



February 27, 2018

PG&E Letter DCL-18-013

Mr. Clyde C. Osterholtz
U.S. Nuclear Regulatory Commission, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

10 CFR 55.40

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2 – Initial Operator Licensing Examination: Post-
Examination Materials

Dear Mr. Osterholtz:

In accordance with the guidance provided in Revision 11 of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," ES-501, Section C.1.b, Pacific Gas and Electric Company (PG&E) has previously provided the following post-examination materials in electronic or hardcopy format:

- Questions & Answers Provided to Applicants
- Examination Seating Chart
- Examination Performance Analyses
- Notifications Generated During the Examination
- Completed Form ES-201-3, "Examination Security Agreement"
- Challenge documentation for Examination Question #76
- Remediation for High Missed Questions
- Copies of Applicants' Answer Sheets

In addition to the electronic examination materials, PG&E is submitting the following materials:

- Enclosure 1 – Graded Written Examinations
- Enclosure 2 – ES-403-1, "Written Examination Grading Quality Checklist"

PG&E makes no new or revised regulatory commitments (as defined by NEI 99-04) in this letter.

Mr. Clyde C. Osterholtz

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If you have any questions, please contact Mr. Abdul Kadir, Simulator and Exam Support Supervisor, at 805-545-4200.

Sincerely,

A handwritten signature in blue ink that reads 'Shane Guess'.

Shane Guess

Operations Training Manager

armb/4743/50915562-24

Enclosures (Post-Examination Materials)

cc: John W. Cox, Operations Initial License Training Supervisor
Abdul N. Kadir, Simulator and Examination Support Supervisor
Christopher W. Newport, NRC Senior Resident Inspector
James M. Welsch, Vice President, Generation & Chief Nuclear Officer
Susan L. Westcott, Organizational, Performance and Learning Services
Director

CANDIDATE	1	2	3	4	5	6	7	8	9	10	11
RO-1	X	X	X	X	X	X	X	X	X	X	X
RO-2	X	X	X	X	X	X	X	X	X	X	X
RO-3	X	X	X	X	X	X	X	X	X	X	X
RO-4	X	X	X	X	X	X	X	X	X	X	X
RO-5	X	X	X	X	X	C	X	X	X	X	X
RO-6	X	X	X	X	X	X	X	X	X	X	X
SRO-1	X	X	X	X	X	X	X	X	X	X	X
SRO-2	X	X	X	X	X	X	X	X	X	X	X
SRO-3	X	X	X	X	A	X	X	X	X	X	X
SRO-4	X	X	X	X	X	X	X	X	X	X	X
SRO-5	X	X	X	X	X	X	X	X	X	X	X
SRO-6	X	X	X	X	X	X	X	X	X	X	X
ANSWER	A	B	A	B	C	D	D	D	D	C	A
	100.00%	100.00%	100.00%	100.00%	91.67%	91.67%	100.00%	100.00%	100.00%	100.00%	100.00%

CANDIDATE	Grade	RO Only	SRO Only	RO	SRO
RO-1	94.7%	94.7%		71	
RO-2	97.3%	97.3%		73	
RO-3	96.0%	96.0%		72	
RO-4	90.7%	90.7%		68	
RO-5	93.3%	93.3%		70	
RO-6	96.0%	96.0%		72	
SRO-1	94.0%	93.3%	100.0%	70	24
SRO-2	92.0%	97.3%	79.2%	73	19
SRO-3	83.0%	88.0%	70.8%	66	17
SRO-4	96.0%	98.7%	91.7%	74	22
SRO-5	93.0%	97.3%	83.3%	73	20
SRO-6	97.0%	98.7%	95.8%	74	23
AVERAGE	93.58%	95.11%	86.81%	71	21

Less than 50% 0
Greater than 80% 87

25	26	27	28	29	30	31	32	33	34	35	36	37
X	X	X	X	X	X	B	X	X	X	C	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	B	X	X	X	X	X	X
X	X	X	X	X	X	X	A	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	C	X	X	X	X	X	X	X	A	X
D	X	X	X	X	X	B	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
A	D	B	D	C	B	A	B	C	C	A	D	A
91.67%	100.00%	100.00%	91.67%	100.00%	100.00%	75.00%	91.67%	100.00%	100.00%	91.67%	91.67%	100.00%

