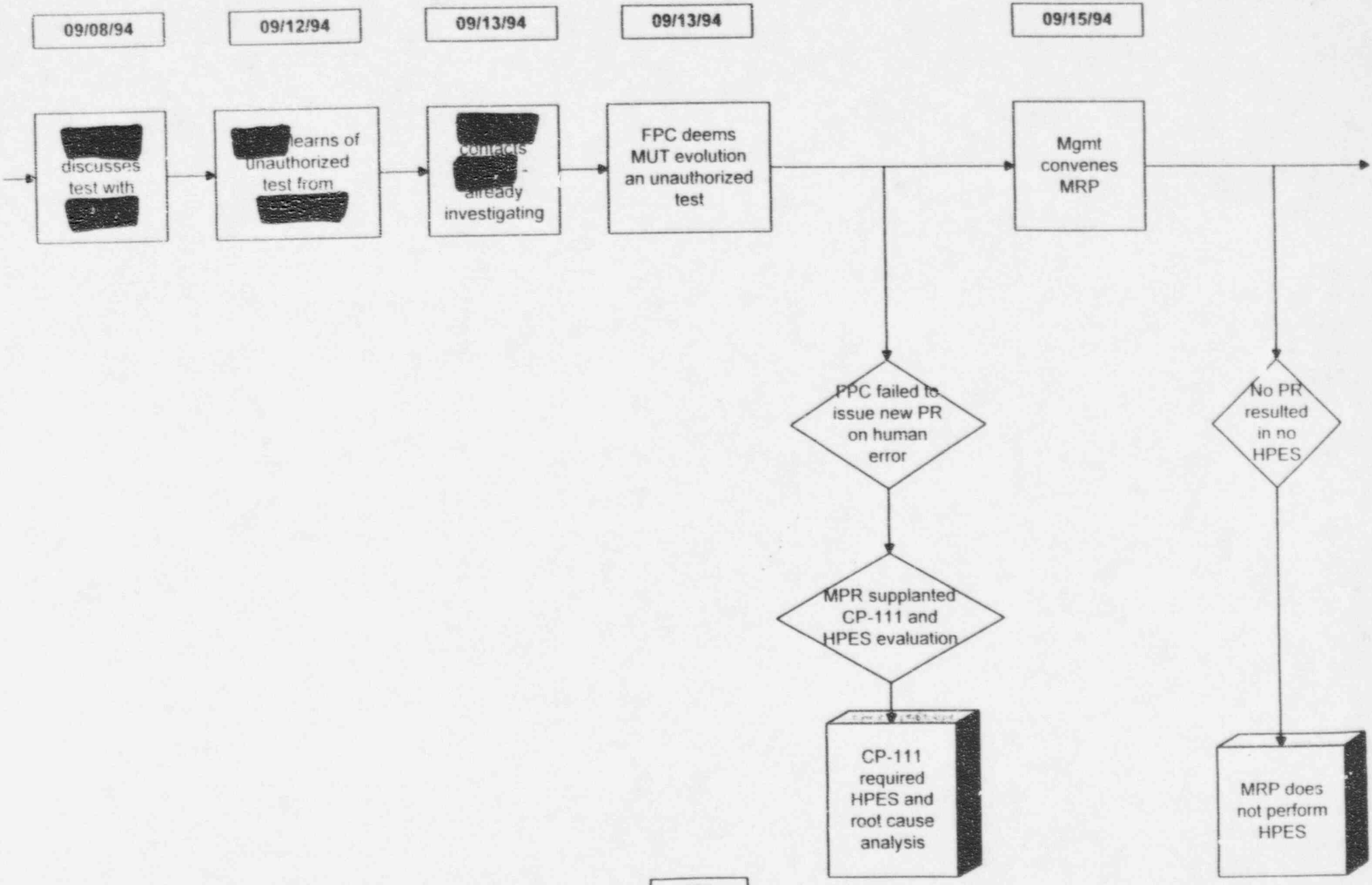


Figure 1
Time Line and Barrier Analysis
(continued)

