

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

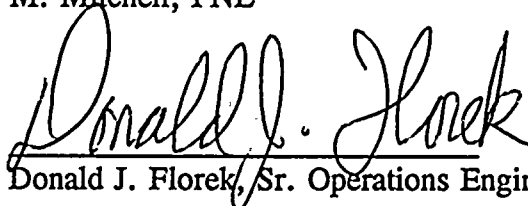
REPORT NO: 50-410/93-09 (OL)
FACILITY DOCKET NO: 50-410
FACILITY LICENSE NO: NPF-69
LICENSEE: Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

FACILITY: Nine Mile Point Unit 2

EXAMINATION DATES: May 10 - 13, 1993

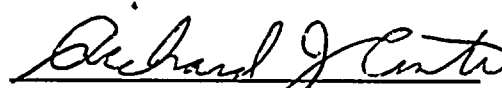
EXAMINERS: D. Florek, Sr. Operations Engineer
M. Mitchell, PNL

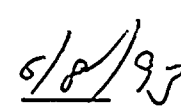
CHIEF EXAMINER:


Donald J. Florek, Sr. Operations Engineer


Date

APPROVED BY:

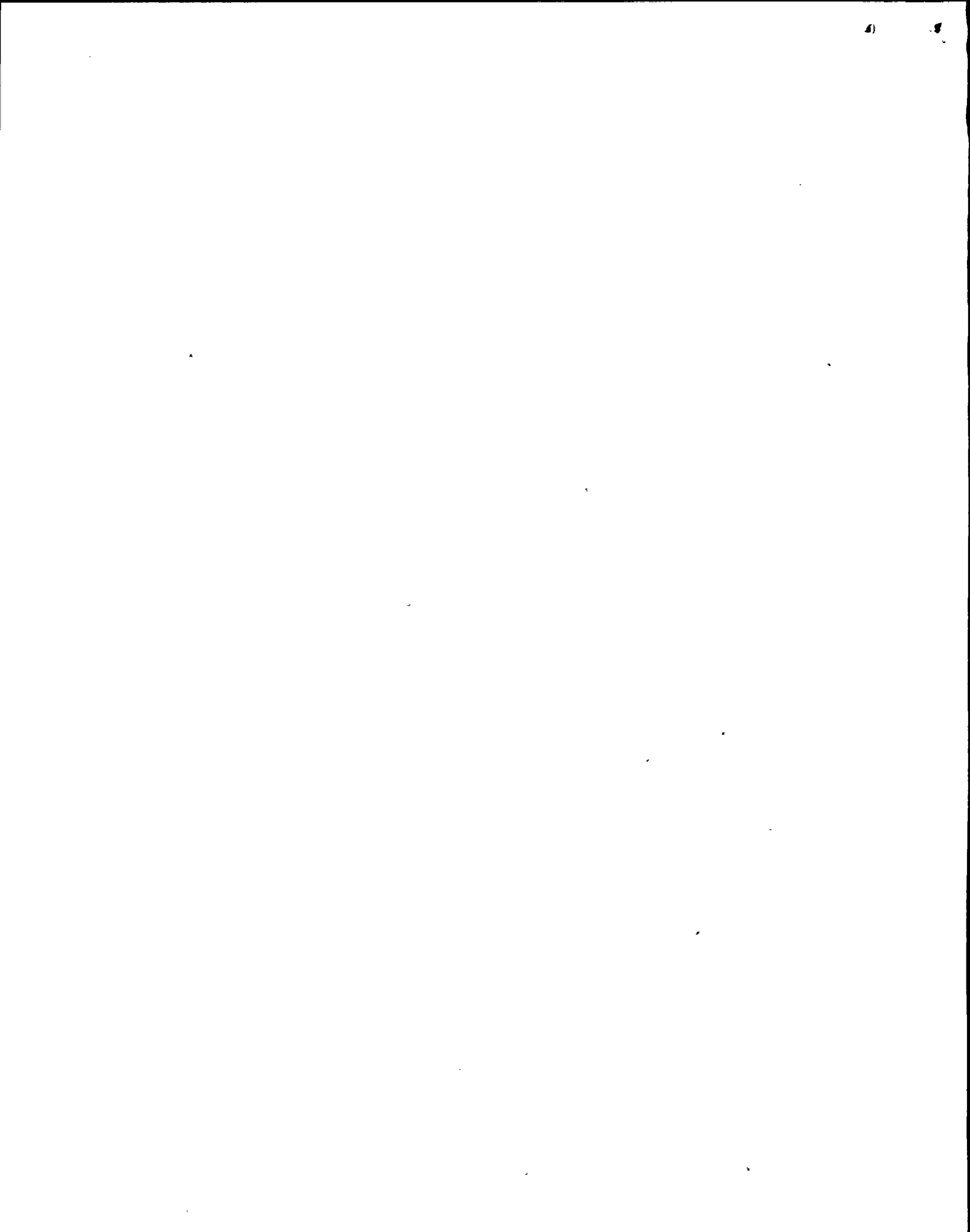

Richard J. Conte, Chief
BWR Section, Operations Branch
Division of Reactor Safety


Date

EXAMINATION SUMMARY: Examination from May 10 - 13, 1993 (Report No. 50-410/93-09 (OL))

Written and operating initial examinations were administered to two Senior Reactor Operators Limited to Fuel Handling (LSRO). In addition, two Senior Reactor Operators and three Reactor Operators on one crew were administered a retake requalification examination on the simulator. All operators passed the examination, and the crew was determined to be satisfactory.

One unresolved item from a prior inspection is closed in this report (Unresolved Item 410/92-27-01). There was no indication that chief shift operators (licensed reactor operators) direct other licensed reactor operators, a responsibility reserved only for senior reactor operators.



DETAILS

1.0 INTRODUCTION

During the week of May 10, 1993, the NRC administered initial examinations to two applicants for senior reactor operators limited to fuel handling (LSRO) and retake requalification examinations to two SROs and 3 ROs on one crew. The examiners used the process and criteria described in NUREG 1021, "Operator Licensing Examiner Standard," Rev. 7. The facility representatives reviewed the written initial written examination in the Region 1 office on May 4, 1993.

An exit meeting was conducted on May 13, 1993. Those present at the exit are listed in Section 2.0.

