U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-335, 50-389

License Nos.: DPR-67, NPF-16

Report No.: 50-335/98-301

Licensee: Florida Power and Light Company

Facility: St. Lucie Plant Units 1 & 2

Location: Jensen Beach, FL

Dates: June 22-26, 1998

Examiners: George T. Hopper, Chief License Examiner

Ronald F. Aiello, License Examiner
Richard S. Baldwin, License Examiner

Approved by: Thomas A. Peebles, Chief,
Operator Licensing and Human Performance Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

St. Lucie Plant Units 1 & 2
NRC Examination Report No. 50-335/98-301 and 50-389/98-301

During the period of June 22-26, 1998, NRC examiners conducted an announced operator licensing initial examination in accordance with the guidance of Examiner Standards, NUREG-1021, Interim Revision 8. This examination implemented the operator licensing requirements of 10 CFR §55.41, §55.43, and §55.45.

Operations

- Three Senior Reactor Operator (SRO) candidates and three Reactor Operator (RO) Candidates received written examinations and operating tests. All examinations were administered by NRC operator licensing examiners. The written examination was administered on June 19, 1998, and the operating tests were administered June 22-25, 1998. (Section 05.1)

- Candidate Pass/Fail

	SRO	RO	Total	Percent
Pass	2	3	5	83.3
Fail	1	0	1	16.7

- The NRC noted the quality of the licensee's proposed examination was satisfactory and had significantly improved as compared to the previous examination submittal (Report NO. 97-301). (Section 05.2)

- The NRC concluded that inadequate administration of security precautions led to the packaging of exam materials in a single envelope which was delivered to the NRC in an opened condition. Future examination development should include strict adherence to security guidelines contained in NUREG 1021. This should minimize the possibility of examination compromise and the delay or cancellation of an examination. (Section 05.3)

- The examiners concluded that SRO candidate performance on the written examination was weak. Overall performance on the operating test was satisfactory with some significant weaknesses noted in the areas of

recognizing adverse plant parameters, understanding system response and taking manual control of equipment when automatic actions fail to occur. (Section 05.4)

- The NRC noted that confusion existed among the candidates with regards to the expectations of performing the immediate operator actions in the standard post-trip actions (SPTAs) of the EOPs. Training on the implementation of the SPTAs together with insufficient procedural guidance led to poor candidate performance. The procedural guidance and training of the operators combined to result in less than optimal mitigation of the events. (Section 08) .

Report Details

Summary of Plant Status

During the period of the examinations Unit 1 and Unit 2 were at 100 percent power.

I. Operations

05 Operator Training and Qualifications

05.1 General Comments

NRC examiners conducted regular, announced operator licensing initial examinations during the period June 22-26, 1998. NRC examiners administered examinations developed by the licensee's training department, under the requirements of an NRC security agreement, in accordance with the guidelines of the Examiner Standards (ES), NUREG-1021, Interim Revision 8. Three Senior Reactor Operator (SRO) instant and three Reactor Operator (RO) applicants received written examinations and operating tests.

05.2 Pre-Examination Activities

a. Scope

The NRC reviewed the licensee's examination submittal using the criteria specified for examination development contained in NUREG 1021, Interim Revision 8.

b. Observations and Findings

The licensee developed the SRO and RO written examinations, one Job Performance Measure (JPM) set, and three dynamic simulator scenarios for use during this examination. All materials were submitted to the NRC on time. NRC examiners reviewed, modified as necessary, and approved the examination prior to administration. The NRC conducted an on-site preparation visit during the week of June 8, 1998, to validate examination materials and familiarize themselves with the details required for examination administration.

(1) Written Examination Development

The written examination was submitted on time. The organization of the submitted examination with some of the reference material attached expedited the examination review process.

This was the licensee's second attempt at developing the examinations under the new examination development pilot program. The NRC noted that the quality of the licensee's submittal had significantly improved as compared to the previous submittal. Aside from minor editorial changes to clarify or improve the language of the questions, the number of technical errors noted were minimal. The licensee worked diligently to resolve the NRC comments. The final version of the original written examination met the criteria specified in NUREG 1021, Interim Revision 8.

The final written examination, along with some other test materials, arrived at the Region II office in a torn open envelope. As a result, the final version of the written examination was significantly modified as a precautionary measure. The outcome of this effort resulted in a final product that contained some psychometric errors. Specifically, three questions on the final version of the examinations contained errors that resulted in changing the answer key to accept an additional correct answer and one other question had the correct answer changed. The licensee submitted comments on these four questions (Enclosure 3). The NRC resolution of the licensee's comments is attached as Enclosure 4.

(2) Operating Test Development

The NRC reviewed one JPM set and administrative section of the examination for the walk-through portion of the examination. The examiners found the JPMs were at the appropriate level of difficulty. Overall quality of the JPMs was satisfactory. Some minor technical errors were noted such as the incorrect designation of critical steps. The NRC also noted that the quality of the JPM questions was weak. Several JPM questions lacked significant operational validity and some were non-discriminatory in value. The ES examples of suitable JPM questions are open reference, analysis, synthesis, and application level questions that require higher order cognitive thought processes and should avoid direct look-ups. Increased attention

in this area is needed to supply and examination consistent with the guidelines of NUREG 1021, Interim Revision 8.

The NRC reviewed three simulator scenarios for the examination. Some changes and additions were made to the scenarios to enhance the examiners opportunity to observe candidates perform the required competencies. Overall, the scenarios were found to be challenging and at the right level of difficulty.

c. Conclusion

The NRC noted that the quality of the licensee's proposed examination was satisfactory and had significantly improved compared to the previous examination submittal (Report No. 97-301). The NRC noted that improvement in JPM question development is needed to comply with the guidelines of NUREG 1021, Interim Revision 8.

05.3 Examination Security

NUREG 1021, Interim Revision 8, "Operator Licensing Examination Standards For Power Reactors", ES-201 Attachment 1, delineates examination security and integrity considerations. Item 3 states, "The examination outlines, written examinations, and operating tests that are mailed to the NRC regional office shall be placed in a double envelope."

The licensee inadvertantly submitted the final version of the written examinations and scenarios in a single wrapped, brown mailing envelope. The envelope was delivered by Federal Express in a torn open condition on the morning of June 2,.1998. The NRC mail clerk delivered the package to the chief examiner who immediately started an inquiry to determine the cause of the damage to the envelope and the potential for examination compromise. The NRC noted the damage to be extensive as indicated by the pictures contained in Enclosure 5, and appeared to have been caused by mishandling or sorting machinery. If the materials had been properly packaged in accordance with the guidance in NUREG 1021, the inner envelope would probably have remained intact. Upon notification by the NRC, the licensee conducted an internal investigation to determine if the envelope had been opened on site or in route to the NRC. The licensee's investigation found that the package had been dispatched in good condition and had not been opened or damaged on site. A summary of the licensee's investigation is attached as Enclosure 6.

The NRC concluded the envelope had been torn open by the shipping agent in handling and the potential for compromise of examination material was remote. Nevertheless, to ensure examination integrity, the NRC and the licensee agreed to make significant alterations to the examination materials. Changes were made to the scenarios, and 40 questions were replaced on each written examination. The licensee expended a considerable effort to accomplish the changes. Therefore, the changes did not result in a delay of the examination administration.

The NRC concluded that inadequate implementation of security precautions led to the packaging of examination materials in a single envelope that was delivered to the NRC in an opened condition. Future examination development should include strict adherence to security guidelines in NUREG 1021 to minimize the possibility of examination compromise and the delay or cancellation of an examination.

05.4 Examination Results and Related Findings, Observations, and Conclusions

a. Scope

The examiners reviewed the results of the written examination and evaluated the candidates' compliance with and use of plant procedures during the simulator scenarios and JPMs. The guidelines of NUREG-1021, Forms ES-303-3 and ES-303-4, "Competency Grading Worksheets for Integrated Plant Operations," were used as a basis for the operating test evaluations.

Observations and Findings.

The examiners reviewed the results of the written examination and found that five of six candidates passed. Overall SRO candidate performance on the written examination was weak with one candidate failing this portion of the examination and the other two achieving a grade of 80 percent. Examiners also identified several weaknesses in candidate performance during the operations portion of the examination. Details of the weaknesses are described in each individual's examination report, Form ES-303-1, "Operator Licensing Examination Report." Copies of the evaluations have been forwarded under separate cover to the Training Manager in order to enable the licensee to evaluate the weaknesses and provide appropriate remedial training for those operators as necessary.

During one scenario, candidates failed to recognize that they were feeding a faulted/ruptured steam generator (SG) despite the fact that they had positive indication of full feedwater flow with a Main Steam Isolation Signal (MSIS) actuation. A similar performance discrepancy was noted on the last examination report (97-301). On another occasion, the candidate's did not make an attempt to energize the one available vital bus for 15 minutes after a Loss of offsite power had occurred (to ensure the maintenance of vital auxiliaries). Candidates also appeared hesitant to take manual control of systems when automatic controllers were not functioning properly prior to obtaining SRO verbal approval. This contributed to three of three crews having to trip the reactor when manual control of feedwater was attempted unsuccessfully following a feedwater flow transmitter failure.

c. Conclusion

The examiners concluded that SRO candidate performance on the written examination was weak. Overall performance on the operating test was satisfactory with some significant weaknesses noted in the areas of recognizing adverse plant parameters, understanding system response and taking manual control of equipment when automatic actions fail to occur.

O8 Miscellaneous Operations Issues

a. Scope

The NRC reviewed the performance of the candidates during the dynamic simulator examinations and noted some performance discrepancies associated with the implementation of the Emergency Operating Procedures (EOP).

b. Observations and Findings

The examiners noted that different crew responses to the same series of events ended up with widely varying results. During the SG tube rupture with a faulted feed line scenario, one SRO candidate carefully noted the plants automatic response to the events and had the crew take immediate manual action to ensure that safety system actuations that should have occurred and equipment that should be operating was doing so prior to entering and reading 2-EOP-1, "Standard Post Trip Actions" (SPTA). In general, the other crews took actions to verify Engineered Safeguards Equipment was operating only when called out by steps within the EOPs. This had a major impact on this scenario since one train of feed

regulating isolation valves failed open on a MSIS actuation resulting in continuous feeding of the faulted SG. Actuation of MSIS should have closed the feed header isolation valves. Two crews never reached the step to shut these valves because they had taken excessive time to reach this point (two hours) and the scenario was stopped. They were not close to the EOP-15 Success Path 3: Steam Generator with SIAS step 17, which directs isolating the affected SG per Appendix-R, directing closure of these valves. The fault on the SG was a feedline break inside containment. Consequently, there was no decrease in generator pressure as would be expected if the fault was in the steam line, but a drastic increase in containment pressure (30+ psia). A steam line break may result in an excessive cooldown or SG depressurization, which if RCS temperature decreases to less than 525 degrees F or SG pressure decreases to 600 psia, will prompt the operators to go to the contingency actions of RCS Heat Removal which eventually has the operators "Ensure MSIS has actuated." The examiners noted that there was no step within the SPTAs that directed the operators to ensure MSIS actuation if it started on high containment pressure. Since there was no specific compensatory action contained within the SPTAs, verification of proper system (MSIS) response could have identified the problem to the operators. If operators did not take manual action to ensure proper system response in this scenario, implementation of compensatory action within the EOPs would be delayed for over 30 minutes until the appropriate step was reached. The consequence of feeding a faulted SG for a prolonged period of time could result in unnecessary deposition of energy into containment and aggravation of the primary system overcooling event resulting in positive reactivity addition.

The NRC noted, from this and other examples, that some candidates were not verifying or ensuring safety system actuations in a timely manner. *Licensee training representatives stated that operators should only take actions outside of the SPTAs if a safety function was being challenged.* According to CEN-152 (Combustion Engineering Emergency Procedure Guidelines) SPTA Bases, the actions within the SPTAs were chosen to reflect the <u>verification of expected automatic system responses</u> and the actions which operators always take in response to a trip. In addition, steps within the SPTAs are considered immediate operator actions. After these are performed, the purposes for the SPTAs are to reverify the post trip actions which are performed by operators following any reactor trip, and to standardize a safety function approach to any event. Since MSIS is an expected automatic system response to high containment pressure for Unit 2, verification of the systems proper response is congruent with the CEN-152 Bases ideology. However, 2-EOP-1 did not

direct operators to verify MSIS when actuated by high containment pressure. Waiting until a safety function is challenged is not mentioned in the CEN-152 Bases document and is inconsistent with the intent of the SPTA procedure.

c. Conclusion

The NRC noted that confusion existed among the candidates with regards to the expectations of performing the immediate operator actions in the SPTAs of the EOPs. Current training on the implementation of the SPTAs, together with insufficient procedural guidance led to poor candidate performance. The procedural guidance and training of the operators combined to result in less than optimal mitigation of the events.