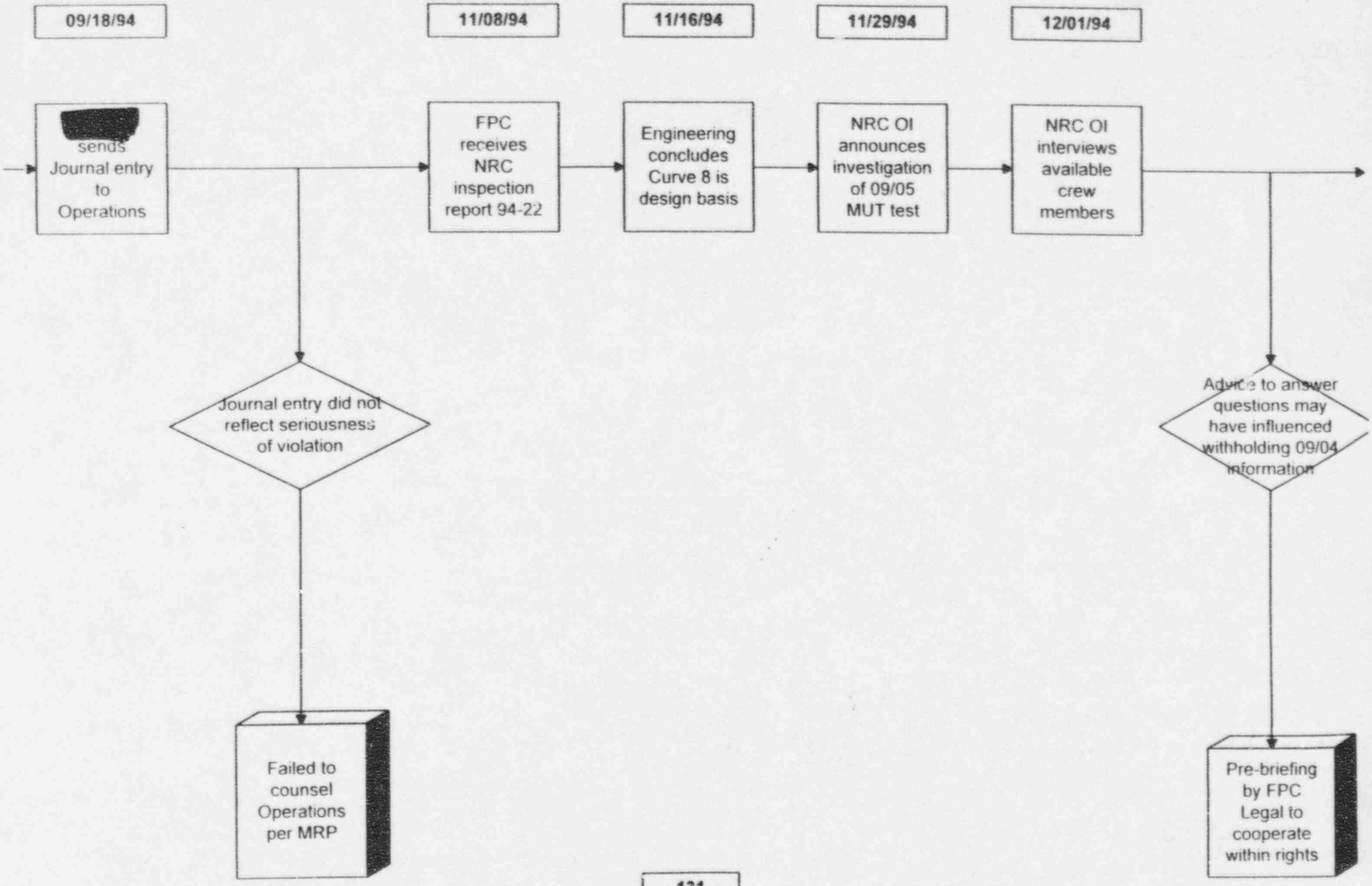


Figure 1
Time Line and Barrier Analysis
(continued)