2.0 PERSONS CONTACTED

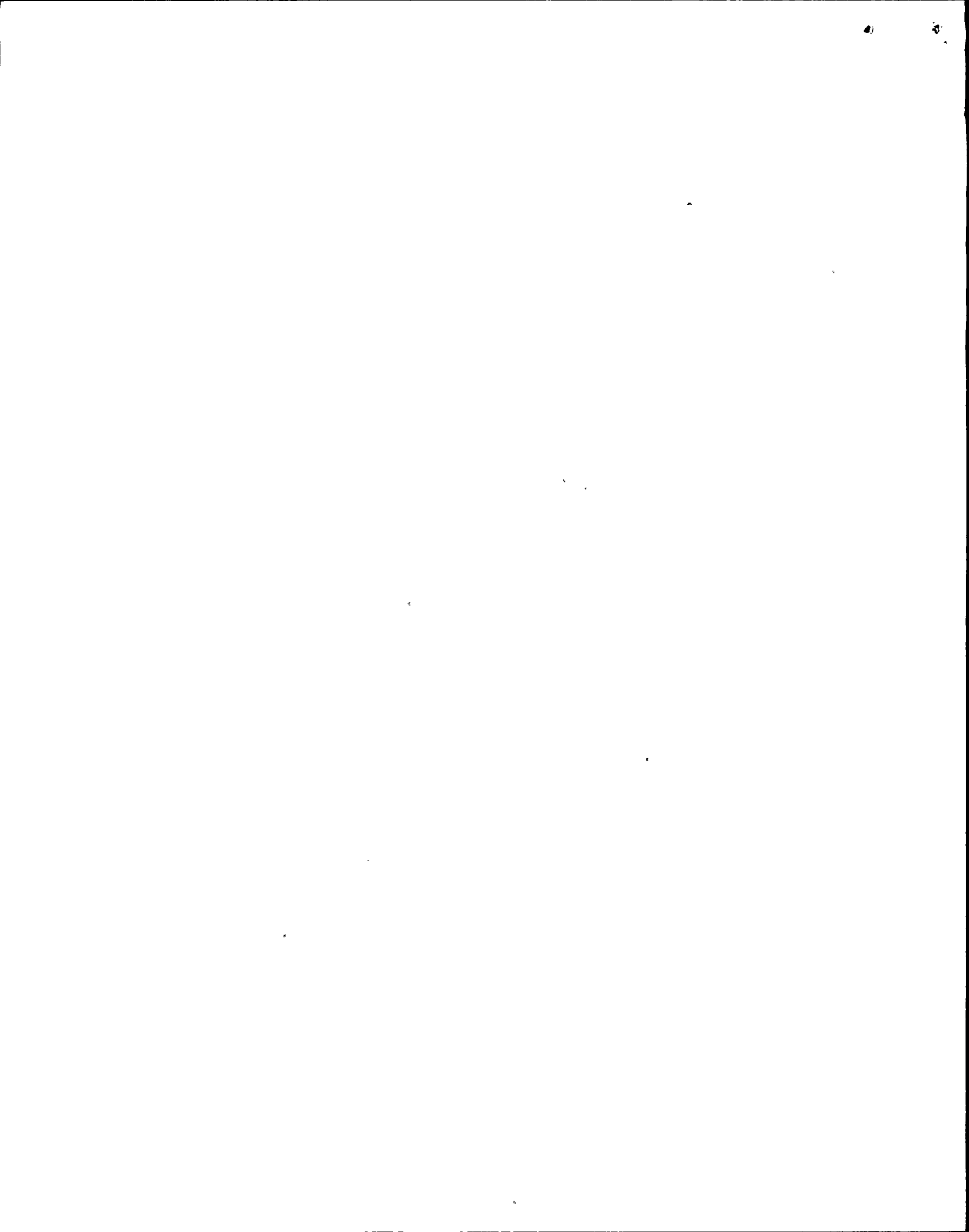
Niagara Mohawk Power Corporation

- *J. Helker, Operations Manager
- *A. Pinter, Site Licensing Group
- *G. Pitts, Operations Shift Supervisor
- *R. Slade, General Supervisor Operations Training
- *P. Walsh, Operations training.

Nuclear Regulatory Commission/NRC Contractors

- *J. Caruso, Operations Engineer
- *D. Florek, Sr. Operations Manager
- M. Mitchell, NRC Contractor - PNL

*Denotes those present at the exit meeting on May 13, 1993.