Management Meetings

X1. Exit Meeting Summary

At the conclusion of the site visit, the examiners met with representatives of the plant staff listed on the following page to discuss the results of the examinations and other issues.

None of the material provided to the examiners was identified by the licensee as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Allen, Training Manager
T. Bolander, Training
D. Brown, Initial Operations Training
R. Dietz, Licensing
D. Fadden, Services Manager
J. Martin, Simulator Services Manager
T. Quillen, Licensing
L. Rich, Operations Training Supervisor
A. Scales, Operations
J. Stall, Site Vice President

NRC

G. Warnick, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

None.

ENCLOSURE 2

SIMULATION FACILITY REPORT

Facility Licensee: Florida Power and Light - St. Lucie Plant

Facility Docket Nos.: 50-335 and 50-389

Operating Tests Administered on: June 22-25, 1998

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, the following items were observed (if none, so state):

ITEM	DESCRIPTION
None.	

Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

FPL

June 25, 1998

L-98-181
10 CFR 55.5

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Attn: Mr. Thomas A. Peebles, Chief
Operator Licensing and
Human Performance Branch
Atlanta Federal Center
61 Forsyth St., SW
Suite 23T85
Atlanta, GA 30303

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Operator License Training Program
June 19, 1998 RO/SRO Exam Comments

On June 19, 1998, the NRC administered Reactor Operator (RO) and Senior Reactor Operator (SRO) Examinations at St. Lucie Plant. An exam analysis was performed after administration of the exams and the attached comments on the RO/SRO written examinations are submitted by the facility for consideration by the NRC. These comments affect questions 66, 70, 73, and 95 on the SRO examination. Questions 73 and 95 also affect the RO Examination.

Should you have any questions, please contact us.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/GRM

Attachment

ENCLOSURE 3

Question 66

Unit 2 is at 70% power, returning from a SNO. As the RO withdraws control rods for ASI control, a 25 second continuous rod withdrawal event occurs. The excursion is stopped when the RO places the CEDMCS control switch in off. The following post event parameters are observed:

Reactor Power	75%
ASI	-.42
RCS Tcold	545°F
RCS Pressure	2260 psig

Which of the following describes the effect this event has on Unit 2 DNB Tech Spec requirements, as compared to the same event occurring on Unit 1? (assume same post event parameters for Unit 1)

a. Unit 2 DNB Tech Spec requirements are NOT met, Unit 1 DNB Tech spec requirements are met.

b. Unit 1 DNB Tech Spec requirements are NOT met, Unit 2 DNB Tech spec requirements are met.

c. Unit 1 and Unit 2 DNB Tech Spec requirements are NOT met.

d. Unit 2 and Unit 1 DNB Tech Spec requirements are met.

Question 66: Change answer key for distractor A to distractor D. Unit 2 ASI falls exactly on the "Acceptable Operation" line, which would make distractor D the correct answer.

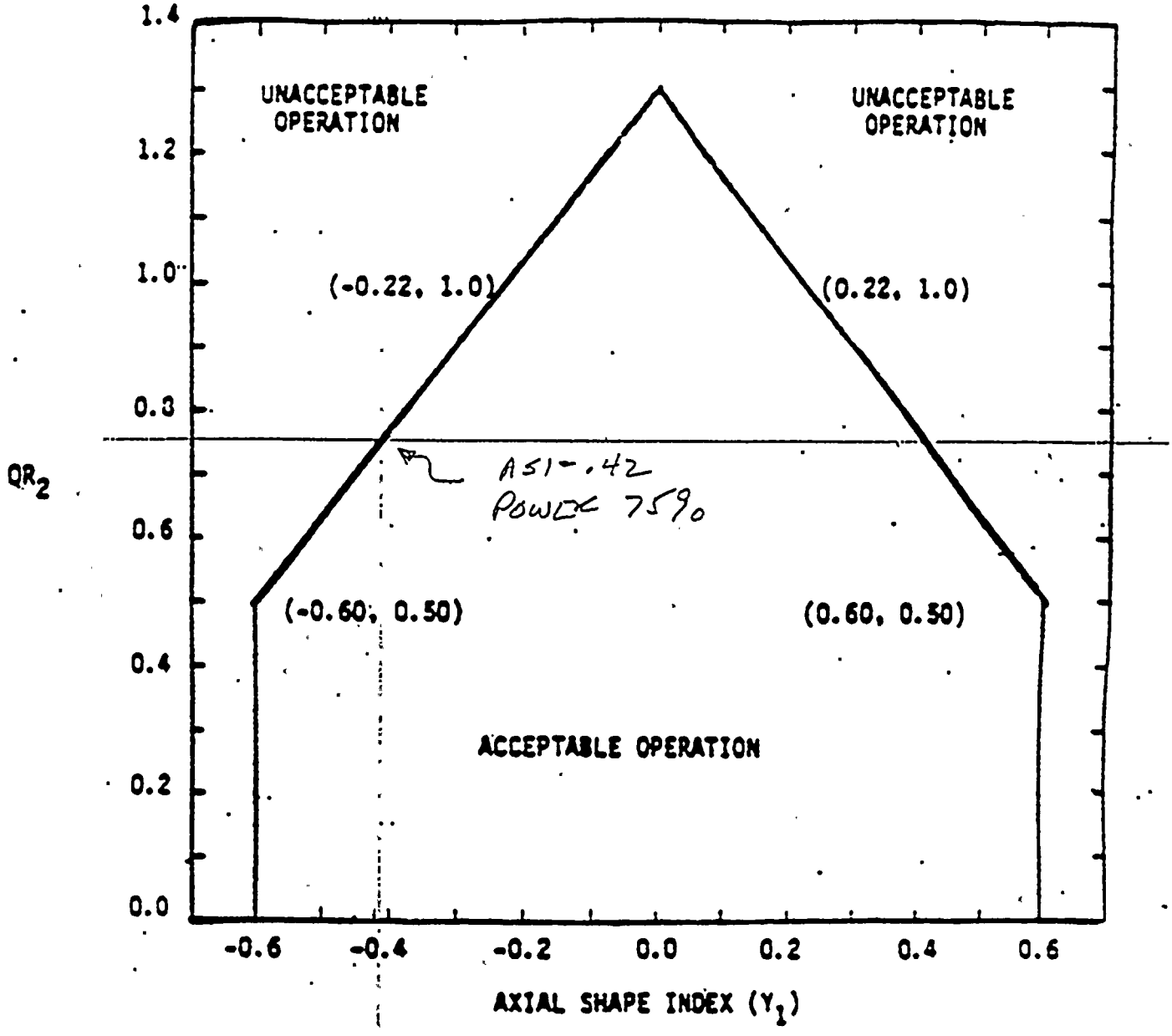


FIGURE 2.2-2

LOCAL POWER DENSITY-HIGH TRIP SETPOINT
PART 2. (QR_2 versus Y_1)

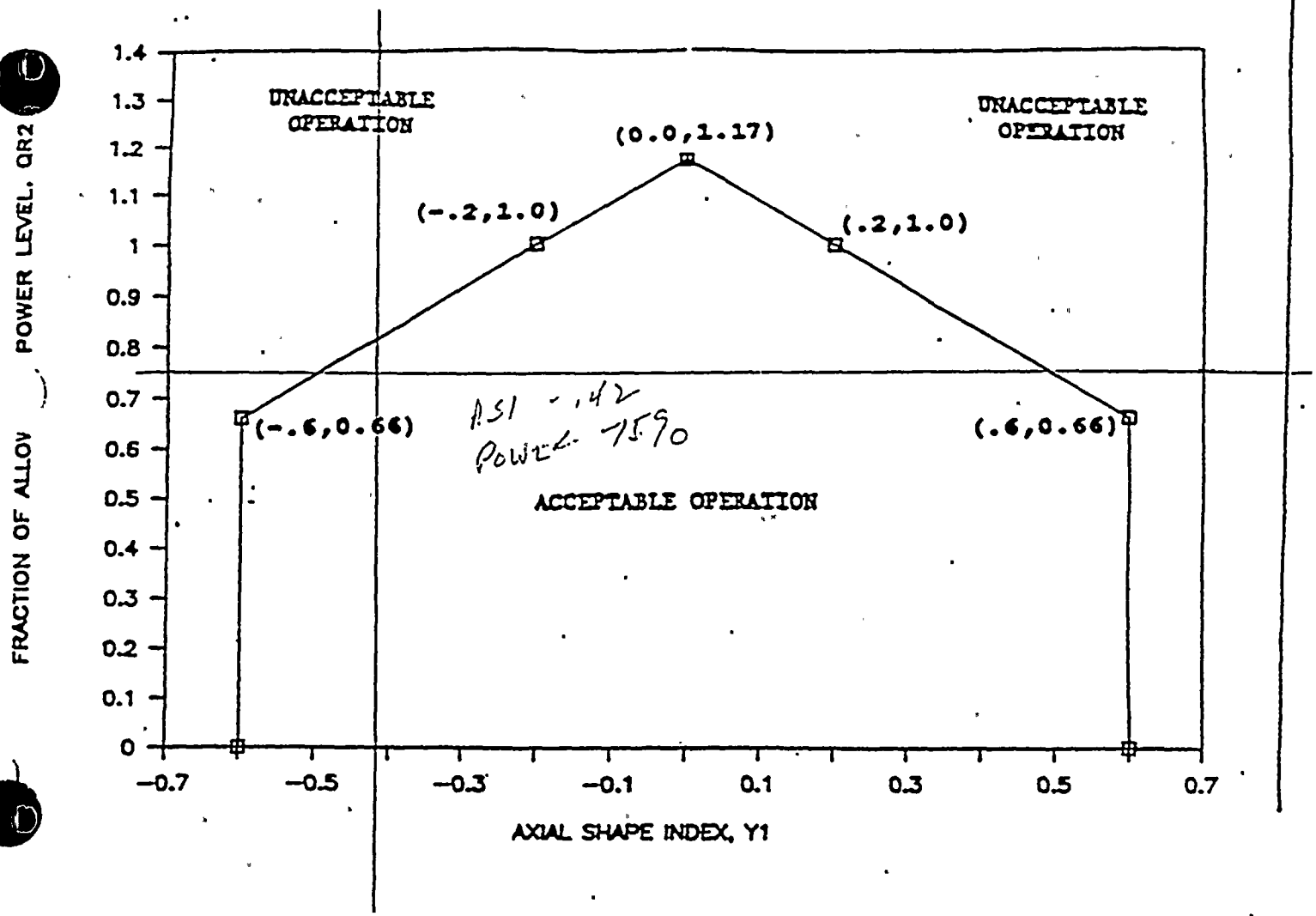


FIGURE 2.2-2

LOCAL POWER DENSITY- HIGH TRIP SETPOINT PART 2 (QR2 Versus Y1)

Question 70

According to AP-0010120, "Conduct of Operations" which of the following would be permissible concerning the manual initiation of the Auxiliary Feedwater Actuation System (AFAS)?

Manual initiation of:

a. AFAS 1 ten minutes after a trip from 100% power.