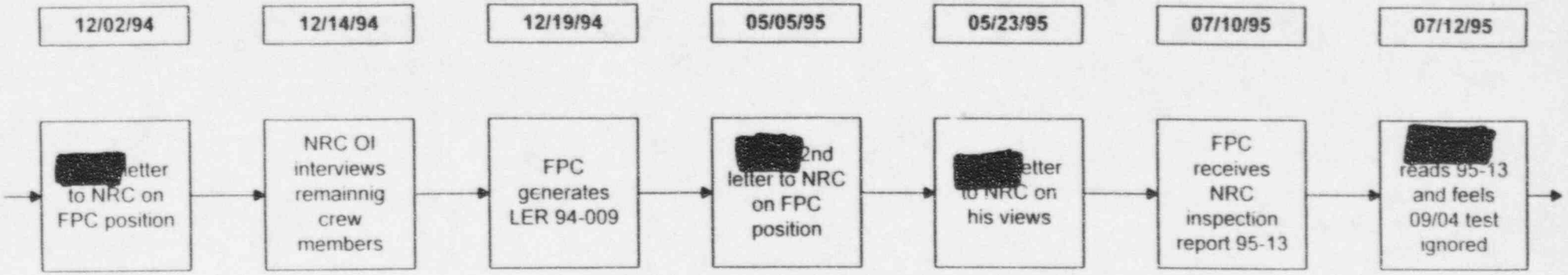


Figure 1
Time Line and Barrier Analysis
(continued)