3.0 EXAMINATION RESULTS

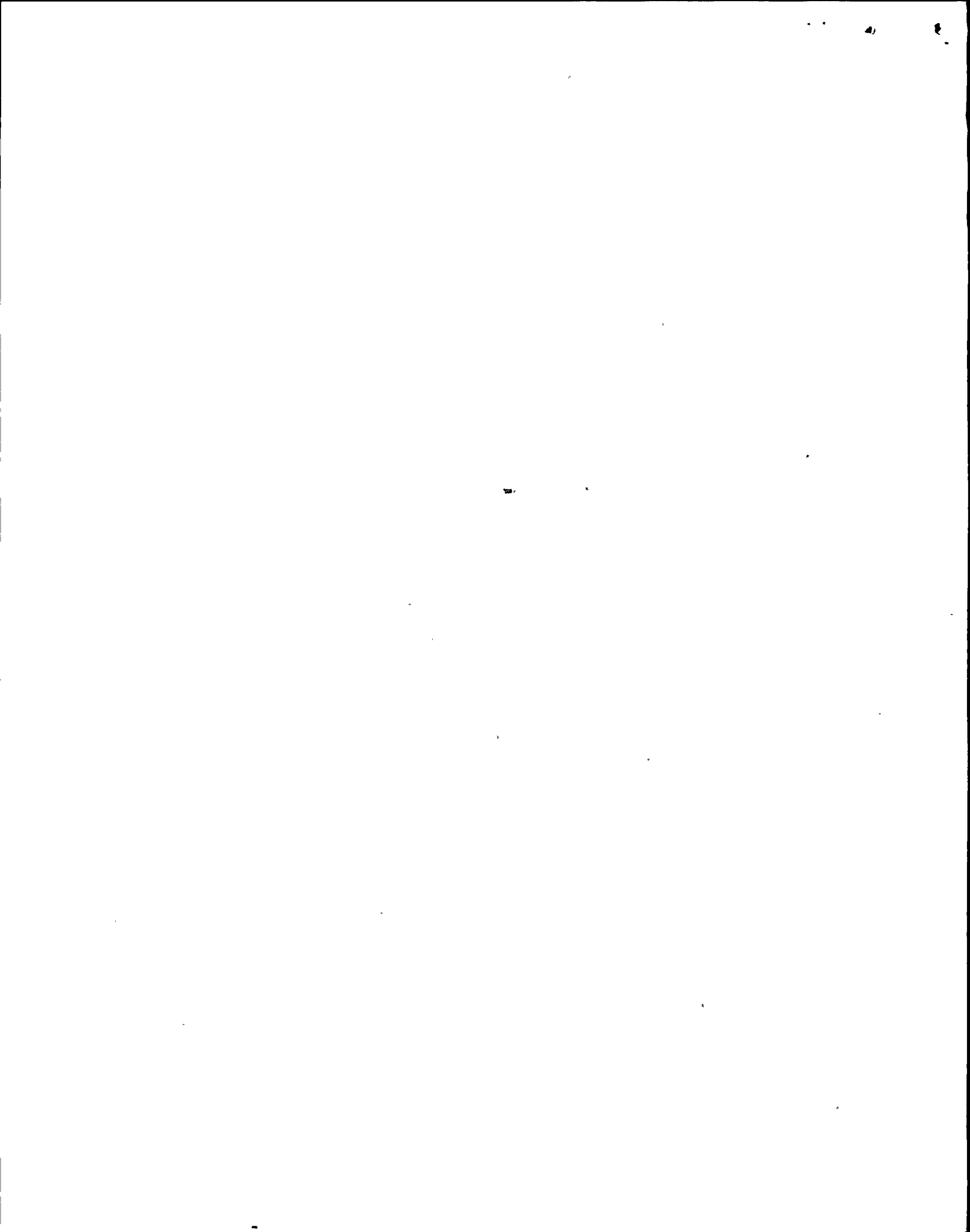
3.1 Initial Examination Results

	LSRO Pass/Fail	TOTAL Pass/Fail
Written	2/0	2/0
Operating	2/0	2/0
Overall	2/0	2/0

3.2 Requalification Retake Examination Results

	RO Pass/Fail	SRO Pass/Fail	TOTAL Pass/Fail
Written	NA	NA	NA
Simulator	3/0	2/0	5/0
Walk-through	NA	NA	NA
Overall	3/0	2/0	5/0

The crew also passed in the simulator.



3.3 Facility Generic Strengths and Weaknesses Based on Individual Operator Performance on Examinations

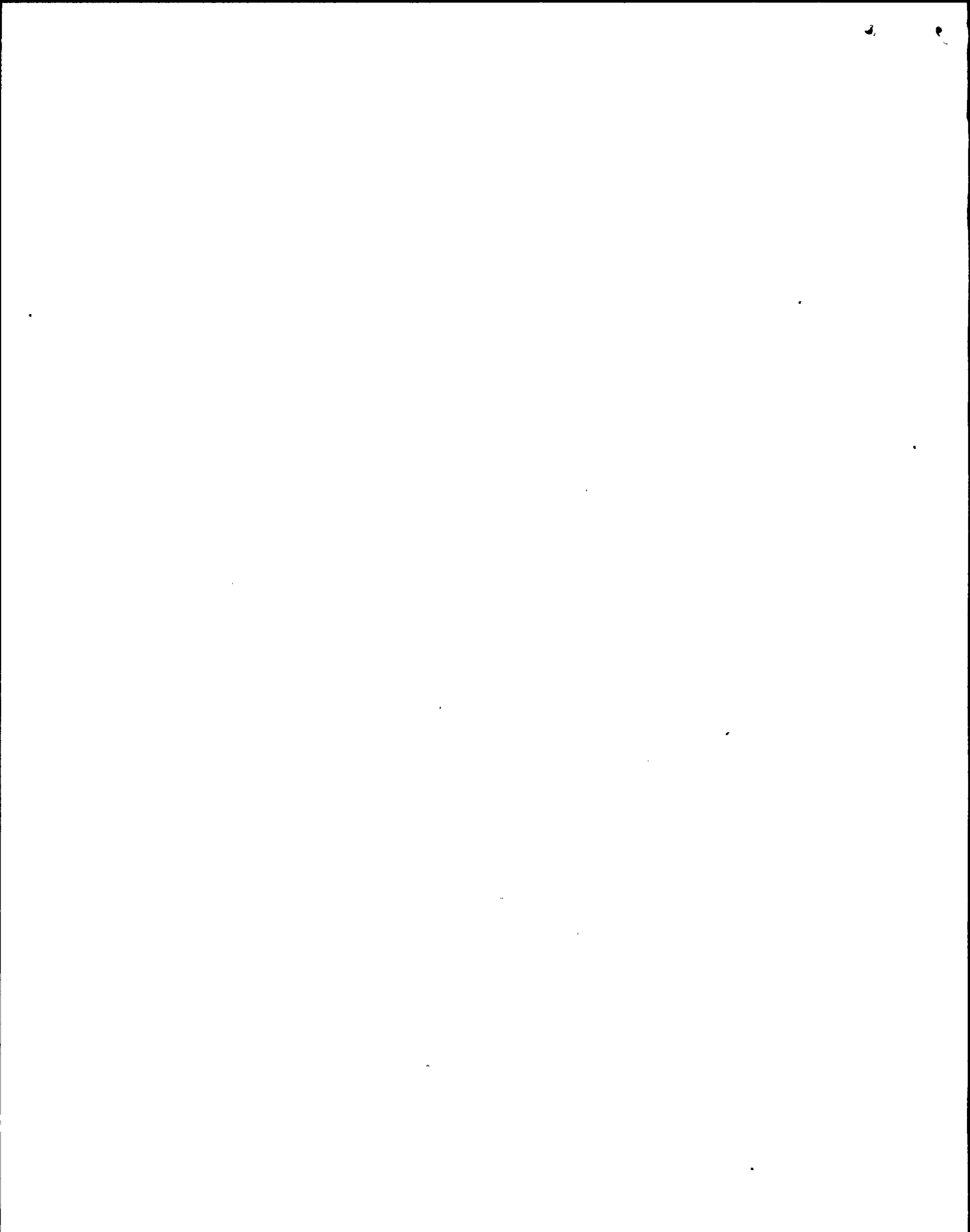
Due to the limited examination size, no generic strengths or weaknesses were specifically noted during the operating tests. The applicants and operators were well prepared for the operating examinations. Strong teamwork and good communication were evident during the requalification examination simulator scenarios.

4.0 LICENSEE ACTION ON PREVIOUS EXAMINATION FINDINGS

Closed (Unresolved Item 410/92-27-01) This item concerned the Chief Shift Operator Authority. Facility licensee corrective actions were assessed in inspection report 50-410/92-27. The corrective actions addressed the NRC staff concerns related to the role exercised by the Chief Shift Operator (CSO) in directing the actions of licensed operators. The report identified that additional follow-up monitoring of the CSO activities during future examination activities would occur. Based on the observations during the retake requalification examination, the CSO did not improperly direct licensed operator activities. Based on the observations as well as those of the resident inspectors, this item is closed.

5.0 EXIT MEETING

An exit meeting was conducted on May 13, 1993. Personnel in attendance are listed in Section 2.0. The NRC presented the examination and inspection related findings. The facility representatives acknowledged the NRC findings.