38	39	40	41	42	43	44	45	46	47	48	49	50
D	X	X	X	X	X	X	X	X	X	X	C	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	C
X	X	X	X	X	X	A	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	A
X	X	X	X	X	X	X	X	X	X	X	X	X
B	D	B	D	B	C	C	D	D	D	A	A	B
91.67%	100.00%	100.00%	100.00%	100.00%	100.00%	91.67%	100.00%	100.00%	100.00%	100.00%	91.67%	83.33%

51	52	53	54	55	56	57	58	59	60	61	62	63
X	X	X	X	X	X	X	X	X	X	X	X	X
X	C	X	X	X	X	D	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	C	X	X	D	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	D	X	X	X	X	X	X	X	X
X	C	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
A	X	X	X	D	X	B	X	X	X	X	C	X
A	X	X	X	X	X	X	X	X	X	X	X	X
X	C	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
B	A	D	D	C	D	C	D	A	A	D	D	D
83.33%	66.67%	100.00%	100.00%	75.00%	100.00%	83.33%	100.00%	100.00%	100.00%	100.00%	91.67%	100.00%

64	65	66	67	68	69	70	71	72	73	74	75	76*
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	A	X	X	X	
X	X	X	X	X	X	X	C	X	X	X	X	
X	X	C	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	C	A	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	D	X	X	X	C	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	C	X	X	X	X	X	X	
A	B	D	C	B	A	B	B	C	B	D	A	DELETE
100.00%	91.67%	91.67%	100.00%	100.00%	75.00%	91.67%	91.67%	91.67%	100.00%	100.00%	100.00%	

*Question
no correct

77	78	79	80	81	82	83	84	85	86	87	88	89
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	D	X	X	X	X	X	X	C	X	X
X	D	X	X	X	C	X	X	X	X	X	X	X
X	D	X	X	X	X	X	X	X	X	X	X	X
X	A	X	X	X	X	C	X	X	X	B	X	X
X	X	X	X	X	X	C	X	X	X	X	X	X
C	C	B	B	C	D	D	A	D	A	D	A	C
100.00%	50.00%	100.00%	83.33%	100.00%	83.33%	66.67%	100.00%	100.00%	100.00%	66.67%	100.00%	100.00%

76 deleted as it was determined there was answer

Questions missed by half or more than half of the candidates: 1

Question 78 – Proposed answer: C

Missed by 3 of 6 candidates. 2 selected D and 1 selected A.

GIVEN:

- Unit 1 experienced an RCS leak
- Safety Injection actuated
- In E-0, Reactor Trip or Safety Injection, the reactor failed to automatically or manually trip
- The crew is performing EOP FR-S.1, Response To Nuclear Power Generation – ATWS
- In accordance with FR-S.1, the Work Control Lead has implemented and completed E-0, steps 1 through 4 and steps 1 through 11 of Appendix E

Later, while performing step #9 of FR-S.1, “CHECK If Reactor Is Subcritical”, the operator reports:

- Reactor Trip Breakers are closed
- All DRPI rod bottom lights are LIT
- Group Step counters for Control Bank read 110 steps
- Intermediate Range Start Up rate is negative

What action should be taken by the Shift Foreman?

- A. Stop at the current step of FR-S.1 and go to E-0, step 1.
- B. Stop at the current step of FR-S.1 and go to E-0, step 5.
- C. Prepare to exit the procedure by going to step 19, Ensure Adequate Shutdown Margin, then go to E-0, step 1.
- D. Prepare to exit the procedure by going to step 19, Ensure Adequate Shutdown Margin, then go to E-0, step 5.

Answer is correct. The proper response is to go to the defined exit point of FR-S.1, step 19, then return to step 1 of E-0. One candidate did not recognize that the procedure is performed until there is a defined exit point and then go to step 1 of E-0. Two candidates determined that the proper transition is to step 5 of E-0. This is plausible due to the steps of E-0 performed by the Work Control Lead up to step 4 and parts of Appendix E, as stated by the question. However, the entire E-0 must be performed again to verify the plant response and then determine what exit procedure transition is required.