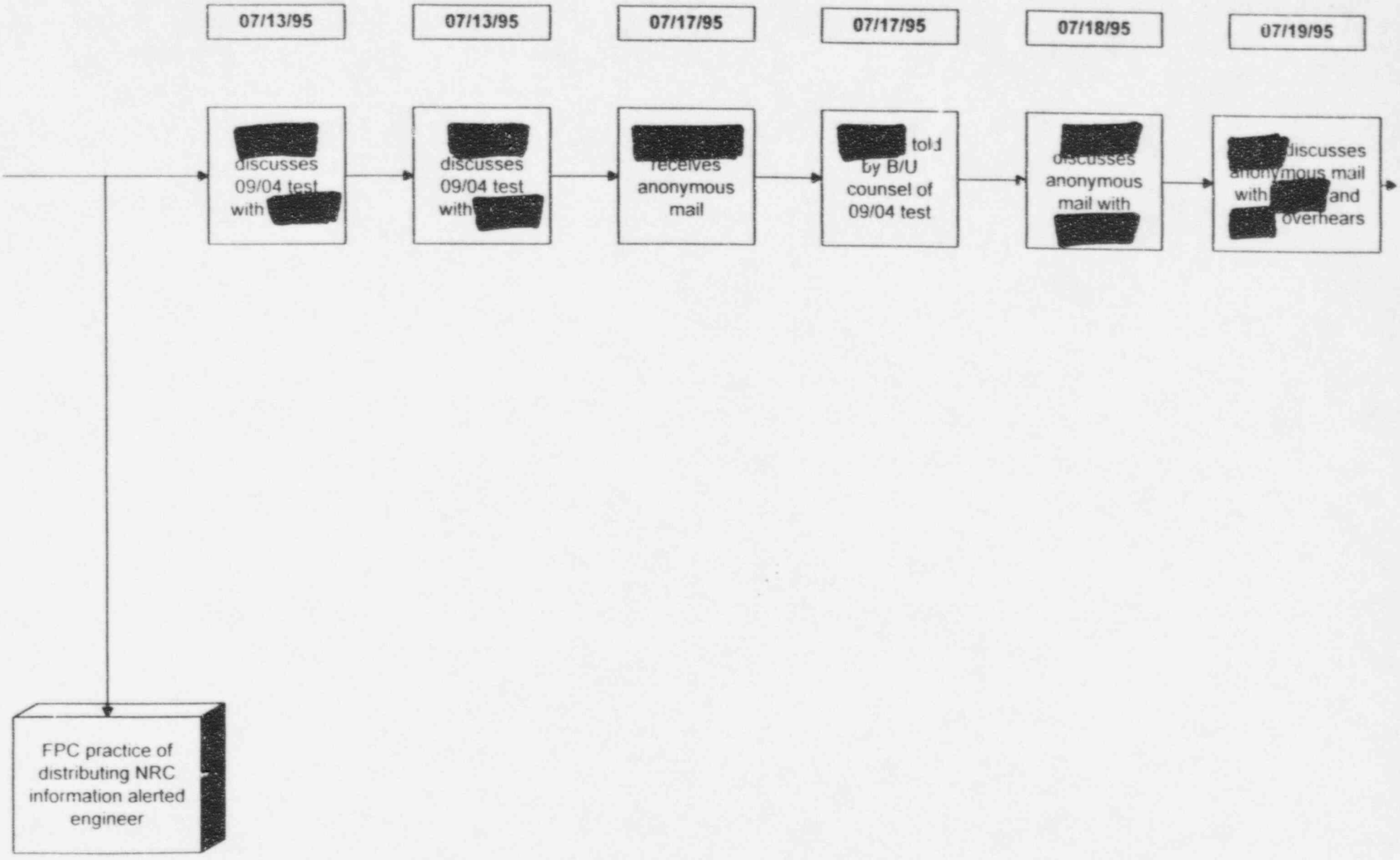
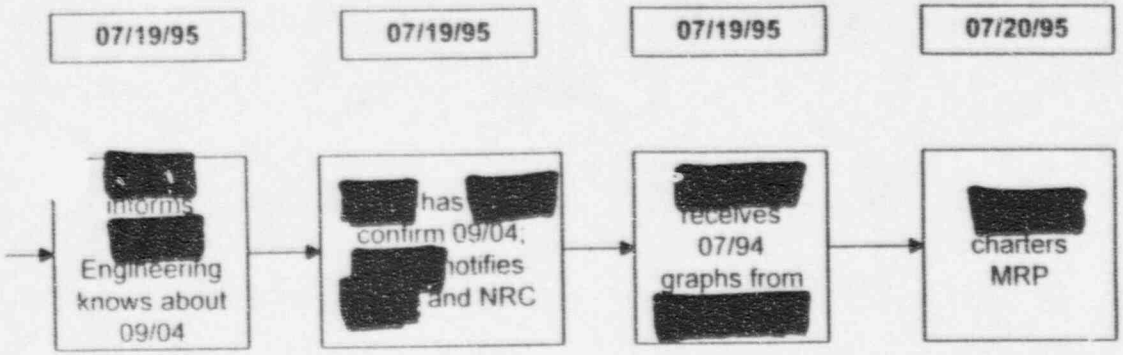


Figure 1
Time Line and Barrier Analysis
(concluded)



ENCLOSURE 2

Florida Power
CORPORATION

INTEROFFICE CORRESPONDENCE

Nuclear Operations Administration (OFFICE) | A7E (MAC) | 231-5682 (TELEPHONE)

SUBJECT: Additional MUT Event Corrective Actions

TO: G. L. Boldt

DATE: September 18, 1995

I agree with the actions in your attached memo of September 12, 1995. Please assign responsibility and due dates for each (all done before October 31, 1995) and will track on my Action Tickler. Also add additional corrective action:

> Develop specific examples of evolutions that are within Shift Supervisor authority to authorize and evolutions that require higher authority to authorize. Then, conduct training with Shift Supervisors and Assistant Shift Supervisors on these example evolutions and the guidance in applicable AIs.

P. M. Beard, Jr.

PMB:mf

xc: B. J. Hickle
G. H. Halnon
R. M. Bright-Action Tickler

Florida Power
CORPORATION

INTEROFFICE CORRESPONDENCE

NUCLEAR PRODUCTION	SA2C	240-4594
Office	MAC	Telephone

SUBJECT: Additional MUT Event Corrective Actions

TO: P. M. Beard, Jr.