MASTER COPY

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: _____

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: 93/05/12

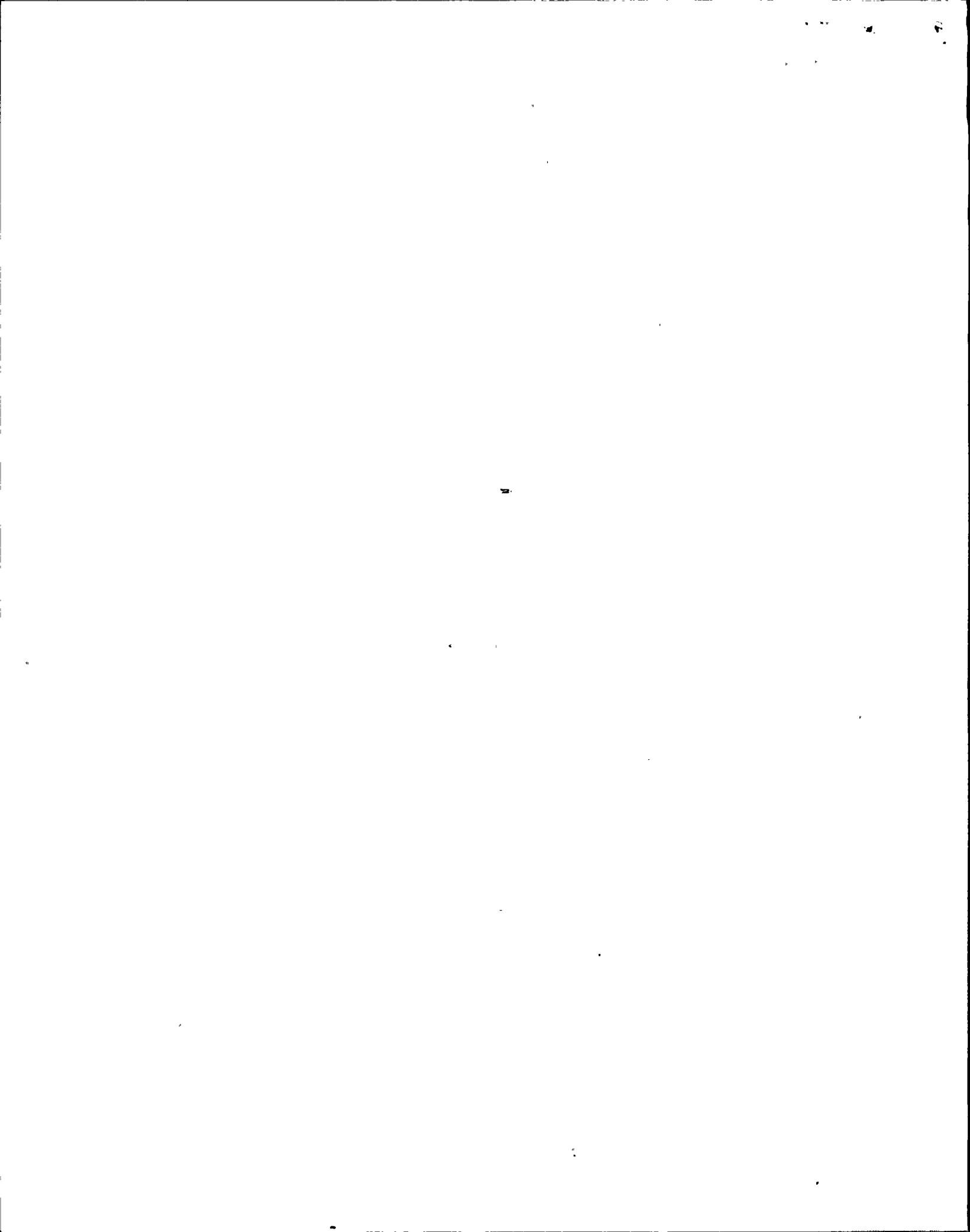
INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up ~~four (4)~~ ^{three (3)} hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	
% <u>60</u>	_____	_____
_____	_____	% TOTALS
	_____	_____
	FINAL GRADE	

All work done on this examination is my own. I have neither given nor received aid.