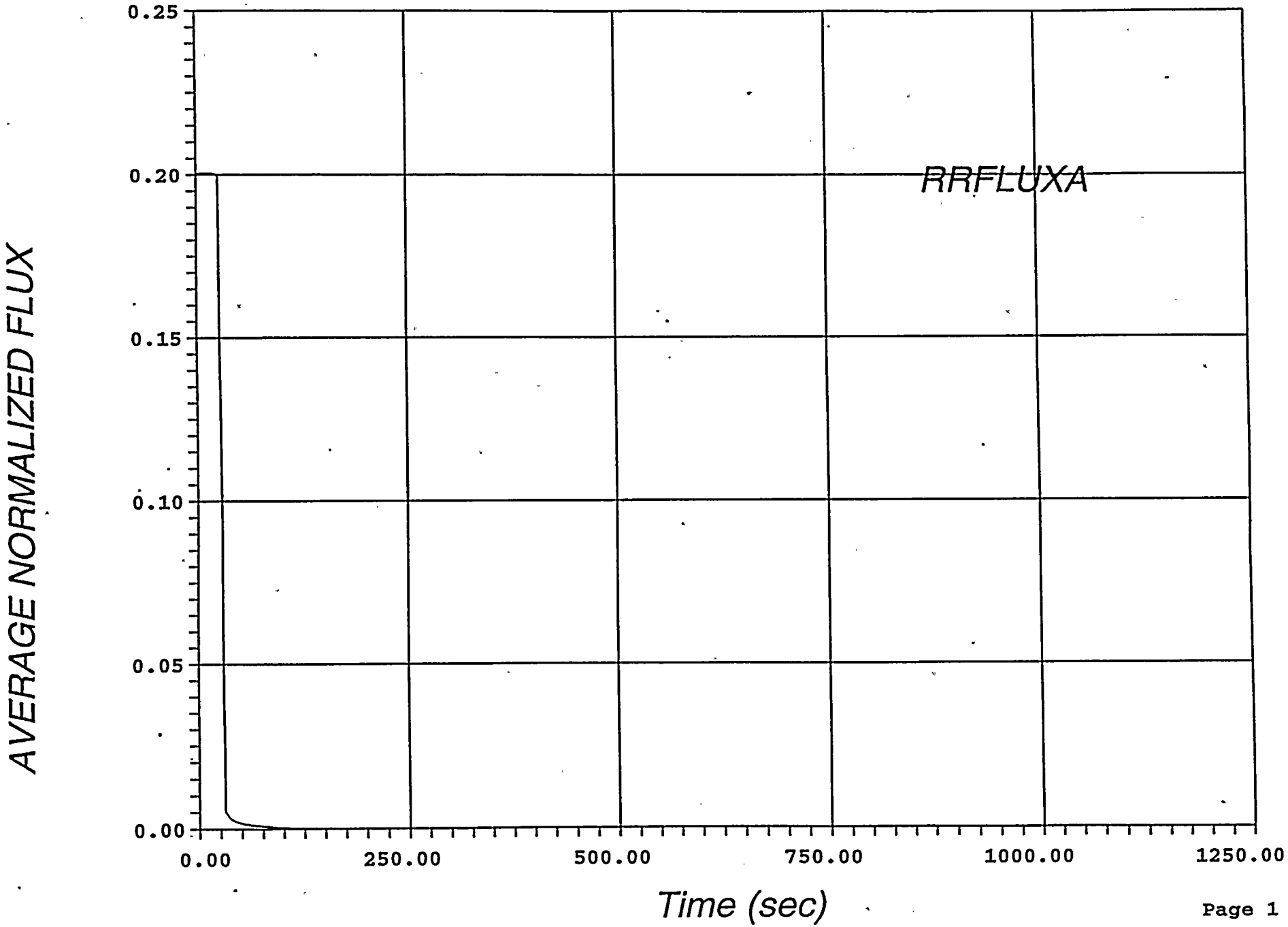
b. AFAS 1 and 2 during SPTAs due to a LOOP from 20% power

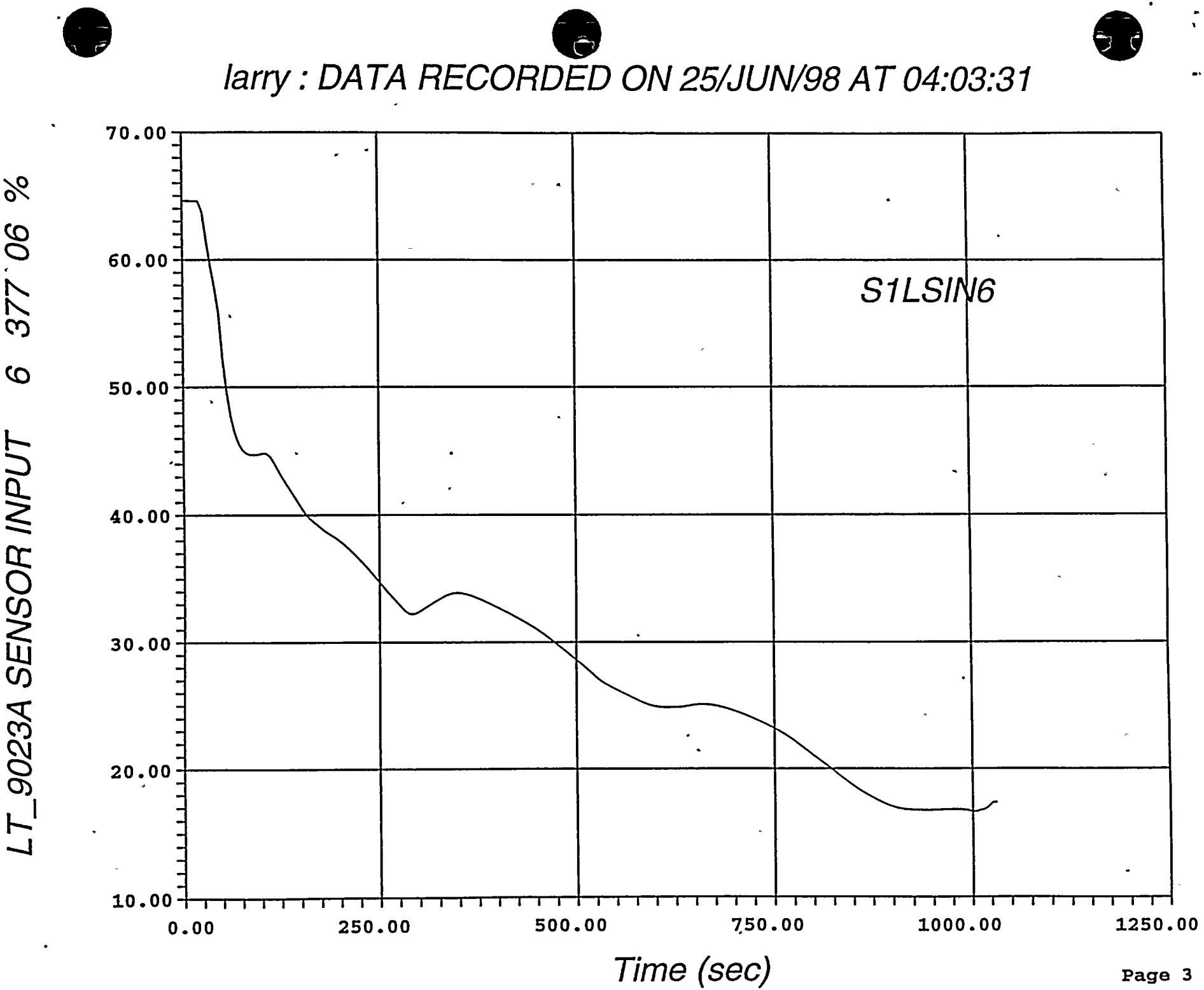
c. AFAS 1 and 2 ten minutes after a trip with S/G levels at 29% NR

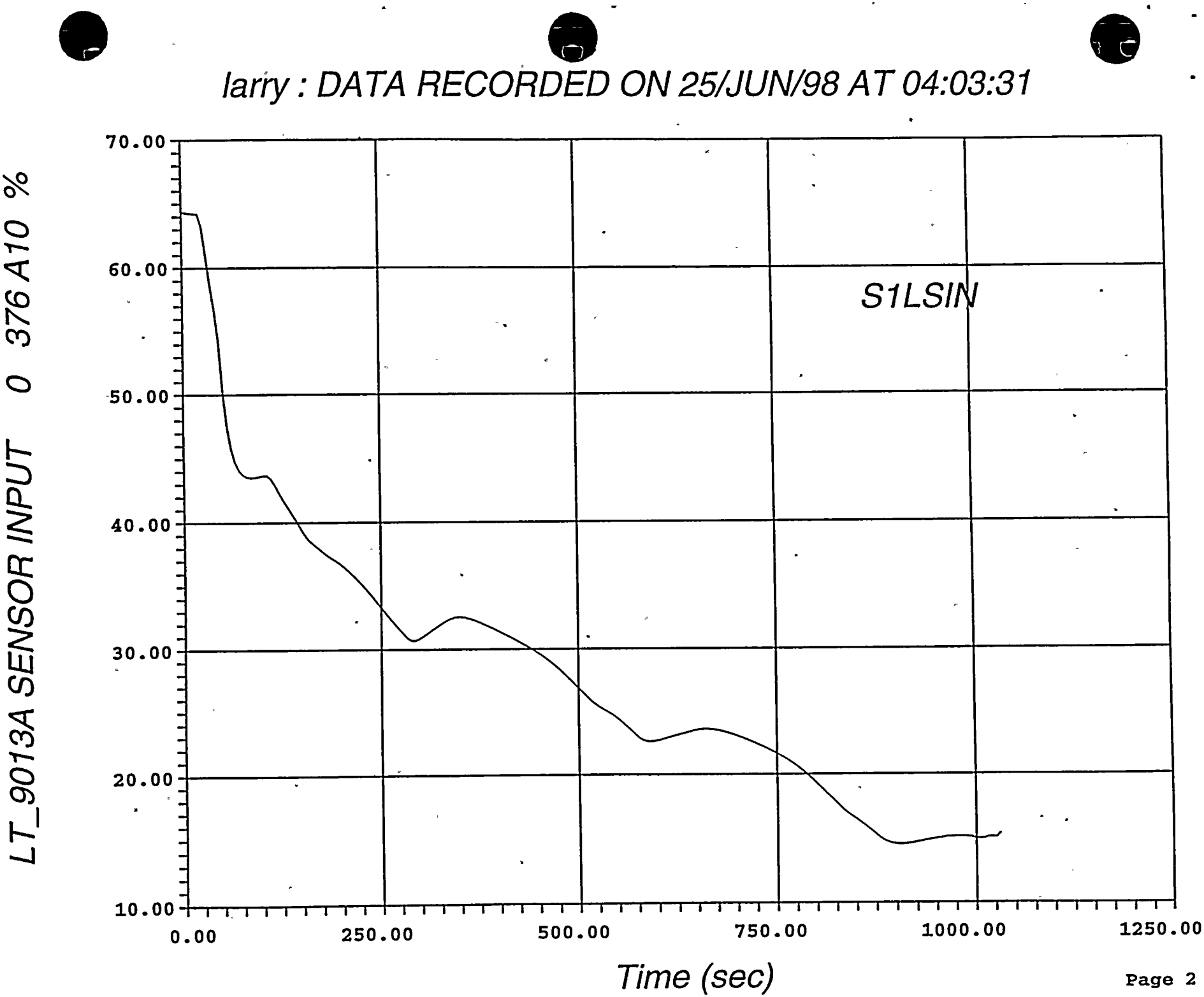
d. AFAS 2 after a LOCKOUT during a cooldown for a SGTR in the 2B S/G.

Question 70: Accept distractor A and distractor B as the correct answer. Validated distractor B conditions on the simulator, and AFAS eventually actuated at approximately 17 minutes post trip. Considering new SPTA implementation method, SPTAs could still be in progress 17 minutes post trip.