DATE: September 12, 1995
VPNP95-0052

At your request, I reviewed the report of Dan Poole's team investigation of the September 4, 1994, MUT test ("Investigation of Possible Misconduct - Phase I - Final Draft", dated August 18, 1995) to determine if additional corrective actions were warranted to address the opinions and/or conclusions of that report.

I believe additional actions are appropriate and have summarized them in the attachment to this memorandum. I have discussed these actions with Bruce Hickle and he concurs.

G. L. Boldt

GLB:lss

xc: D. C. Poole
B. J. Hickle
L. C. Kelley
G. M. Williams

ADDITIONAL MUT EVENT CORRECTIVE ACTIONS

1. Revise page 16 of AI-400B (Enclosure 3) so that step 1 is more broadly focused as shown on the attached revised pages.

2. Revise page 17 of AI-400B (Enclosure 3) so that the checklist for infrequently performed tests or evolutions is approved by the DNPO or his designee (usually the shift manager). See attached page.

3. Revise AI-500, page 46, step 4.3.2.3.2 to assure the intent of the procedure or evolution is also considered by the shift supervisor and that he follows the following four steps when in doubt:

   - Communicate
   - Approve
   - Plan
   - Schedule

   See attached pages.

4. The management review panel process (MRP) is a good concept but fell short in application when used to initially review the MUT event. Expand the MRP process to apply to all potential NRC violations whether self-identified or NRC-identified. Draft a charter or guideline for conducting MRP's to assure consistency and thoroughness of reviews. Some items that should be included are:

   - an attempt to interview all personnel involved, including support groups where appropriate;
   - assurance that CP-111 and CP-144 have been fully applied as appropriate;
   - review of all appropriate logs, chart recordings, completed procedures, REDAS data, annunciator printouts, and other relevant documentation;
   - review for generic aspects of the event, i.e., similar violations, events, errors, systems, etc.;
   - assure both technical and human performance aspects of the issue get equal attention.

5. There is some evidence that operations log entries remain imprecise or incomplete. Schedule further audits and/or training on the topic of adequate log keeping. Consider reinforcing log keeping practices by running table top or simulator exercises specifically for this purpose.

GLB:lss

INFREQUENTLY PERFORMED TEST OR EVOLUTION CHECKLIST

Answer the following questions to determine if this procedure describes an infrequently performed test or evolution.

IF unable to make a determination following completion of this checklist, THEN consult the DNPO for final decision.

1. Does this procedure create a situation that can affect the core, reactivity control, or the reactor protection system?

   ☐ NO — IF the answer is no, THEN this checklist is complete and it is NOT to be included in the procedure package.

   ☐ YES — IF the answer is yes, THEN SOER 91-01, Conduct of Infrequently Performed Tests or Evolutions (available from the Operations Technical Advisors), should be reviewed to help assure adequate controls are in place for the optimization of reactor safety, AND continue on with this checklist.

See next page for revision

2. Does this procedure create an evolution not covered by an existing normal or abnormal operating procedure?

   ☐ YES ☐ NO

3. Does this procedure create an evolution that will seldom be performed, even though it is covered by an existing normal or abnormal operating procedure?

   ☐ YES ☐ NO

4. Does this procedure create an infrequently performed surveillance test that involves complicated sequencing, or placing the plant in an unusual configuration?

   ☐ YES ☐ NO

5. Does this procedure required the use of a special test procedure in conjunction with existing operating or testing procedures?

   ☐ YES ☐ NO

4.3.2.3.2 Written procedures are also needed for those evolutions that would affect a change in the system flowpath or operating parameters.

o The boundary between an "evolution" and a "task" may not always be clear and, as such, it is expected that plant operators will encounter situations where the adequacy of existing procedures may be questioned.