Candidate's Signature

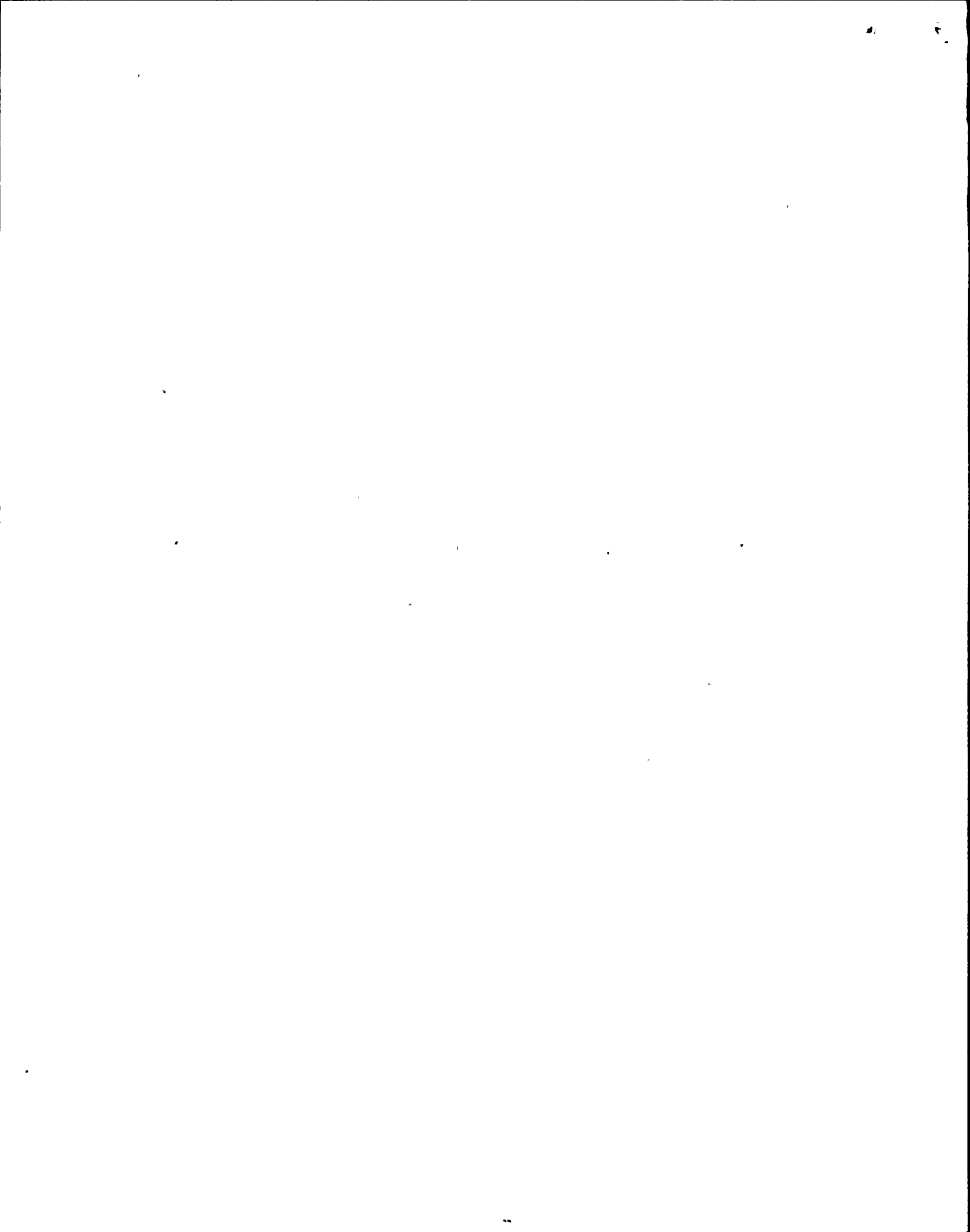


A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

MULTIPLE CHOICE					023	a	b	c	d	___	
001	a	b	c	d	___	024	a	b	c	d	___
002	a	b	c	d	___	025	a	b	c	d	___
003	a	b	c	d	___	026	a	b	c	d	___
004	a	b	c	d	___	027	a	b	c	d	___
005	a	b	c	d	___	028	a	b	c	d	___
006	a	b	c	d	___	029	a	b	c	d	___
007	a	b	c	d	___	030	a	b	c	d	___
008	a	b	c	d	___	031	a	b	c	d	___
009	a	b	c	d	___	032	a	b	c	d	___
010	a	b	c	d	___	033	a	b	c	d	___
011	a	b	c	d	___	034	a	b	c	d	___
012	a	b	c	d	___	035	a	b	c	d	___
013	a	b	c	d	___	036	a	b	c	d	___
014	a	b	c	d	___	037	a	b	c	d	___
015	a	b	c	d	___	038	a	b	c	d	___
016	a	b	c	d	___	039	a	b	c	d	___
017	a	b	c	d	___	040	a	b	c	d	___
018	a	b	c	d	___	041	a	b	c	d	___
019	a	b	c	d	___	042	a	b	c	d	___
020	a	b	c	d	___	043	a	b	c	d	___
021	a	b	c	d	___	044	a	b	c	d	___
022	a	b	c	d	___	045	a	b	c	d	___



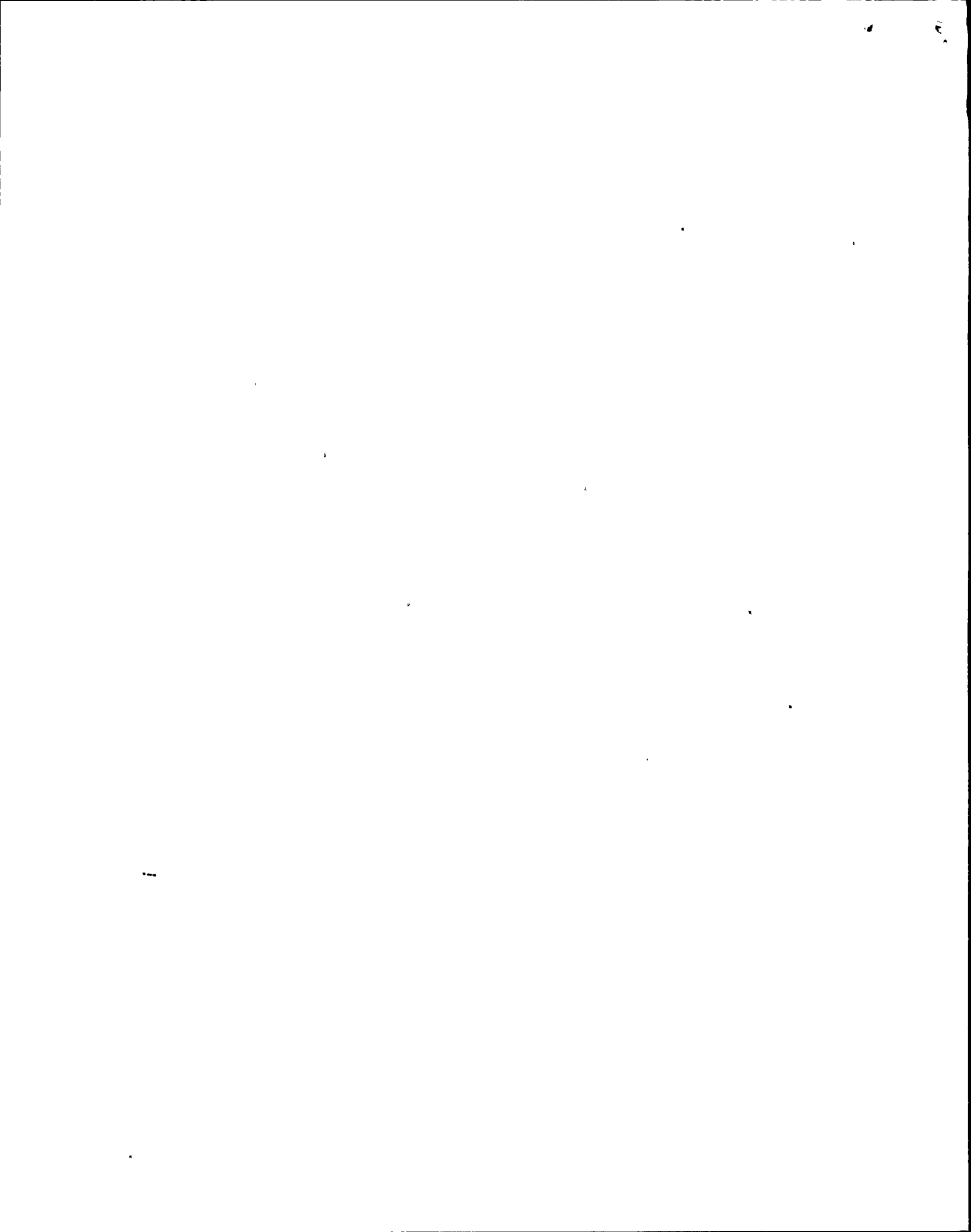
A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

- 046 a b c d ____
- 047 a b c d ____
- 048 a b c d ____
- 049 a b c d ____
- 050 a b c d ____
- 051 a b c d ____
- 052 a b c d ____
- 053 a b c d ____
- 054 a b c d ____
- 055 a b c d ____
- 056 a b c d ____
- 057 a b c d ____
- 058 a b c d ____
- 059 a b c d ____
- 060 a b c d ____