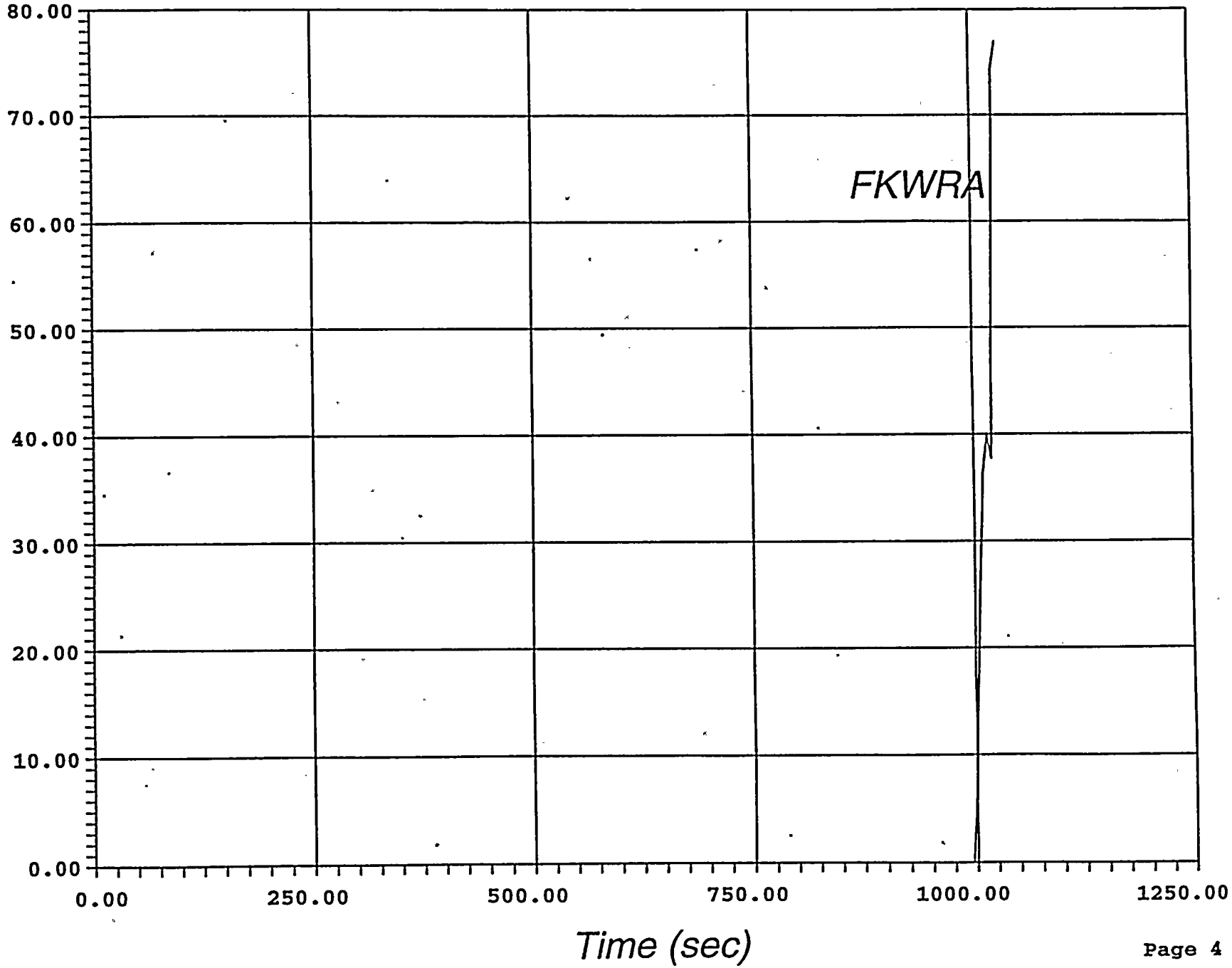
larry : DATA RECORDED ON 25/JUN/98 AT 04:03:31



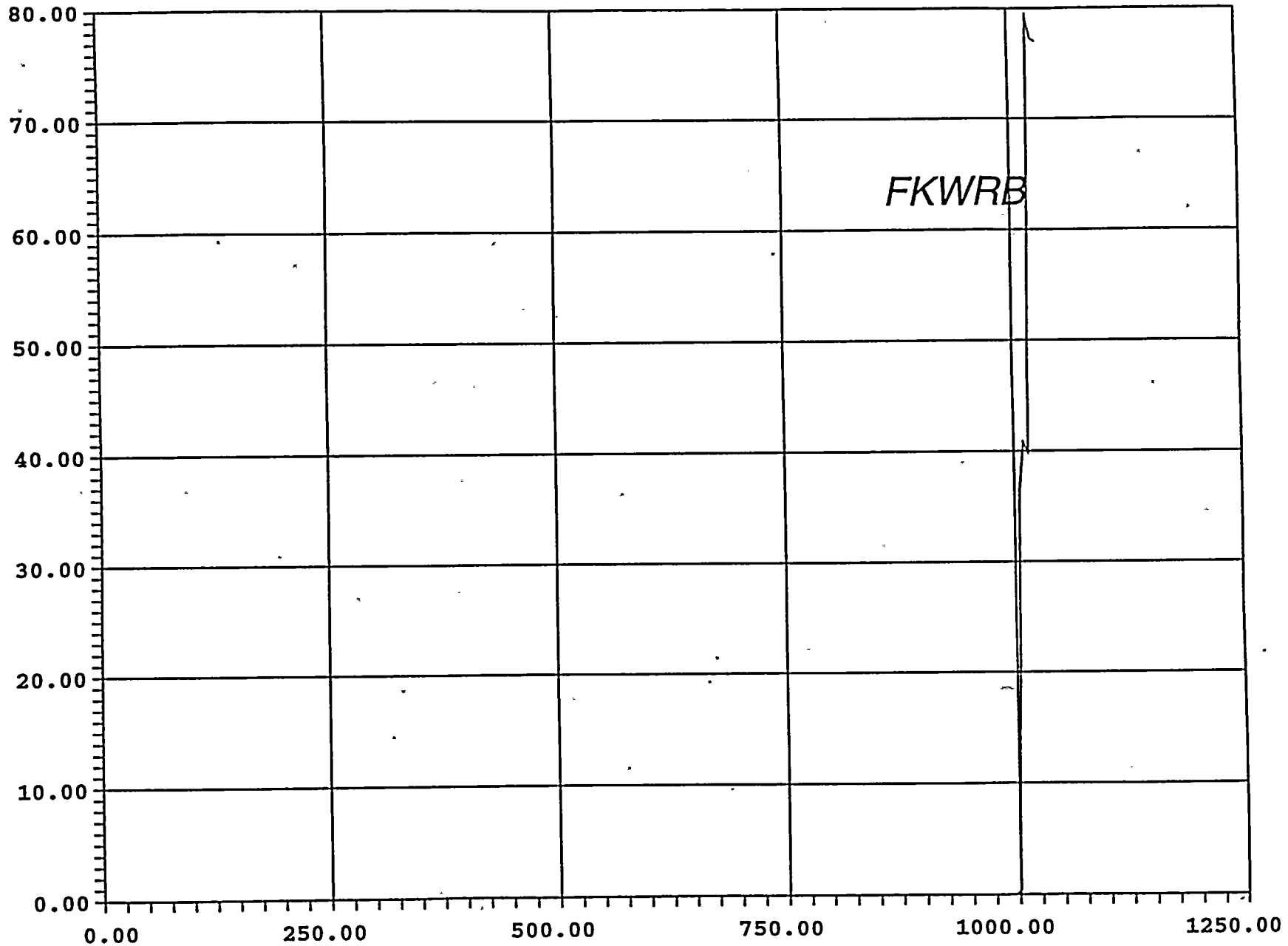

larry : DATA RECORDED ON 25/JUN/98 AT 04:03:31
LT_9023A SENSOR INPUT 6 377 06 %
70.00
60.00
50.00
40.00
30.00
20.00
10.00
S1LSIN6
0.00
250.00
500.00
750.00
1000.00
1250.00
Time (sec)


larry : DATA RECORDED ON 25/JUN/98 AT 04:03:31
LT_9013A SENSOR INPUT 0 376 A10 %
70.00
60.00
50.00
40.00
30.00
20.00
10.00
S1LSIN
0.00
250.00
500.00
750.00
1000.00
1250.00
Time (sec)

larry : DATA RECORDED ON 25/JUN/98 AT 04:03:31



larry : DATA RECORDED ON 25/JUN/98 AT 04:03:31



AFW FW HEADER B FLOW lbs/sec

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 103
CONDUCT OF OPERATIONS

APPENDIX E
EOP OPERATING PHILOSOPHY
(Page 7 of 12)

Emergency Operating Procedure Implementation: (continued)

1. (continued)

   H. (continued)

      3. If a valid ESFAS actuation occurs, then the operating crew should NOT exit EOP-1 to EOP-2. EOP-1 should be exited to one of the optimal recovery EOPs or EOP-15 for the following reasons:

         a. The optimal recovery EOPs contain procedural steps to determine the extent of the damage.

         b. EOP-2 entry conditions assumes an uncomplicated trip has occurred. A valid ESFAS actuation is NOT an uncomplicated trip.

      4. If a spurious invalid ESFAS actuation occurs in any plant mode, Then perform the applicable EOP 99 table prior to restoration of components.

      5. Manual initiation of AFAS is allowable under the following circumstances:

         a. Automatic actuation of the system did NOT occur after the appropriate time delay has elapsed.

         b. When cooling down the RCS using only one Steam Generator, if the operable Steam Generator is affected by the AFAS rupture identification circuit.

         c. During the loss of off-site power conditions, after AFAS actuation, if one feedwater header pressurizes before the other. This assumes neither feed header is ruptured.

      6. Manual initiation of AFAS should NOT be done during other scenarios because it defeats the rupture identification circuit. This does NOT prevent a crew decision to manually operate AFW components, start pumps and open valves, if deemed necessary.

Question 73

A LOOP/LOCA has occured on Unit 1 and the 1A EDG has failed to start. The ANPS has directed alignment of the 1B charging pump to the Auxiliary HPSI header per EOP-99, Appendix T. Which of the following describes the procedurally directed reason for this alignment?

To provide an alternate means of:

a. Hot Leg Injection flow

b. RCS makeup

c. emergency boration

d. collapsing the vessel head void

Question 73: Accept distractor B or distractor C as the correct answer. EOP-15 is the only place Appendix T is referenced in the event of a ruptured charging header and the need to emergency borate. EOP-15 is not mentioned in the stem. If the LOCA referenced in the stem was in the charging header, distractor B (RCS makeup) could be viable.

5.2 REACTIVITY CONTROL
(continued)

Success Path 2: Emergency Boration CVCS

INSTRUCTIONS	CONTINGENCY ACTIONS
2.	2. (continued) B. (continued) 2. Place control switch for V2501, "VCT Discharge Valve" to CLOSE, and hold closed. 3. Locally OPEN the following breakers: a. 1-42018 (V2501 at 1B5 MCC) AND b. 1-42017 (V2504 at 1B5 MCC) 4. Release V2504 and V2501 control switches.
☐ 3. Ensure at least one charging pump is operating using a CVCS flow path.	3. <u>If</u> the CVCS flow path is unavailable; <u>Then</u> emergency borate using auxiliary HPSI header per Appendix T, "Alternate Charging Flow Path to RCS Through Aux. HPSI Header."

APPENDIX T
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUX. HPSI HEADER
(Page 1 of 3)

NOTE
Letdown will NOT be available while charging through Aux. HPSI Header due to loss of cooling flow through the regenerative heat exchanger.

1. If charging flow is lost due to a rupture or component failure downstream of V2429, "Charging Pump Discharge Isolation," Then perform the following:

CAUTION
Closure of V3656 will render Aux. HPSI Header inoperable.

A. CLOSE V3656, "HPSI Pump 1A Discharge Valve." (RTGB 106, Key 54)

B. Place all charging pump control switches to the STOP position while realigning system.

C. Locally CLOSE V2429, "Charging Pump Discharge Isolation," to isolate the failed portion of the line (located in pipe penetration room at Penetration Number 27).

D. OPEN one Auxiliary HPSI Header Loop Isolation Valve:

HCV-3617 1A2 Cold Leg
HCV-3627 1A1 Cold Leg
HCV-3637 1B1 Cold Leg
HCV-3647 1B2 Cold Leg

E. Locally OPEN V2340, "Charging Pumps Discharge to Auxiliary HPSI Header Isolation," located in 1A Charging Pump Room.

F. Establish boration to charging pump by starting 1A or 1B BAM Pump and opening V2514, "Emergency Borate Valve."

G. Start the desired charging pump and borate as necessary to maintain shutdown margin greater than or equal to 3600 pcm.

(Continued on Next Page)

APPENDIX T
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUX. HPSI HEADER
(Page 2 of 3)

1. (continued)

   H. Verify charging flow to RCS by observing pressurizer level increase and applicable HPSI Loop Flow Indicator.

      FI-3311 FI-3331
      FI-3321 FI-3341

   I. Record all charging pump cycles using AP 0010134, "Component Cycles and Transients," and forward to Technical Staff for review.