- When questioning the adequacy of existing procedures, plant operators should also consider the intent of the evolution or task to be performed in comparison to the original intent of the existing procedure. OP-406, "Spent Fuel Cooling System" was intented to provide instructions for normal startup, operation, and shutdown of the system. It was not intended to be used to permit shutdown of both cooling trains with fuel in the pool for the purpose of plotting heatup rates of the pool water temperature (i.e. intentionally approaching alarm or operating curve limits).

a. In ~~those~~ the above instances, shift supervision will make the determination as to what procedural requirements are applicable or whether a new procedure must be prepared and approved.

b. However, whenever in doubt, it is expected that shift supervision will:

- Communicate the problem to higher management (especially the shift manager)
- Assure approval of ~~higher~~ appropriate management and review groups
- Plan the job (including preparation of appropriate procedures)
- Schedule the job (so that others that need to participate are notified)

plant safety,

1. Does this procedure create a situation that can affect the core, reactivity control, ~~or~~ the reactor protection system, ~~the~~ engineered safeguards systems, or the plant design basis?

☐ NO — IF the answer is no,
THEN this checklist is complete and it is NOT to be included in the procedure package.

☐ YES — IF the answer is yes,
THEN SOER 91-01, Conduct of Infrequently Performed Tests or Evolutions (available from the Operations Technical Advisors), should be reviewed to help assure adequate controls are in place for the optimization of reactor safety,
AND continue on with this checklist.

IF the answer to question 1 AND at least one other question is "YES," THEN this procedure is an infrequently performed test or evolution and requires a briefing in accordance with AI-500 prior to being performed. The procedure shall contain a sign off step, either as a prerequisite to performing the procedure or as its first step, that documents this briefing having been performed. This can be included in the procedure as shown in the example below.

Example:

4.1 Initial Conditions

4.1.1 Perform a DNPO pre-job briefing in accordance with AI-500, Conduct of Operations.

DNPO pre-job briefing has been completed for each new shift

0000-0800 _____/_____
DNPO or Designee/Date

0800-1600 _____/_____
DNPO or Designee/Date

1600-2400 _____/_____
DNPO or Designee/Date

Other Shifts List Below:

_____/_____
DNPO or Designee/Date

_____ _____
Performed By Date

_____ _____
Approved By DNPO or Designee Date

revision

4.3.2.3 General Practices for Procedure Implementation

4.3.2.3.1 AI-400A, Description and General Administration of Plant Procedures, Section 4.1, Requirements for Approved Written Procedures, must be utilized to determine if a procedure is required for an evolution.

4.3.2.3.2 Written procedures are also needed for those evolutions that would affect a change in the system flowpath or operating parameters.

- The boundary between an "evolution" and a "task" may not always be clear and, as such, it is expected that plant operators will encounter situations where the adequacy of existing procedures may be questioned.

  a. In these instances, shift supervision will make the determination as to what procedural requirements are applicable.

See next page for revision

4.3.2.3.3 For procedures performed by Plant Operations, the Shift Supervisor or his designee shall ensure the principles of Enclosure 19, Pre-Job Briefing Checklist, are met.

- Using his judgement in regard to plant safety, the SSOD may elect to formally complete Enclosure 19, Pre-Job Briefing Checklist, for the applicable procedure.

4.3.2.3.4 Written procedures are not necessary for situations where:

- Prompt actions are being taken (including troubleshooting, locating, and isolating problems) where detrimental system interaction would result if the prompt actions were not taken.
- Prompt actions are being taken to prevent an undesired loss of process system medium
- Prompt actions are being taken to prevent an inadvertent system actuation (when the system is no longer required to be OPERABLE)
- The activities are performed under the requirements of a CP-115 Tagging Order.

4.3.2.3.5 Except in emergency or abnormal operating situations where immediate actions are required to protect the health and safety of the public, to protect equipment or personnel, or to prevent the deterioration of plant conditions to a possibly unsafe or unstable level, the operation of equipment shall be preplanned and performed in accordance with approved written procedures.

- When approved written procedures would be required and are not used, the activities that were accomplished shall be documented after-the-fact and receive the same degree of review as if they had been preplanned.