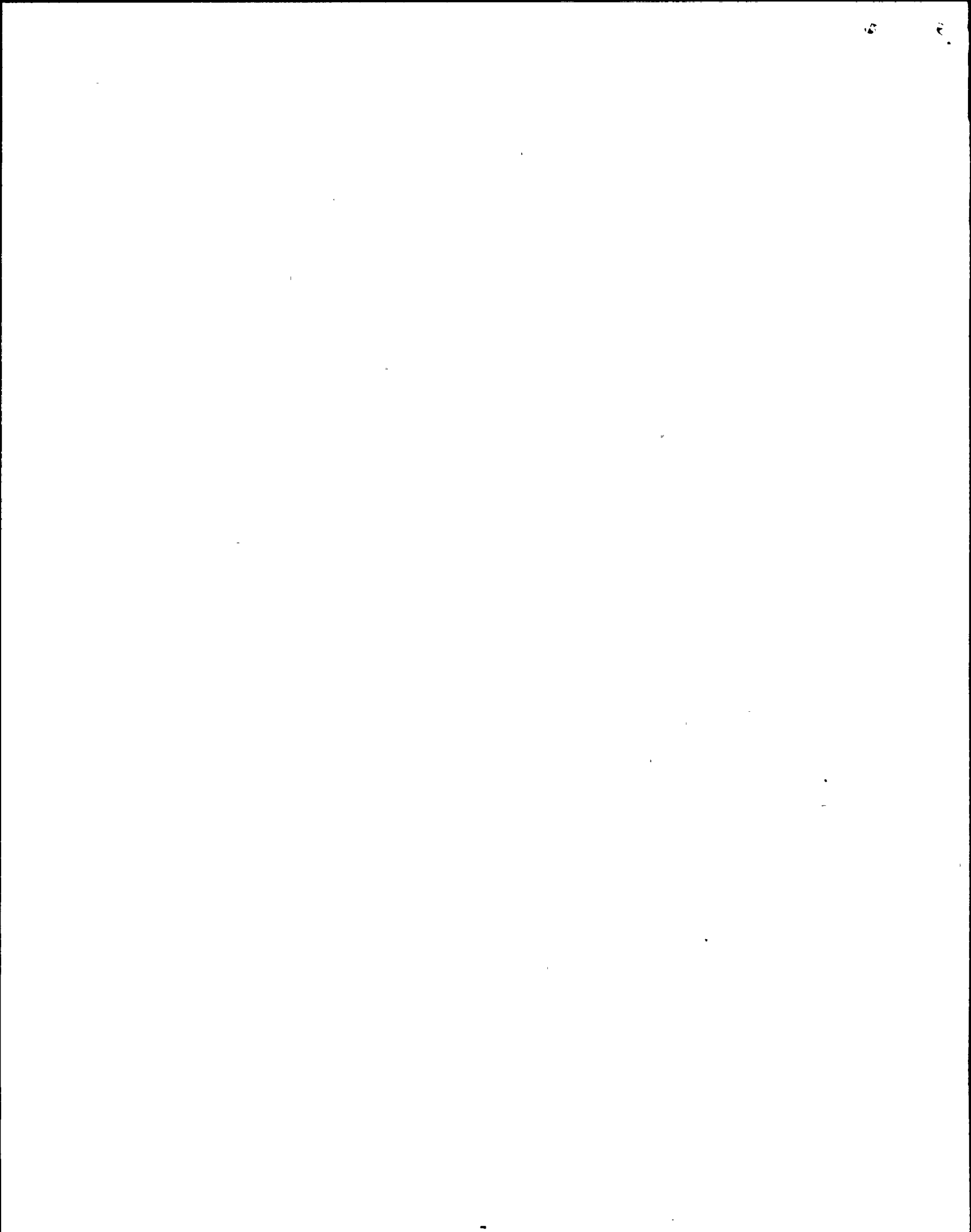
(***** END OF EXAMINATION *****)



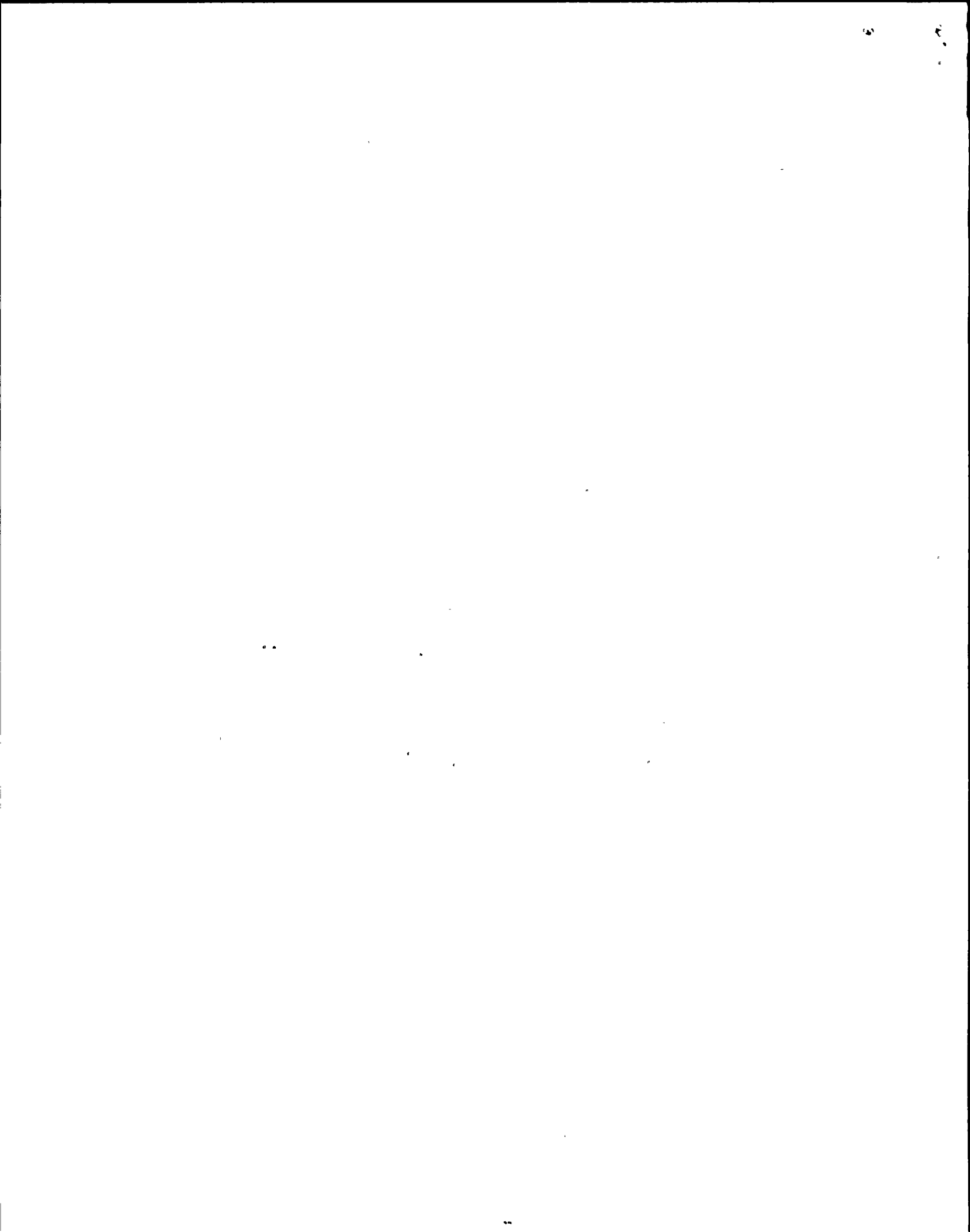
NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.
3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
4. Use black ink or dark pencil ONLY to facilitate legible reproductions.
5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.