This question was reviewed in detail as part of the overall written exam review with all class candidates.

Mr. Osterholtz,

As stated in NUREG 1021, ES-403, Section D.1.b, sometimes errors are identified after the examination has been administered. Question 76 appears to fall into that category.

Question 76

The crew has initiated Safety Injection based on the following:

- RCS leak estimated at 150 gpm
- RM-11, Containment Air Particulate and RM-12, Containment Rad Gas, are in high alarm
- PK11-21, High Radiation, in alarm

While performing E-0, Reactor Trip or Safety Injection, the operator reports the following:

- RM-74, Steamline Radiation Monitor, has just pegged high, and PK11-18, Main Steam Line Hi Rad, has alarmed
- RM-15 and RM-15R, Steam Jet Air Ejector Radiation Monitors, have both lowered from their normal, pre-trip levels
- RM-19/23, Steam Generator Blowdown Radiation Monitors, have remained at pre-trip levels
- All steam generator narrow range levels are approximately 40% and rising slowly

Which of the following procedure flowpaths from E-0, should be taken by the Shift Foreman to mitigate the event?

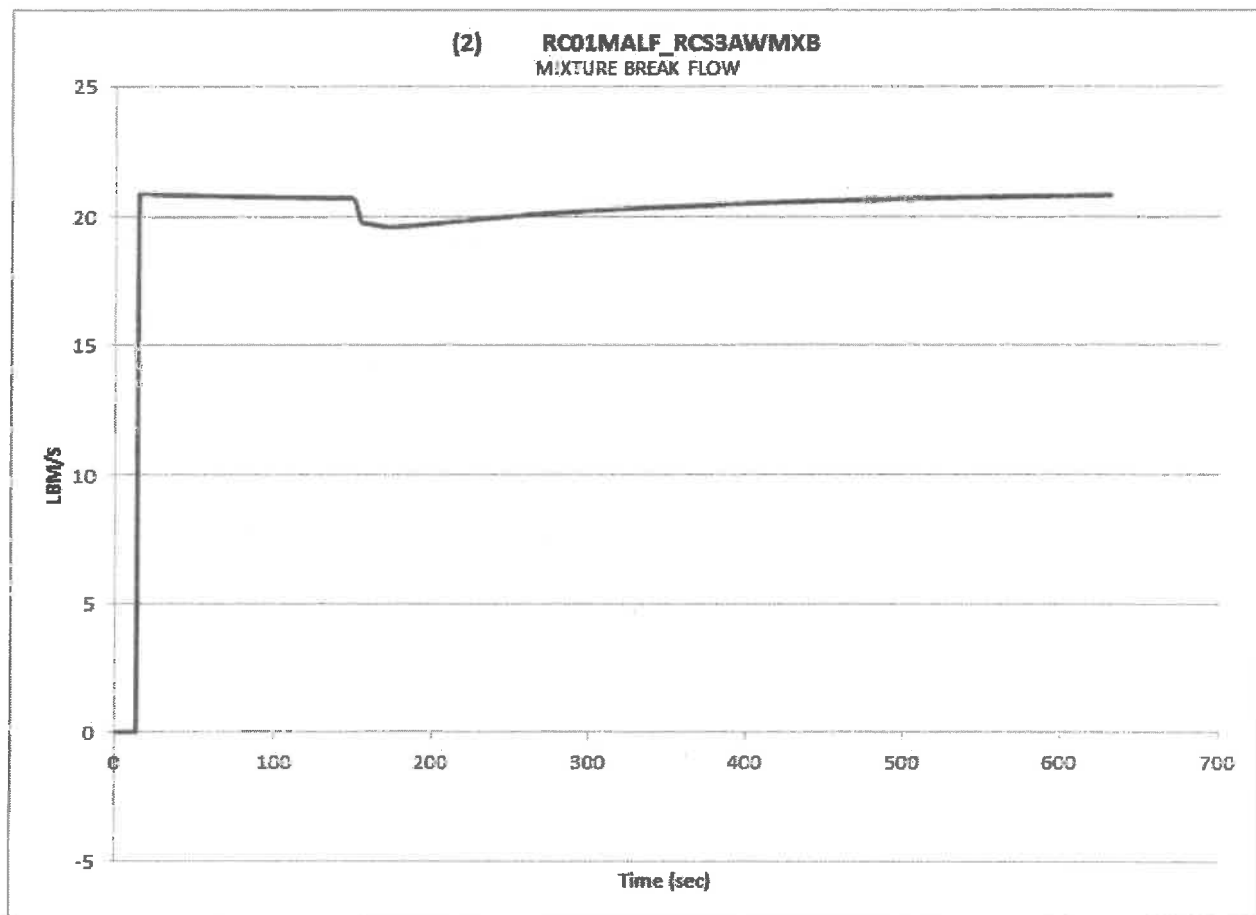
- A. Go to E-1, Loss of Reactor or Secondary Coolant, and remain in E-1.
- B. Go to E-1, Loss of Reactor or Secondary Coolant, then transition to E-1.2, Post LOCA Cooldown and Depressurization.
- C. Go to E-3, Steam Generator Tube Rupture, then transition to E-3.1, Post SGTR Cooldown Using Backfill.
- D. Go to E-3, Steam Generator Tube Rupture, then transition to ECA-3.1, SGTR With Loss of Reactor Coolant-Subcooled Recovery Desired.