2. If a loss of charging flow path has occurred due to a line rupture or component failure upstream of V2429, "Charging Pump Discharge Isolation," Then perform the following:

   NOTE
   1A Charging Pump will be required to perform this lineup.

   A. CLOSE V3656 "HPSI Pump 1A Discharge Valve." (RTGB 106, Key 54)

   B. Place all charging pump control switches to the STOP position while realigning system.

   C. Locally CLOSE V2338, "1A Charging Pump Discharge to Charging Pump Header Isolation."

   D. OPEN one Auxiliary HPSI Header Loop Isolation Valve:

      HCV-3617 1A2 Cold Leg
      HCV-3627 1A1 Cold Leg
      HCV-3637 1B1 Cold Leg
      HCV-3647 1B2 Cold Leg

   E. Locally OPEN V2340, "Charging Pump Discharge to Auxiliary HPSI Header Isolation," located in 1A Charging Pump Room.

(Continued on Next Page)

APPENDIX T
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUX. HPSI HEADER
(Page 3 of 3)

2. (continued)

F. Establish boration to charging pump by starting 1A or 1B BAM Pump and opening V2514, "Emergency Borate Valve."

G. Start the 1A Charging Pump and borate as necessary to maintain shutdown margin greater than or equal to 3600 pcm.

H. Verify charging flow to RCS by observing pressurizer level increase and applicable HPSI Loop Flow Indicator:

FI-3311 FI-3331
FI-3321 FI-3341

I. Record all charging pump cycles using AP 0010134, "Component Cycles and Transients," and forward to Technical Staff for review.

END OF APPENDIX T

Question 95

According to ADM-11.03, "Temporary Change to Procedures", which one of the following is an example of a valid Temporary Change (TC) to a Procedure?

A Temporary Change that is:

a. authorized for 92 days by the NPS and Operations Manager.

b. authorized on an EPIP by the NPS with concurrence from the QA Manager.

c. implemented for 14 days and to be reviewed by the FRG tomorrow.

d. implemented to delete an Independent Verification on an inaccessible valve.

Question 95: Accept distractor C and distractor D as the correct answer. Distractor C does not state that the Temporary Change has actually been in use for 14 days. "The Temporary Change that is implemented" rather than "The Temporary Change that has been implemented" could mean originated with a 14 day time limit, therefore, FRG would be reviewing it on the second day after implementation.

6.0 INSTRUCTIONS (continued)

6.2 Processing of TCs After Review/Approval

1. TCs to Unit Specific PSL Procedures

   A. The Author shall make a copy of the approved TC and attach it to the controlled procedure in the associated Unit's Control Room.

   B. Place the original in the FRG Technician Bin located in the Control Room.

2. TCs to Unit Common PSL Procedures

   A. The Author shall make copies of the approved TC and distribute them as follows:

      1. Attach one copy to the affected controlled procedure in the Unit 1 Control Room.

      2. Attach one copy to the affected controlled procedure in the Unit 2 Control Room.

   B. Place the original in the FRG Technician Bin located in the Control Room.

3. TCs to Contractor or Vendor Procedures

   A. The Author shall make a copy of the approved TC and attach it to or file it with the onsite Master copy of the Contractor's or Vendor's procedure.

   B. Place the original in the FRG Technician Bin located in the Control Room.

4. The FRG Technician shall ensure all TCs obtain FRG review and PGM approval within 14 days of implementation.

5. In the event a TC is NOT approved by the Plant General Manager within 14 days of the TC implementation date, a Condition Report shall be generated.

END OF SECTION 6.2

Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

FPL

L-98-197

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Attn: Mr. Thomas A. Peebles, Chief
Operator Licensing and
Human Performance Branch
Atlanta Federal Center
61 Forsyth St., SW
Suite 23T85
Atlanta, GA 30303

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Operator License Training Program
June 19, 1998 RO/SRO Exam Comments
Question 73

On June 19, 1998, the NRC administered Reactor Operator (RO) and Senior Reactor Operator (SRO) Examinations at St. Lucie Plant. Attachment 1 to this letter provides amended comments regarding question 73 as requested during a July 16, 1998, discussion between Mr. G. Hopper (NRC) and Mr. Tim Bolander (FPL). Attachments 2, 3, and 4 are references that support the foundation of the comments.

Please contact us should you have any questions regarding this letter.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/spt

Attachments

June 1998 USNRC SRO Examination

Question 73
Amended Comment

Content:

Question stem refers to a LOOP/LOCA with one EDG failure. Question then asks for the reason to use Appendix T of EOP-99, which cross connects 1B Charging Pump with the Auxiliary HPSI header.

Purposes:

Charging to Auxiliary HPSI is used for several purposes. They include:

1. Emergency Boration for reactivity control if the charging header is ruptured.
2. Inventory addition to the RCS if the charging header is ruptured.
3. Leak testing of the check valves in the ECCS system.

References (attached):

1. CVCS design basis of St. Lucie Unit 1 UFSAR, section 9.3.4.1M & N
2. HPSI design basis of St. Lucie Unit 1 ECCS system text, 0711207
3. ONOP 1-0210030, "Charging and Letdown", Appendix B

Comments:

The question gives no configuration that would require using either lineup. This requires the candidate to make at least two assumptions. The common assumption is that the charging header is ruptured. The second assumption leads to utilization of either purpose 1 or 2 of the cross connect.

LOCA is an event that can place Inventory Control in jeopardy. If the candidate reasonably assumed that the only available HPSI pump had failed, Inventory Control would be in jeopardy. This scenario would lead to implementation of EOP-15. After steps 1-9 are completed, the next process would be success path 2 of RCS Inventory control. The final contingencies of this path state the following: "If RCS Inventory Control is not satisfied, then:

"A. Continue actions to establish Inventory Control while pursuing other safety functions that are in jeopardy."
(A reasonable path would be the use of Appendix T to establish 44 GPM of makeup entering the RCS)

"B. Request additional instructions from the Technical Support Center."
(A reasonable path would be instructions for the use of Appendix T to establish 44 GPM of makeup entering the RCS)

If the candidate assumed multiple stuck CEAs, this would also lead to the implementation of EOP-15. After steps 1-9 are completed, the next process would be Success Path 2 of Reactivity Control. One of the contingency steps in Success Path 2 utilizes Appendix T to establish Emergency boration.

Comparing the Off-Normal (Appendix B) and Emergency (Appendix T) procedures:

1. ONOP step 7.25 uses Appendix B to establish an alternate charging path (makeup).

2. Neither appendix states the reason for establishing the lineup and both have the same title.

3. Both appendixes use the same steps for making the alignment, except the EOP appendix aligns the charging pump suction to the Boric Acid Makeup Tanks. This different alignment is expected as the charging pumps automatically align to the BAM tanks post SIAS.

Conclusion:

From the information given in the stem of the question, an SRO could correctly answer the reason for this alignment is either RCS makeup or Emergency Boration.

Due to the reasons listed above, it is requested that both distractor B and distractor C be accepted as correct answers on this question.

9.3.4 CHEMICAL AND VOLUME CONTROL SYSTEM

9.3.4.1 Design Bases

The chemical and volume control system is designed to:

a) maintain the chemistry and purity of the reactor coolant within the limits specified in Table 9.3-8

b) maintain the required volume of water in the reactor coolant system by compensating for coolant contraction or expansion due to plant step load changes of ±10 percent of full power and ramp changes of ±5 percent of full power per minute between 15 and 100 percent power and for reactor coolant losses or additions

c) accept out-flow from the reactor coolant system when the reactor coolant is heated at the administrative rate of 75F/hr and to provide the required makeup when the reactor coolant is cooled at the administrative rate of 75F/hr using two charging pumps

d) accommodate the reactor coolant system water inventory change for a full-to-zero power decrease with no makeup system operation and with the volume control tank initially at the normal operating level band

e) inject concentrated boric acid into the reactor coolant system upon a safety injection actuation signal (SIAS)

f) control the boron concentration in the reactor coolant system to obtain optimum control element assembly (CEA) positioning to compensate for reactivity changes associated with large changes in reactor coolant temperature, core burnup, and xenon concentration variations, and to provide shutdown margin for maintenance and refueling operations

g) inject boron in sufficient quantity to counteract the maximum reactivity increase due to cooldown at 75F/hr and xenon decay using one charging pump

h) automatically divert the letdown flow to the waste management system (WMS) when the volume control tank is at the highest permissible level

i) provide continuous on-line measurement of reactor coolant boron concentration and radioactivity due to fission and corrosion products

j) assure that the radioactivity due to corrosion and fission products in the reactor coolant system does not exceed Technical Specification limits for an assumed 1 percent failed fuel condition

k) provide auxiliary pressurizer spray for operator control of the reactor coolant system pressure during the final stages of shutdown and to allow for the cooling of the pressurizer

l) collect the controlled bleedoff from the reactor coolant pump seals

m) provide an alternative charging path to the Reactor Coolant System should the normal charging path become inoperable.

n) leak test the reactor coolant system

o) withstand the environmental conditions as presented in Section 3.11

p) withstand the expected transients given in Table 9.3-9 without any adverse effects.

q) supply a source of coolant water to be injected into the reactor coolant pump seals

r) provide a means for filling and maintaining the boron concentration of the Safety Injection Tanks

Portions of the CVCS system required for safe shutdown are designed and built to meet the requirements of seismic Class I in accordance with Regulatory Guide 1.29 to satisfy the design bases (e) and (f) above during and after a design bases earthquake, such as the boric acid injection portions of the systems from the boric acid makeup tanks through the boric acid makeup pumps and the charging pumps. The letdown line through the letdown heat exchangers (and the component cooling water supply), the ion exchangers and volume control tank are not required for boron injection and accordingly are designed to be Quality Group D and non-seismic Class I. FSAR Appendix 3D presents a discussion of a CVCS letdown line break and mitigation with the resultant effects on safety related equipment due to the accident environment.

The pressurizer steam space (vented through the pressurizer power relief valves) and contraction due to reactor coolant system cooldown provides sufficient volume for the injection of the required amount of concentrated (2.5 weight percent minimum) boric acid to provide a minimum of 5 percent $\Delta\rho$ subcritically at cold shutdown.

The HPSI System HP [B] header and auxiliary HP [A] header are protected from over pressurization by a relief valve located on each header. The HP [B] header relief valve, V3412, is a back pressure compensated valve with a set pressure of 1750 psig and a capacity of 5 gpm. The auxiliary HP [A] header relief valve, V3417, has a set pressure of 2485 psig and a capacity of 132 gpm. The increased capacity and set pressure of the auxiliary HP [A] header relief valve allows the charging pumps to use this piping for charging into the RCS (not a normal path).

c. Low Pressure Safety Injection

The purpose of the Low Pressure Safety Injection (LPSI) pumps is to inject borated water into the RCS to minimize the severity of a LOCA by injecting with sufficient capacity to keep the core cooled during the injection phase. The LPSI pumps are also used to provide shutdown cooling flow, fill the SITs and provide purification flow for the RCS while shutdown.

The LPSI System consists of two pumps with separate suction headers from the RWT. The two pumps automatically start on SIAS and discharge through normally open motor operated valves. LPSI pump A discharges through V3206. LPSI pump B discharges through V3207. These valves are motor operated on Unit 1 and manually operated on Unit 2. The discharge flow, in Unit 1, then combines into a single pipe through an air operated flow control valve, FCV-3306, into a four pipe low pressure header. Refer to Figure 1. [Unit 2 LPSI discharge piping consists of two separate lines, as shown in Figure 2, each supplying a two pipe low pressure header, A and B.] Valve FCV-3306 [FCV 3306 and FCV 3301] is controlled from RTGB 106 [206] by a two-position, **AUTO-LOCKED OPEN** switch. Each low pressure header is provided with a normally closed motor operated isolation valve which opens automatically on a SIAS thus opening the flow path for safety injection into the RCS. The LPSI header isolation valves are powered from the following 480 V power supplies: HCV 3615, LPSI to loop A2, MCC A5; HCV 3625, LPSI to loop A1, MCC A6; HCV 3635, LPSI to loop B1, MCC B5; HCV 3645, LPSI to loop B2, MCC B6. All four valves can be controlled from RTGB 106 by individual three-position **CLOSE-AUTO-OPEN** (spring return to

5.4 RCS INVENTORY CONTROL
(continued)

Success Path 2: SIAS and Charging Pumps

INSTRUCTIONS	CONTINGENCY ACTIONS
14. (continued) B. At RTGB 105, OPEN V6301 and V6302, "RDT Containment Isolation Valves" by placing the switches to RESET, Then OPEN. C. Ensure the CRAC panel annunciator, Annunciator Y-19, "ECCS Pump Room Leakage Valves Misaligned" is lit.	
☐ 15. Verify "RCS Inventory Control" is being satisfied by the following criteria: A. Reactor vessel level indicates core is covered. (Sensors 7 and 8 covered, page 212, QSPDS.) AND	15. If "RCS Inventory Control" is NOT satisfied, Then: A. Continue actions to establish inventory control while pursuing other safety functions in jeopardy. B. Request additional instructions from the Technical Support Center.