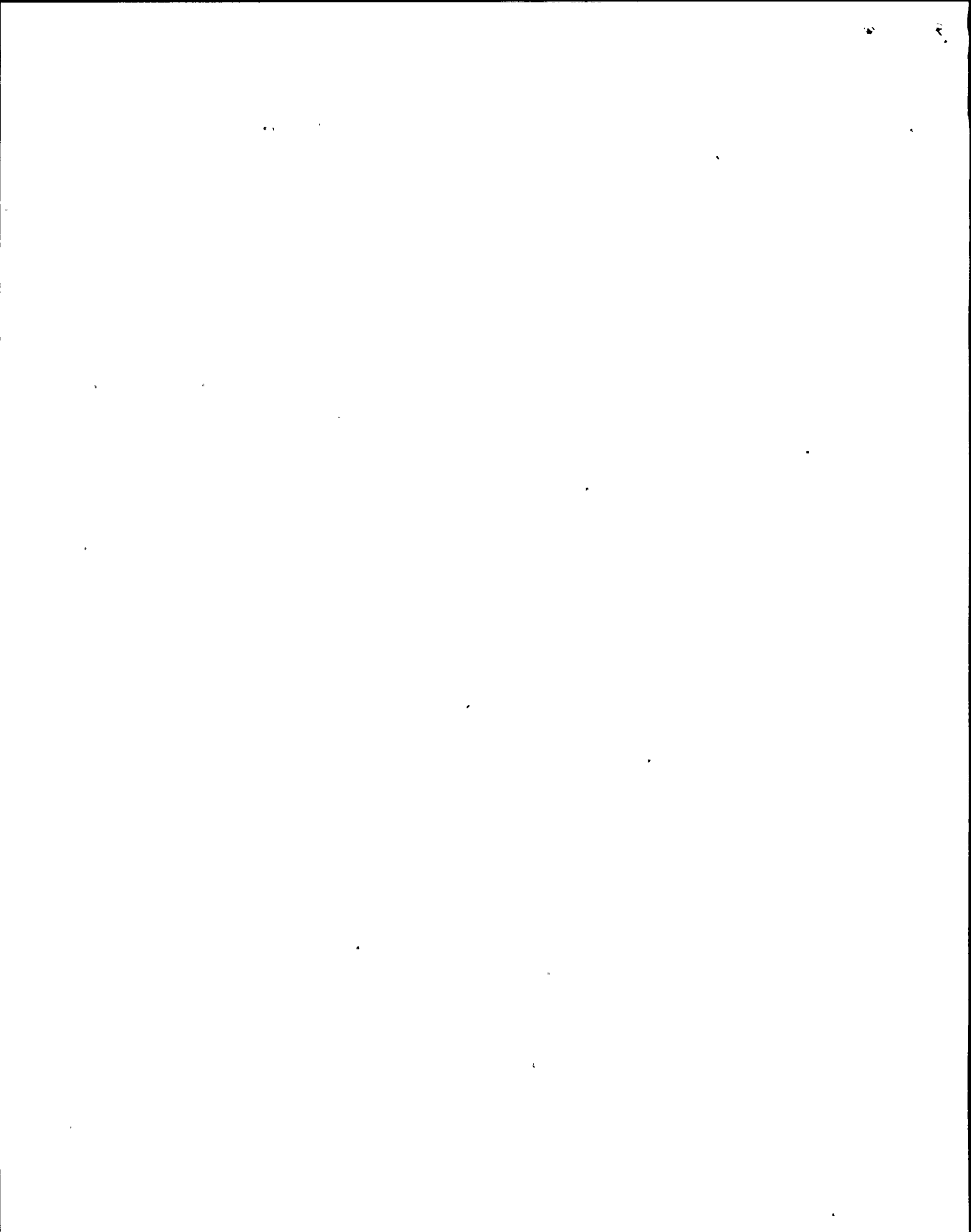
14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.



QUESTION: 001 (1.00)

Fuel loading is in progress. At the start of your shift, average SRM reading was 10 counts per second, the reactor engineer calculated that K-effective was .92 at this time. After core loading is complete, average SRM reading is 40 counts per second. WHICH ONE (1) of the following correctly states the current K-effective?