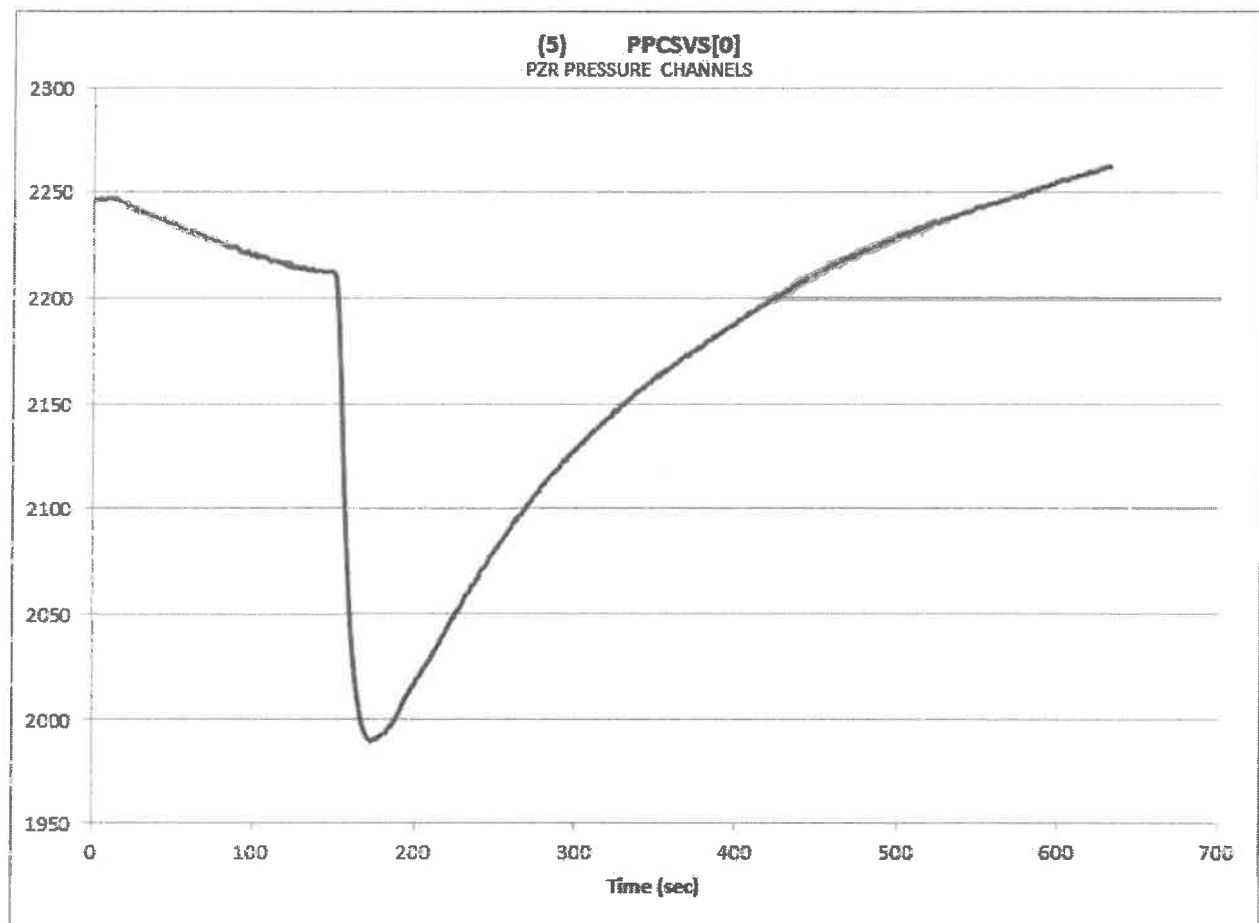
The stem of the question states there is a 150 gpm RCS leak and the crew initiates a Safety Injection. The crew would then enter E-0, *Reactor Trip or Safety Injection*, and transition to E-1, *Loss of Reactor or Secondary Coolant*. To show the plant response, a 150 gpm RCS leak was initiated after 10 seconds and a Safety Injection initiated after 150 seconds, the simulator was allowed to run for 10 minutes. Based on the attached graphs of the event, Reactor Coolant System pressure initially lowers and then starts to rise. The combination of lowering RCS temperature and rising pressure causes subcooling to rise to greater than 100°F. AFW flow to all steam generators ensures a secondary heat sink is available. Therefore, at step 8 of E-1, SI termination criteria would be satisfied and the crew would transition to E-1.1, *SI Termination*.