(Continued on Next Page)

S_1_OPS

DATE
DOCT PROCEDURE
DOCN 1-0210030
SYS
COMP COMPLETED
ITM 31

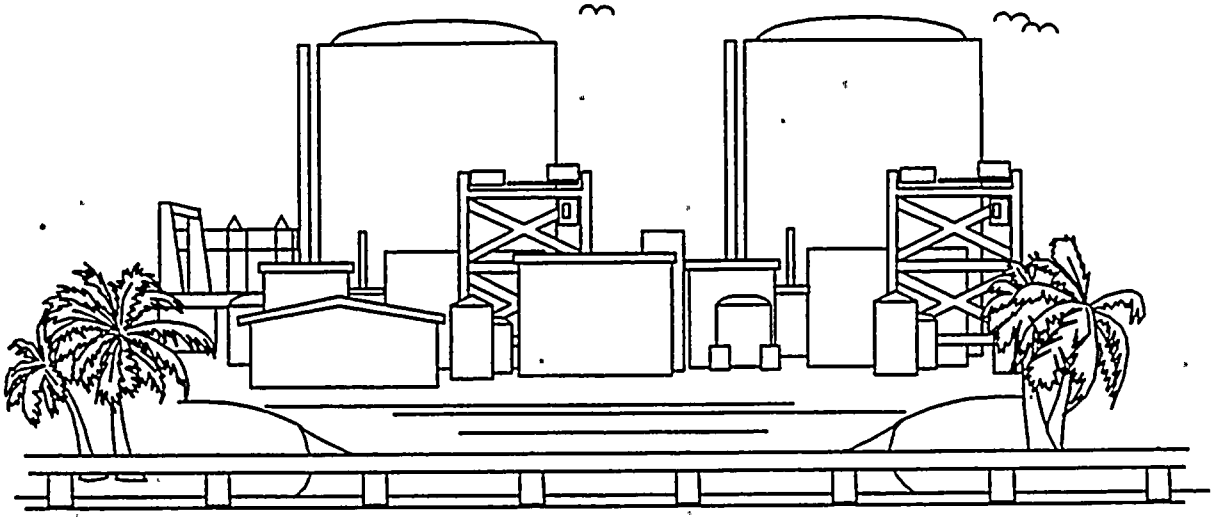
FLORIDA POWER & LIGHT

ST. LUCIE PLANT

UNIT 1

PSL 45

1-0210030
REVISION 31



CHARGING AND LETDOWN

OFF-NORMAL OPERATING PROCEDURE

REVISION	REVIEWED BY FRG ON	APPROVED BY	DATE
0	7/29/75	K. N. Harris Plant General Manager	8/25/75
31	12/4/97	J. Scarola Plant General Manager	12/4/97

Responsible Department: OPERATIONS

CLG 12/14/97

1.0 TITLE:

CHARGING AND LETDOWN

2.0 PURPOSE:

This procedure provides instructions for reestablishing Charging and Letdown flow.

If a malfunction occurs with the in-service letdown level or pressure control valve, this procedure provides steps for placing the alternate valve in service.

3.0 REFERENCES:

3.1 St. Lucie Unit 1 FUSAR, Chapter 9.3.4.

3.2 P & ID Flow Diagrams 8770-G-078 Sheets 120, 121, 130 and 131.

3.3 Control Wiring Diagram, 8770-B-327, Sheet 139

3.4 ONOP 1-0250031, "Boron Concentration Control."

3.5 Unit 1 Technical Specifications.

3.6 One or more of the following symbols may be used in this procedure.

1. § Indicates a Regulatory commitment made by technical specifications, condition of license, audit, LER, bulletin, etc. and should NOT be revised without Facility Review Group approval.

2. ¶ Indicates a management directive, vendor recommendation, plant practice or other non-regulatory commitment that should NOT be revised without consultation with the plant staff.

3. Ψ Indicates a step that requires a sign off on a data sheet.

4.0 RECORDS REQUIRED:

4.1 Normal log entries.

5.0 ENTRY CONDITIONS:

Any one or more of the following conditions exist:

5.1 Loss of charging flow.

5.2 Letdown isolation valves close, isolating letdown.

5.3 Letdown high-low pressure.

5.4 Transfer of letdown level/pressure control valves to alternate valve line-up is required.

6.0 EXIT CONDITIONS:

6.1 Normal Charging/Letdown flows are established with pressurizer level stable.

7.0 OPERATOR ACTIONS:

7.1 Immediate Operator Actions:

INSTRUCTIONS	CONTINGENCY ACTIONS
1. If letdown flow is lost, Then STOP the charging pumps.	
A. RETURN charging pump control switches to AUTO.	
2. If charging flow is lost, Then ISOLATE letdown.	

7.2 Subsequent Operator Actions:

1. If charging and letdown flow has been lost, Then maintain power and temperature constant to minimize pressurizer level deviations.

2. VERIFY all applicable automatic actions have occurred. Appendix A contains a listing of expected automatic actions.

3. If charging and letdown flow has been lost, Then DETERMINE the cause.

4. If a charging system leak has occurred, Then ISOLATE the leak and refer to applicable Technical Specifications for guidance.

5. If the normal charging flow path becomes unavailable, Then REFER to Appendix B, Alternate Charging Flow Path through Auxiliary HPSI Header.

7.0 OPERATOR ACTIONS: (continued)

7.2 (continued)

INSTRUCTIONS	CONTINGENCY ACTIONS
6. If letdown is unavailable, then pressurizer level may be temporarily maintained by cycling charging pumps.	

NOTE

If one or more charging pumps have lost pumping ability, Then gas-binding may have occurred. This can result from pumping the VCT dry (hydrogen binding) or rupture of a charging pump suction accumulator (nitrogen binding). If this is the case, the charging pumps must be vented after restoring a source of water to the suction.

7. If charging and letdown has been lost and can be restored, Then REESTABLISH charging and letdown flow as follows:	7.
A. ENSURE adequate VCT level is indicated.	A. RESTORE the VCT to the normal operating band. Refer to ONOP 1-0250031 "Boron Concentration Control."
B. ENSURE the letdown level control valve selector switch and the letdown pressure control valve selector switch are selected to the level and pressure control valves presently in service.	
C. MATCH the AUTO-MANUAL output of the letdown level controller.	

7.0 OPERATOR ACTIONS: (continued)

7.2 (continued)

INSTRUCTIONS	CONTINGENCY ACTIONS
7. (continued)	
D. SHIFT the letdown level controller to MANUAL, Then close.	
E. ENSURE the letdown pressure controller in AUTO and set to maintain 150 psig.	
F. PLACE the letdown valve position limiter bypass key switch in the BYPASS position.	
G. START one charging pump and verify flow.	
H. VERIFY that regenerative heat exchanger high temperature alarm, SIAS or CIS alarms are NOT present, Then OPEN V2515 and V2516 (letdown isolation valves).	

NOTE

If V2515 reclosed due to a high letdown line temperature, Then it may be necessary to cycle V2515 while opening the letdown level control valve until flow is adequate to clear the high temperature alarm.

I. SLOWLY OPEN the letdown level control valve and ESTABLISH approximately 5 GPM letdown flow.	

7.0 OPERATOR ACTIONS: (continued)

7.2 (continued)

INSTRUCTIONS	CONTINGENCY ACTIONS
7. (continued)	

CAUTION

Prolonged use of charging without letdown could result in the pressurizer going solid. Pressurizer level must be closely monitored.

NOTE

Charging temperature should NOT be allowed to increase more than 60°F per minute.

J. When letdown temperature stabilizes, increase letdown flow at a rate NOT to exceed 5-10 GPM over at least a four minute period, until letdown and charging flows are matched.	J. If letdown cannot be restored, Then initiate charging as required for restoring pressurizer level, seal injection or boration.
K. ENSURE the letdown pressure controller is maintaining letdown pressure at 150 psig.	
L. BALANCE the letdown level control Auto-Manual outputs, Then shift to the AUTO position.	
M. PLACE the letdown valve position limiter bypass key switch to the NORMAL position.	

7.0 OPERATOR ACTIONS: (continued)

7.2 (continued)

INSTRUCTIONS	CONTINGENCY ACTIONS
7. (continued)	
CAUTION V2345, Letdown Safety Relief Valve will open at 600 psig.	
N. SLOWLY RAISE the letdown pressure controller (PIC-2201) setpoint to 430 psig and ENSURE pressure is being maintained.	
8. If Letdown **Level** control is malfunctioning, Then PERFORM the following:	
A. VERIFY output of HIC-1110, PZR LEVEL LTDN CNTL VLV responding as expected to current plant conditions.	A. PLACE HIC-1110 in MANUAL. 1. ADJUST Letdown Flow to a value consistent with current plant conditions. 2. PERFORM a system walkdown observing for evidence of leakage or lifting relief valves.
B. VERIFY selected level control valve responding as expected to HIC-1110 output.	B. PLACE Alternate Letdown Level Control Valve in service using OP 1-0210020, Charging and Letdown - Normal Operation.

7.0 OPERATOR ACTIONS: (continued)

7.2 (continued)

INSTRUCTIONS	CONTINGENCY ACTIONS
9. If Letdown **Pressure** control is malfunctioning, Then PERFORM the following:	
A. VERIFY output of PIC-2201, LTDN PRESSURE, responding as expected for current plant conditions.	A. PLACE PIC-2201 in MANUAL. 1. ADJUST Letdown Pressure to a value consistent with current plant conditions. 2. PERFORM a system walkdown observing for evidence of leakage or lifting relief valves.
B. VERIFY selected pressure control valve responding as expected to PIC-2201 output.	B. PLACE Alternate Letdown Pressure Control Valve in service using OP 1-0210020, Charging and Letdown - Normal Operation.

/R31

APPENDIX A
CHARGING AND LETDOWN AUTOMATIC RESPONSES
(Page 1 of 1)

1. Regenerative heat exchanger high outlet temperature of 470°F closes V2515, Letdown Isol. Valve.

2. High ΔP across the regenerative heat exchanger of 275 psid closes V2516, Letdown Isol. Valve.

3. Charging pumps trip on low suction pressure of 10 psia.

4. Letdown heat exchanger high outlet temperature of 145°F isolates flow to the boronometer and process radiation monitor and diverts letdown flow around the purification ion exchangers.

END OF APPENDIX A

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 1 of 8)

INITIAL

CAUTION
Use of this flow path has the potential for lifting V3417, 1A/1C HPSI Pump Disch Hdr Relief, once a charging pump is started.

NOTE
Letdown will NOT be available while charging through Auxiliary HPSI header due to loss of cooling flow through the regenerative heat exchanger.

1. Ensure all charging pumps are off. _____

2. If charging flow is lost due to a rupture or component failure downstream of V2429, Charging Pump Disch at Penetr #27 Isol, Then perform the following:

NOTE
Closure of V3656 will render the Auxiliary HPSI Header inoperable.

A. Close V3656, HPSI Pump 1A Discharge. _____

CAUTION
When all charging pumps are in the STOP position, Technical Specification 3.0.3 is applicable.