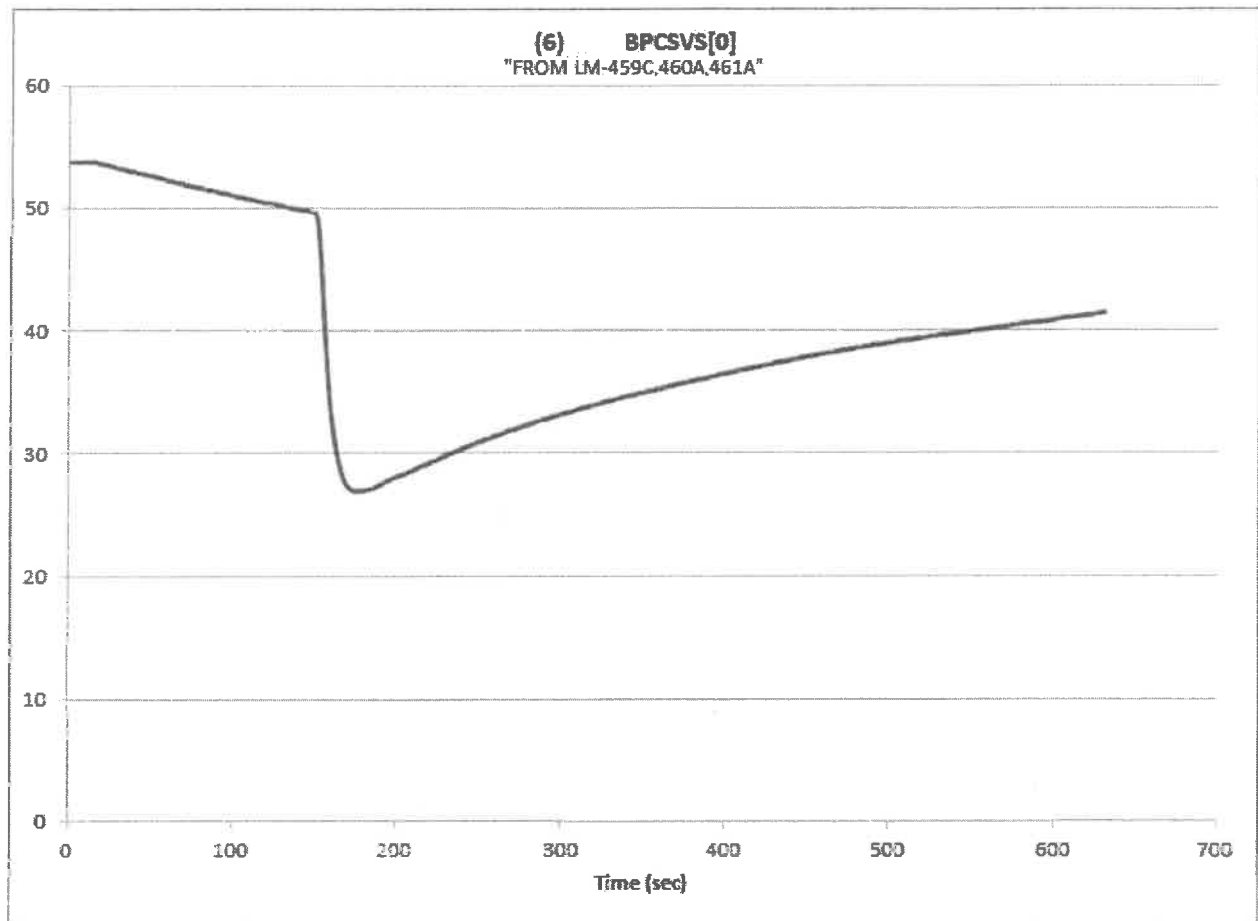
Procedurally the crew would enter E-0, *Reactor Trip or Safety Injection*, at Step 1 and progress to Step 11.c. Step 11.c would direct the crew to go to E-1, *Loss of Reactor or Secondary Coolant*. The crew would enter E-1 at Step 1 and progress to Step 8. Based on the values obtained on the simulator, the crew would meet ALL of the conditions needed to reduce Emergency Core Cooling System flow and be directed to E-1.1, *SI Termination*. (Steps 11.c of E-0 and Step 8 of E-1 are attached after the graphs. The entire procedures have been included in the submittal for review.)