B. Place all charging pump control switches to the STOP position. _____

C. Locally close V2429, Charging Pump Disch at Penetr #27 Isol, located in penetration room at Penetration Number 27. _____

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 2 of 8)

2. (continued) INITIAL

D. Open one of the following valves:

HCV-3617, AUX HPSI Hdr to Loop 1A2 valve.
HCV-3627, AUX HPSI Hdr to Loop 1A1 valve.
HCV-3637, AUX HPSI Hdr to Loop 1B1 valve.
HCV-3647, AUX HPSI Hdr to Loop 1B2 valve. _____

E. Locally open V2340, Charging Pump Disch Hdr to Aux HPSI Hdr Isol, located in 1A Charging Pump Room. _____

F. Install the following temporary jumpers to prevent charging pump auto start on low pressurizer level:

RTGB 103, Terminal Board HH, T58 to T59. _____

RTGB 103, Terminal Board HH, T59 to T60. _____

G. Ensure RCS pressure is being maintained less than or equal to 2250 psia. _____

CAUTION

- Use of this flowpath will result in a boron addition to the RCS. Up to 725 gallons of highly borated water may be contained in the Auxiliary HPSI header line being used. RCS temperature must be closely monitored during this evolution.
- RCS pressure must NOT exceed 225 psia at any time a charging pump is discharging into the HPSI header. The charging pump must be stopped if pressure exceeds 2250 psia.

H. Start the selected charging pump. _____

I. Return selected charging pump control switch to the AUTO position. _____

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 3 of 8)

2. (continued) INITIAL

CAUTION
If charging flow to the RCS can NOT be verified, Then V3417, 1A/1C HPSI Pump Disch Hdr Relief, may have lifted.

J. Verify charging flow to RCS by observing pressurizer level increase and applicable HPSI Loop flow indicator FI-3311, FI-3321, FI-3331 or FI-3341. _____

K. If V3417, 1A/1C HPSI Pump Disch Hdr Relief, has lifted, Then perform the following:

NOTE
V3417 will not reseat until HPSI header pressure lowers to approximately 2212 psig.

1. Stop the charging pump. _____

2. When V3417 has reseated, Then determine the cause for its lift.

3. If it has been determined that V3417 is NOT malfunctioning, Then restart the charging pump. _____

4. If it has been determined that V3417 is malfunctioning, Then restore systems' alignment to normal per Step N.

L. Cycle the selected charging pump as necessary to maintain Pressurizer level between 55% and 67%. _____

M. Record all charging pump cycles per AP 0010134, "Component Cycles and Transients," and forward to Technical Staff for review.

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 4 of 8)

2. (continued) INITIAL

N. When alternate charging to the RCS through the Auxiliary HPSI header is no longer desired, Then perform the following:

1. Ensure the charging pumps are off. _____

2. Locally close V2340, Charging Pump Disch Hdr to Aux HPSI Hdr Isol, located in 1A Charging Pump Room. ____/____ I.V.

3. Close or ensure closed the following valves:

HCV-3617, AUX HPSI Hdr to Loop 1A2 valve.
HCV-3627, AUX HPSI Hdr to Loop 1A1 valve.
HCV-3637, AUX HPSI Hdr to Loop 1B1 valve.
HCV-3647, AUX HPSI Hdr to Loop 1B2 valve. ____/____ I.V.

4. Locally lock open V2429, Charging Pump Disch at Penetr #27 Isol. ____/____ I.V.

5. Lock open V3656, HPSI Pump 1A Discharge. ____/____ I.V.

6. Remove the following jumpers:

A. RTGB 103, Terminal Board HH, T58 to T59 ____/____ I.V.

B. RTGB 103, Terminal Board HH, T59 to T60 ____/____ I.V.

O. Notify Technical Staff to perform required check valve leak testing when this evolution is complete. _____

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 5 of 8)

INITIAL

3. If a loss of charging flow path has occurred due to a line rupture or component failure upstream of V2429, Charging Pump Disch at Penetr #27 Isol, Then perform the following:

> **NOTE**
> 1A charging pump will be required to perform this lineup.

A. Close V3656, HPSI Pump 1A Discharge. _____

B. Place all charging pump control switches to the STOP position while realigning system. _____

C. Close V2429, Charging Pump Disch at Penetr #27 Isol. _____

D. Locally close V2338, 1A Charging Pump Disch to Charging Pump Disch Hdr Isol. _____

E. Open one of the following valves:

HCV-3617, AUX HPSI Hdr to Loop 1A2 valve.
HCV-3627, AUX HPSI Hdr to Loop 1A1 valve.
HCV-3637, AUX HPSI Hdr to Loop 1B1 valve.
HCV-3647, AUX HPSI Hdr to Loop 1B2 valve. _____

F. Locally open V2340, Charging Pump Disch Hdr to Aux HPSI Hdr Isol, located in 1A Charging Pump Room. _____

G. Install the following temporary jumpers to prevent charging pump auto start on low pressurizer level:

RTGB 103, Terminal Board HH, T58 to T59 _____

RTGB 103, Terminal Board HH, T59 to T60 _____

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 6 of 8)

3. (continued) INITIAL

H. Ensure RCS pressure is being maintained less than or equal to 2250 psia. _____

CAUTION

- Use of this flowpath will result in a boron addition to the RCS. Up to 725 gallons of highly borated water may be contained in the A HPSI header line being used. RCS temperature must be closely monitored during this evolution.
- RCS pressure must NOT exceed 2250 psia at any time a charging pump is discharging into the HPSI header. The charging pump must be stopped is pressure exceeds 2250 psia.

I. Start the 1A charging pump. _____

J. Return 1A charging pump control switch to the AUTO position. _____

CAUTION

If charging flow to the RCS an NOT be verified, Then V3417, 1A/1C HPSI Pump Disch Hdr Relief, may have lifted.

K. Verify flow to the RCS by observing pressurizer level increase and applicable HPSI flow indicator FI-3311, FI-3321, FI-3331 or FI-3341. _____

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 7 of 8)

3. (continued) INITIAL

L. If V3417, 1A/1C HPSI Pump Disch Hdr Relief, has lifted, Then perform the following:

> **NOTE**
> V3417 will not reseat until HPSI header pressure lowers to approximately 2212 psig.

1. Stop the charging pump. _____

2. When V3417 has reseated, Then determine the cause for its lift.

3. If it has been determined that V3417 is NOT malfunctioning, Then restart the charging pump. _____

4. If it has been determined that V3417 is malfunctioning, Then restore systems' alignment to normal per Step O.

M. Cycle the selected charging pump as necessary to maintain Pressurizer level between 55% and 67%. _____

N. Record all charging pump cycles per AP 0010134, "Component Cycles and Transients," and forward to Technical Staff for review.

APPENDIX B
ALTERNATE CHARGING FLOW PATH TO RCS THROUGH AUXILIARY HPSI HEADER
(Page 8 of 8)

3. (continued) INITIAL

O. When alternate charging to the RCS through the Auxiliary HPSI header is no longer desired, Then perform the following:

1. Ensure the charging pumps are off. _____

2. Locally close V2340, Charging Pump Disch Hdr to Aux HPSI Hdr Isol, located in 1A Charging Pump Room. ____/____ I.V.

3. Close or ensure closed the following valves:

   HCV-3617, AUX HPSI Hdr to Loop 1A2 valve.
   HCV-3627, AUX HPSI Hdr to Loop 1A1 valve.
   HCV-3637, AUX HPSI Hdr to Loop 1B1 valve.
   HCV-3647, AUX HPSI Hdr to Loop 1B2 valve. ____/____ I.V.

4. Locally lock open V2429, Charging Pump Disch at Penetr #27 Isol. ____/____ I.V.

5. Lock open V3656, HPSI Pump 1A Discharge. ____/____ I.V.

6. Remove the following jumpers:

   A. RTGB 103, Terminal Board HH, T58 to T59 ____/____ I.V.

   B. RTGB 103, Terminal Board HH, T59 to T60 ____/____ I.V.

P. Notify Technical Staff to perform required check valve leak testing when this evolution is complete. _____

END OF APPENDIX B

ENCLOSURE 4

NRC RESOLUTION OF FACILITY RECOMMENDATIONS

Question 66: *Recommendation accepted.* The Unit 2 ASI falls directly on the "Acceptable Operation" boundary of the Axial Shape Index curve (Figure 2.2-2). Therefore, since both units ASIs are in the acceptable operation boundary. both Unit 2 and Unit 1 DNB Tech Spec requirements are met which was choice (d) on the question. The answer key was changed to reflect choice (d) as the only correct answer.

Question 70: *Comment accepted.* The NRC reviewed the simulator performance data submitted with the comments and concluded that AFAS actuated in slightly under 17 minutes from the LOOP/reactor trip. Since it is quite likely that a crew would still be in the SPTAs (Standard Post Trip Actions) and if AFAS did not auto actuate as required then anual initiation of AFAS 1 and 2 during SPTAs due to a LOOP form 20% power is a plausible answer. The answer key was changed to accept choice (b) as an additional correct answer.

Question 73: *Comment partially accepted.* The NRC disagreed with the licensee's reason for accepting the additional correct answer. Analysis revealed that the question was flawed and additional information was discovered during the research of the question.

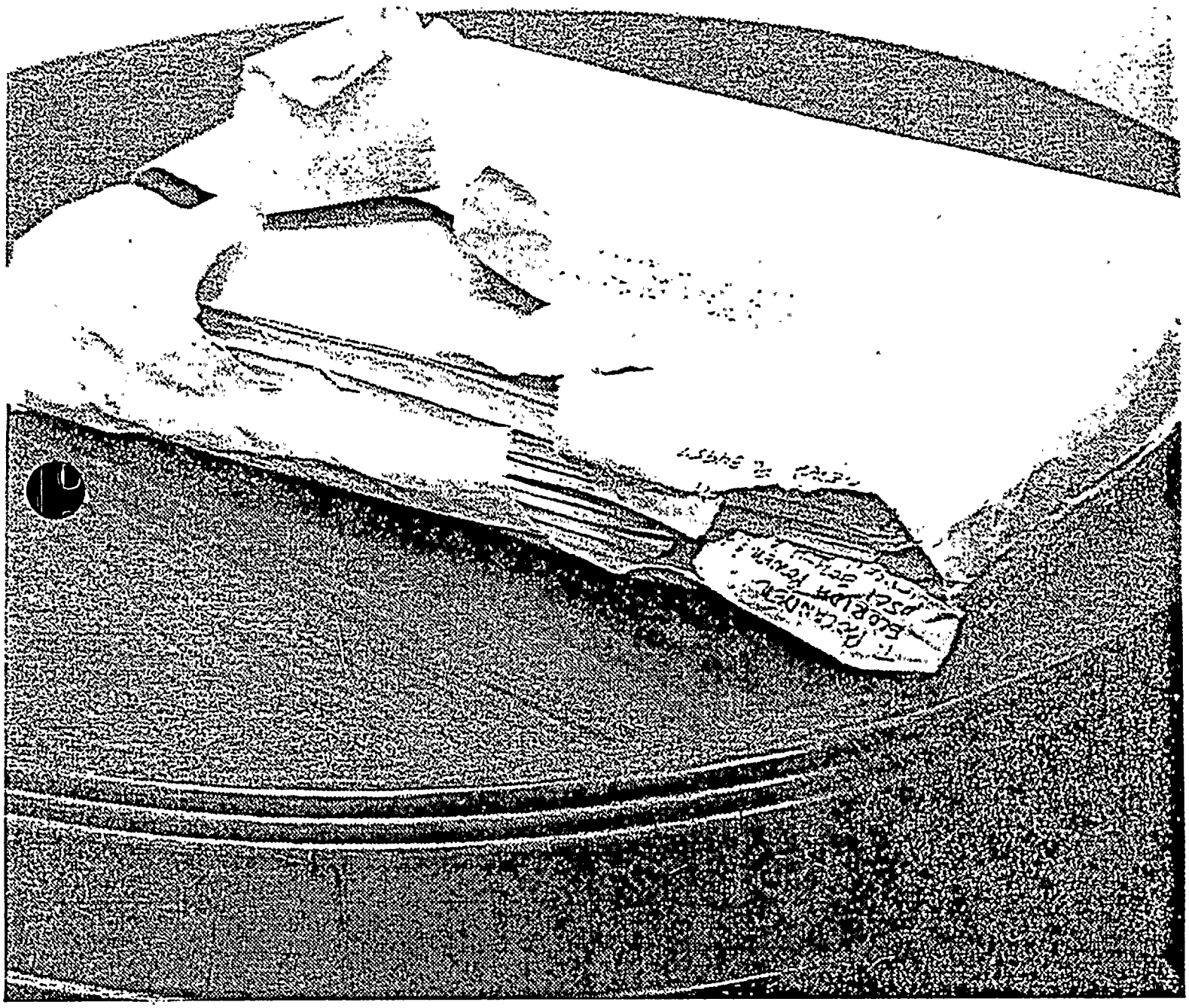
The question attempted to measure a candidate's ability to understand under what conditions would one align the 1B charging pump to the Auxiliary HPSI header per EOP-99, Appendix T. The intended answer was that this is done to perform an emergency boration in EOP-15 success path 2 when the CVCS flowpath is unavailable (normal charging path not available). In the question the candidate was not told there was a problem with the charging header but merely that there was a LOOP/LOCA and the ANPS had directed the alignment of the 1B charging pump to the Auxiliary HPSI header per EOP-99, Appendix T. The candidate had to determine from the information given that there was some problem with the charging header because of the lineup that was directed. The only time EOP-99 appendix T would be used is when the charging header is not available.