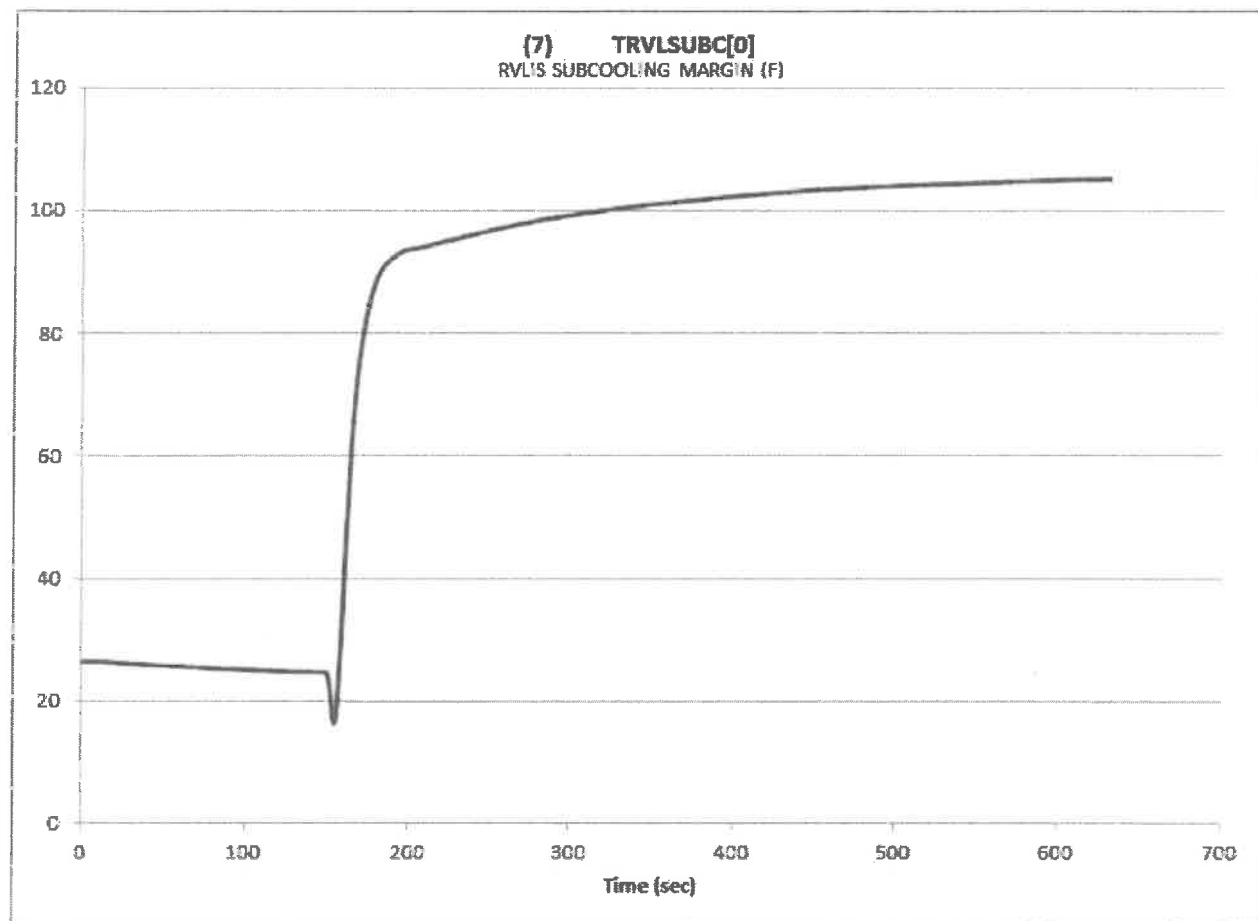
Recommendation:

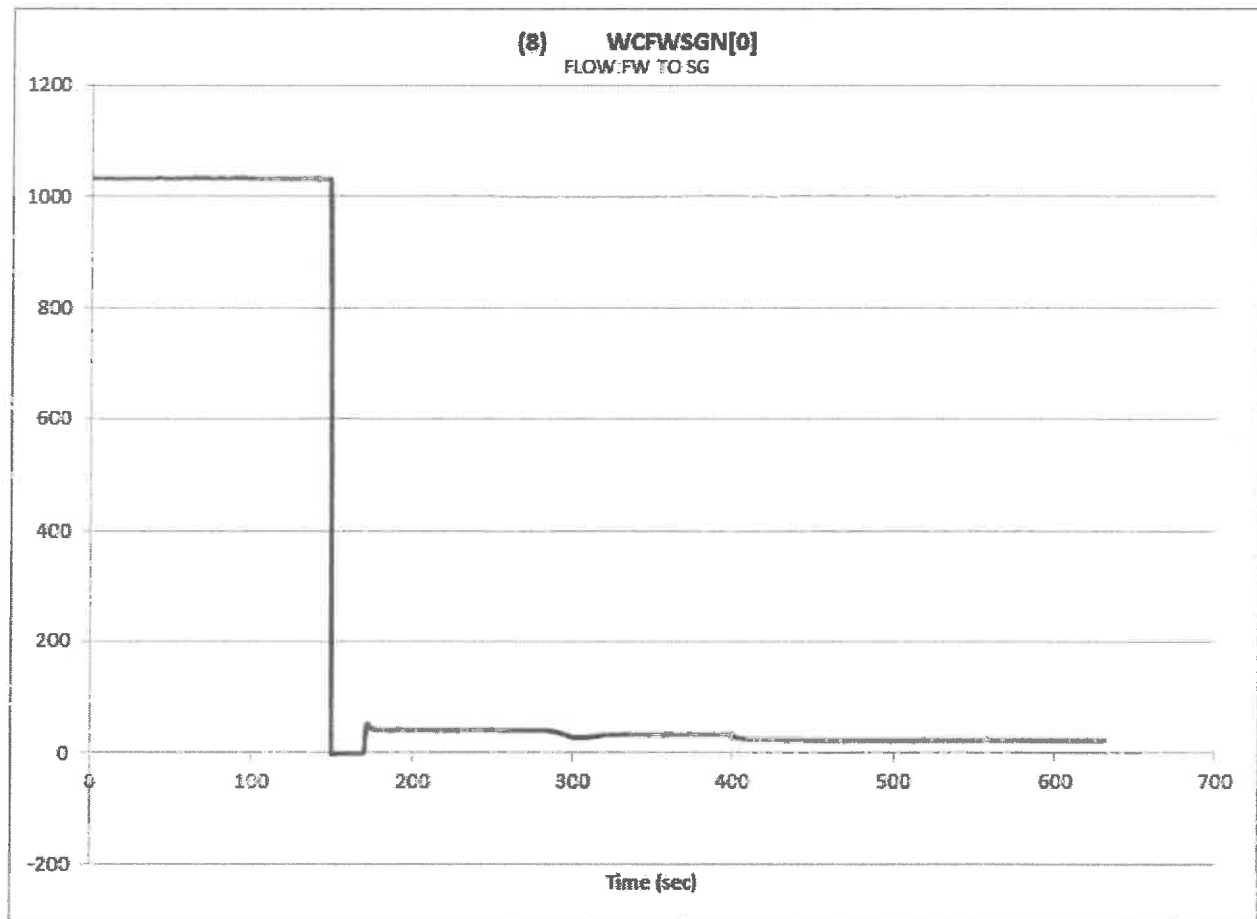
Diablo Canyon recommends removing the question from the exam as the plant response and the proper procedurally driven option was not available to select and therefore the question contains no right answer.











(E-0, Reactor Trip or Safety Injection)

11. CHECK RCS - INTACT

a. Containment Pressure - NORMAL
(VBI, PAM1, SPDS)

a. Ensure TWO CCW HXs in service:

- FCV-602 AND FCV-430 - OPEN

- FCV-603 AND FCV-431 - OPEN

AND

GO TO EOP E-1, LOSS OF REACTOR OR
SECONDARY COOLANT.

b. Containment Water Level - NORMAL

- Containment Recirc Sump
Level - NO LEVEL INDICATED
(LI-940/LI-941)

- Containment WR Level -
NO LEVEL INDICATED
(LR-942A/LR-943A, PAM 1)

b. Ensure TWO CCW HXs in service:

- FCV-602 AND FCV-430 - OPEN

- FCV-603 AND FCV-431 - OPEN

AND

GO TO EOP E-1, LOSS OF REACTOR OR
SECONDARY COOLANT.

c. Containment Radiation - NORMAL

1) IF A valid alarm exists
on RM-2, RM-7, RM-11 or
RM-12,

THEN Ensure TWO CCW HXs in
service:

- FCV-602 AND
FCV-430 - OPEN

- FCV-603 AND
FCV-431 - OPEN

AND

**GO TO EOP E-1, LOSS OF REACTOR
OR SECONDARY
COOLANT.**

(E-1, Loss of Reactor or Secondary Coolant step 8)	
<p>8. CHECK If ECCS Flow Should Be Reduced:</p> <p>a. Check RCS Subcooled based on core exit T/Cs - GREATER THAN 20°F (Subcooled Margin Monitor, YI-31 or Appendix C)</p> <p>b. Secondary heat sink:</p> <ul style="list-style-type: none"> • Total Feedflow - GREATER THAN 435 GPM <p>OR</p> <ul style="list-style-type: none"> • S/G NR Level in at least one intact S/G - GREATER THAN 15% [25%] <p>c. WR RCS Pressure - STABLE OR RISING</p> <p>d. PZR level - GREATER THAN 12% [40%]</p> <p>e. GO TO EOP E-1.1, SI TERMINATION</p>	<p>a. GO TO step 9 (Page 10).</p> <p>b. IF Neither condition satisfied, THEN GO TO step 9 (Page 10).</p> <p>c. GO TO step 9 (Page 10).</p> <p>d. GO TO step 9 (Page 10).</p>