The candidate was given a condition of a LOOP/LOCA on Unit 1 with only vital bus B available. The conditions given would not normally require entry into EOP-15, since a LOOP/LOCA is not considered a dual event, and EOP-3 would normally be the path taken. Also there was no information given that would indicate there was a problem with Reactivity Control. The question appears to be hinged on knowing where and why in the EOPs does one use EOP-99 appendix T

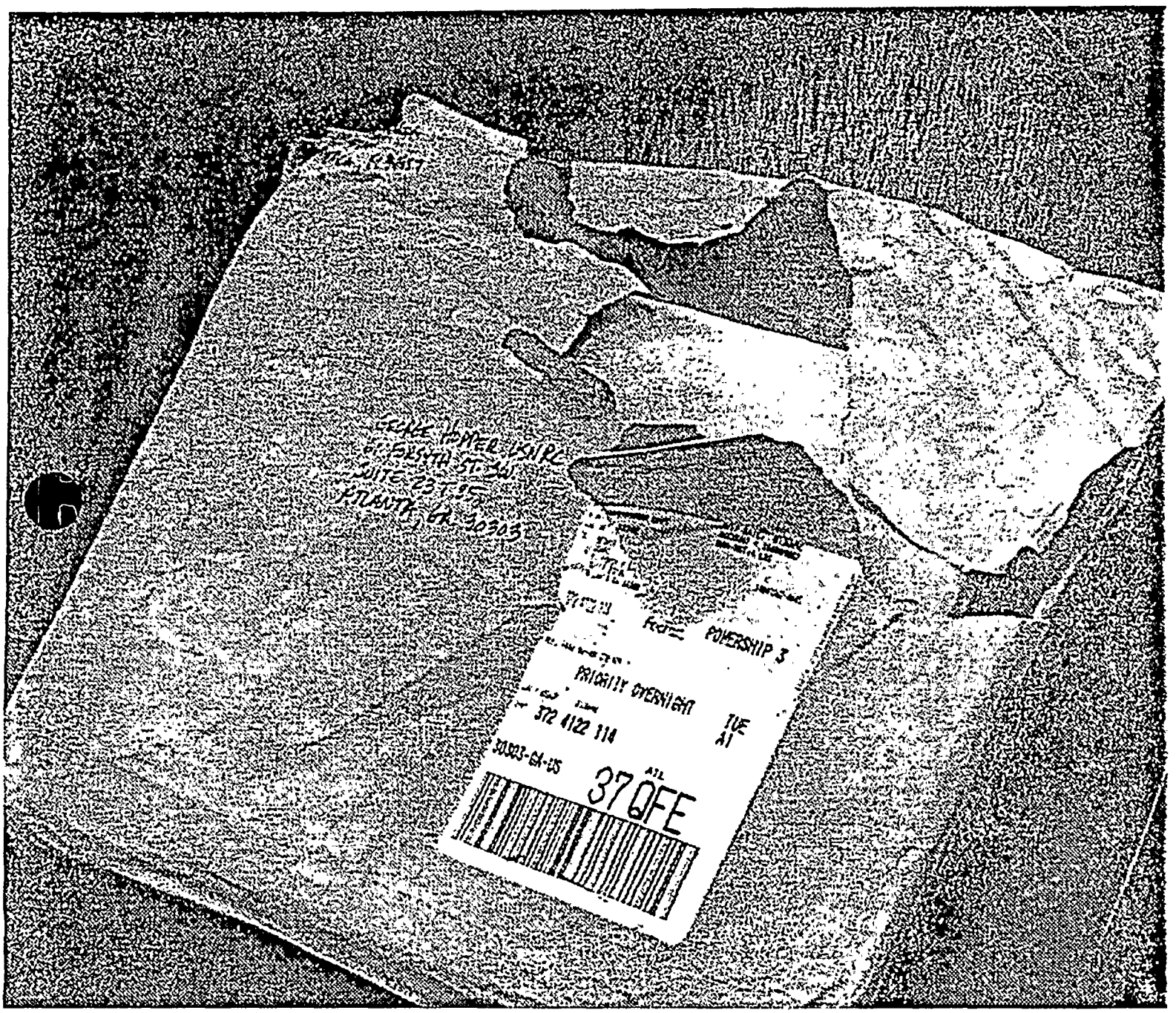
and not on the stated initial conditions. If a candidate recalled that this procedure is used as an alternate emergency boration flowpath in EOP-15 reactivity control choice (c) would be the correct answer. Additionally, emergency boration is a conservative action that usually correct for most emergency situations. With a LOCA in progress the charging pumps automatically align for emergency boration upon receipt of a SIAS signal during a LOCA.

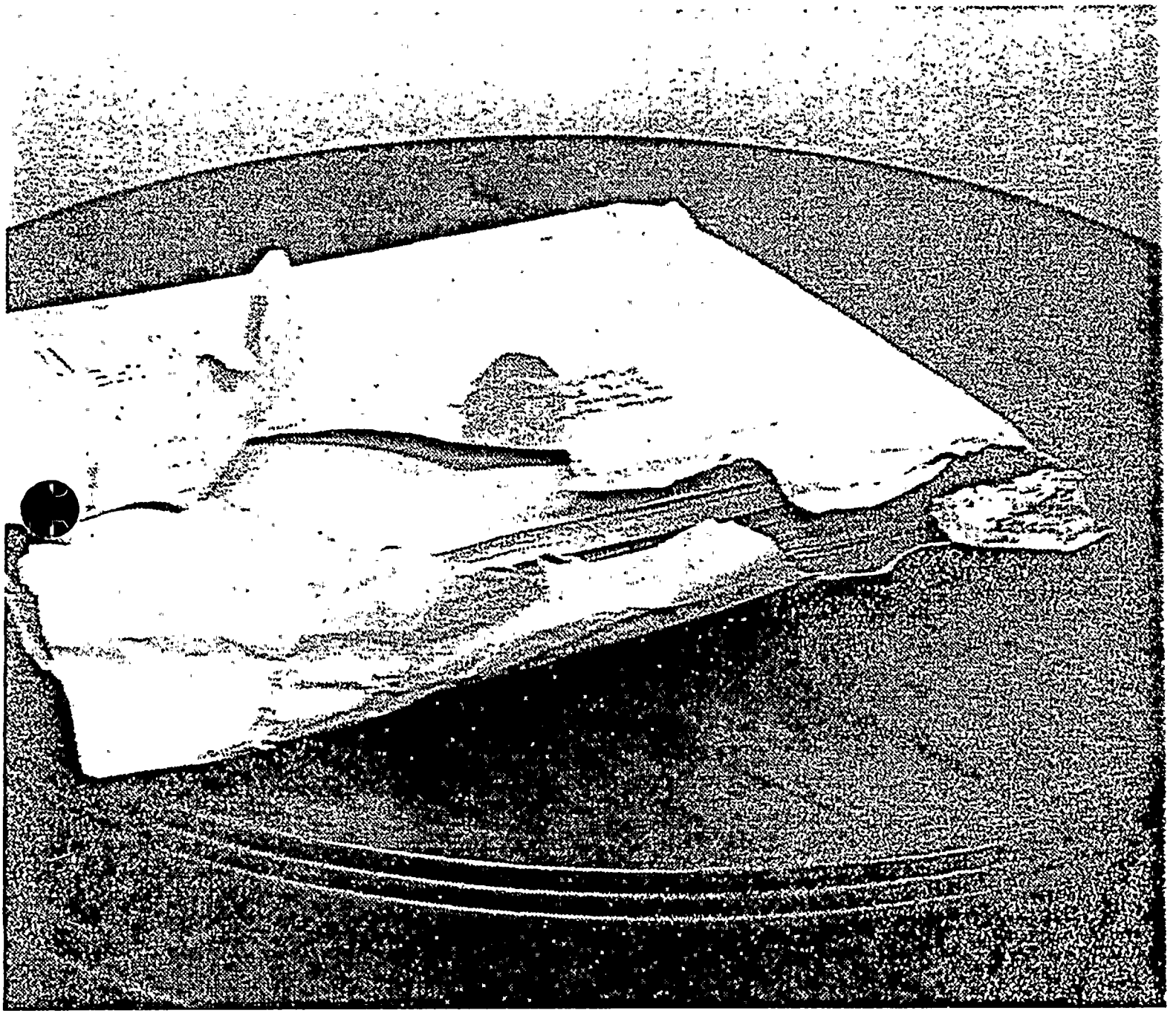
If a candidate used the information in the stem of the question and determined that he did not have a dual event and was in the LOCA procedure with normal charging not available, the "RCS makeup" choice would be correct. EOP-3 LOCA procedure step 6.b requires maximum safety injection flow be established to include "All available charging pumps." If the charging header was unavailable another charging flowpath would be required to ensure all charging pumps were operating. EOP-99 Appendix T is entitled "Alternate Charging Flow Path To RCS through Aux HPSI Header". This procedure is used according to step 1 if, "Charging flow is lost due to a rupture or component failure downstream of V2429, charging pump discharge isolation valve," and normal charging is unavailable. Since implementation of Appendix T would meet the intent of EOP-3 step 6.B with the charging header unavailable, choice (b) is an additional correct answer. The answer key was changed to accept choice (b) as an additional correct answer.

Question 95: *Comment accepted.* The comment refers to the following statement contained in choice (c): "A Temporary Change that is implemented for 14 days and to be reviewed by the FRG tomorrow." Though not the intended interpretation, the NRC agrees that choice (c) could be interpreted to mean that the temporary change was just issued to last only 14 days and to be reviewed by the FRG on the second day vice had been issued for 14 days already and would be reviewed by the FRG on the 15th day. Since the former interpretation meets the requirements of ADM-11.03, "Temporary Change to Procedures" step 6.2.4, it is an additional correct answer. The answer key was changed to accept choice (c) as an additional correct answer.



ENCLOSURE 5


FROM POWERSHIP 3
PRIORITY OVERNIGHT
372 4122 114
TUE
A1
30303-GA-US
ATL
37 0FE



Florida Power & Light Company, 6501 South Ocean Drive, Jensen Beach, FL 34957

FPL

L-98-199
10 CFR 55.5

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Attn: Mr. Thomas A. Peebles
Chief, Operator Licensing and
Human Performance Branch
Atlanta, GA 30303

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Damaged Exam Package Received by NRC

On June 2, 1998, Florida Power & Light Company (FPL) was notified by the NRC that an exam envelope was damaged when delivered. The envelope was shipped via Federal Express from St. Lucie Plant to the NRC Region II Office in Atlanta, Georgia on June 1, 1998. The envelope contained portions of reactor operator and senior reactor operator examinations written by FPL and sent to NRC Region II for review and approval. The envelope was not sent in a standard Federal Express box or envelope. It was sent in a regular brown paper envelope. FPL counsel requested that corporate security assist in an investigation consisting of interviews of persons who may have handled the envelope to determine whether the envelope left the FPL site intact.

On June 3 , 1998, FPL area security manager met with FPL counsel at St. Lucie Nuclear Training Facility. They conducted interviews of FPL employees who handled or saw the envelope in question on the date it was shipped from St. Lucie Plant. Also on June 3, 1998, the FPL area security manager interviewed the Federal Express employee who received the envelope from the FPL St. Lucie Plant shipping and receiving department and transported the package to the Federal Express facilities.

Based on the evidence obtained and the interviews conducted, FPL concluded that the envelope left the St. Lucie Plant intact and undamaged. Should you have any questions, please contact us.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/GRM

ENCLOSURE 6