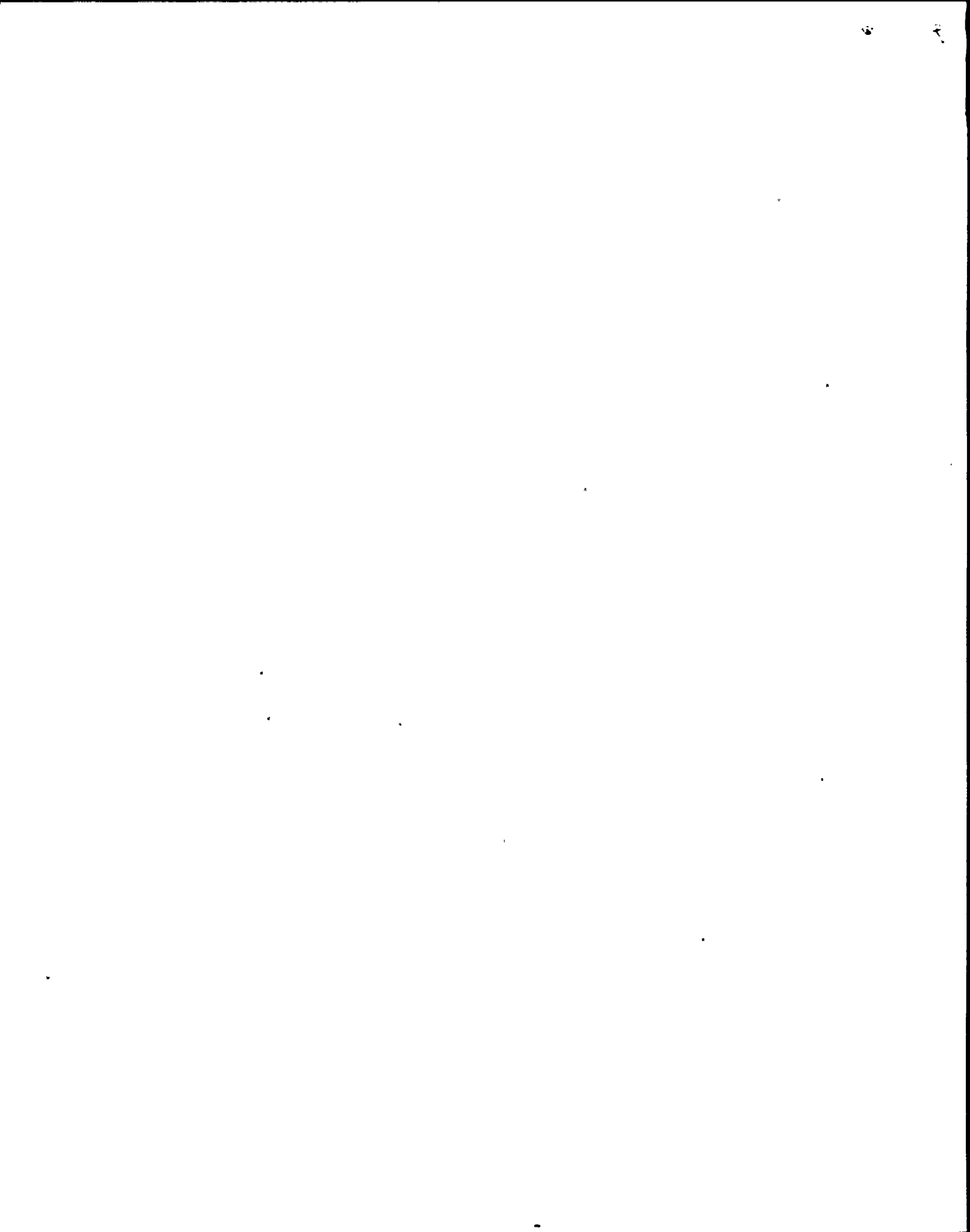
- a. .94
- b. .96
- c. .97
- d. .98



QUESTION: 002 (1.00)

WHICH ONE (1) of the following is the Shutdown Margin if K effective is 0.9845?

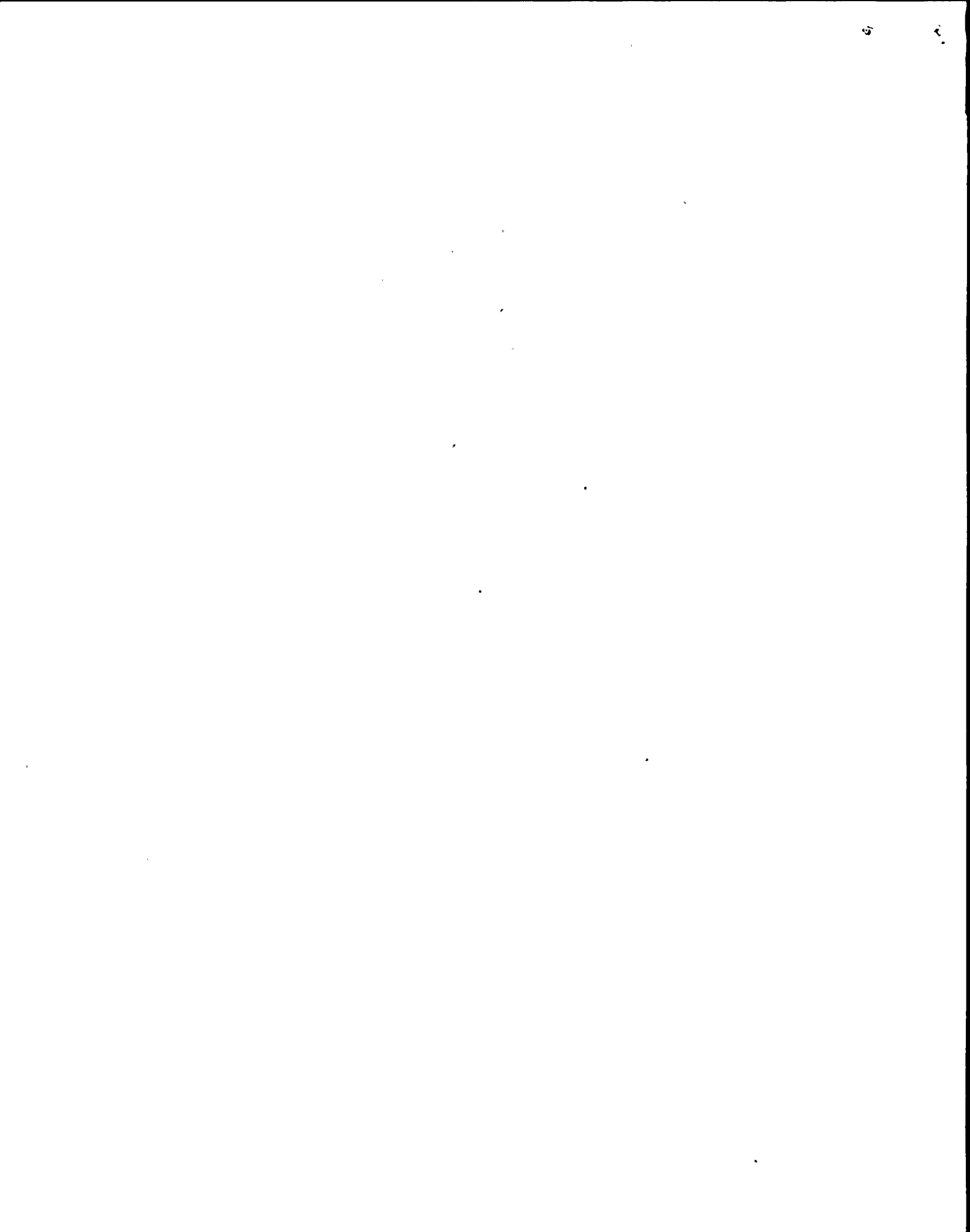
- a. 0.0155
- b. 0.0157
- c. 0.0168
- d. 0.0172



QUESTION: 003 (1.00)

Refueling operations are in progress prior to filling the reactor cavity when reactor water level decreases to 15 inches. The "A" loop of Shutdown Cooling is in service. WHICH ONE (1) of the following correctly describes the response of the LPCI heat exchanger bypass valves?

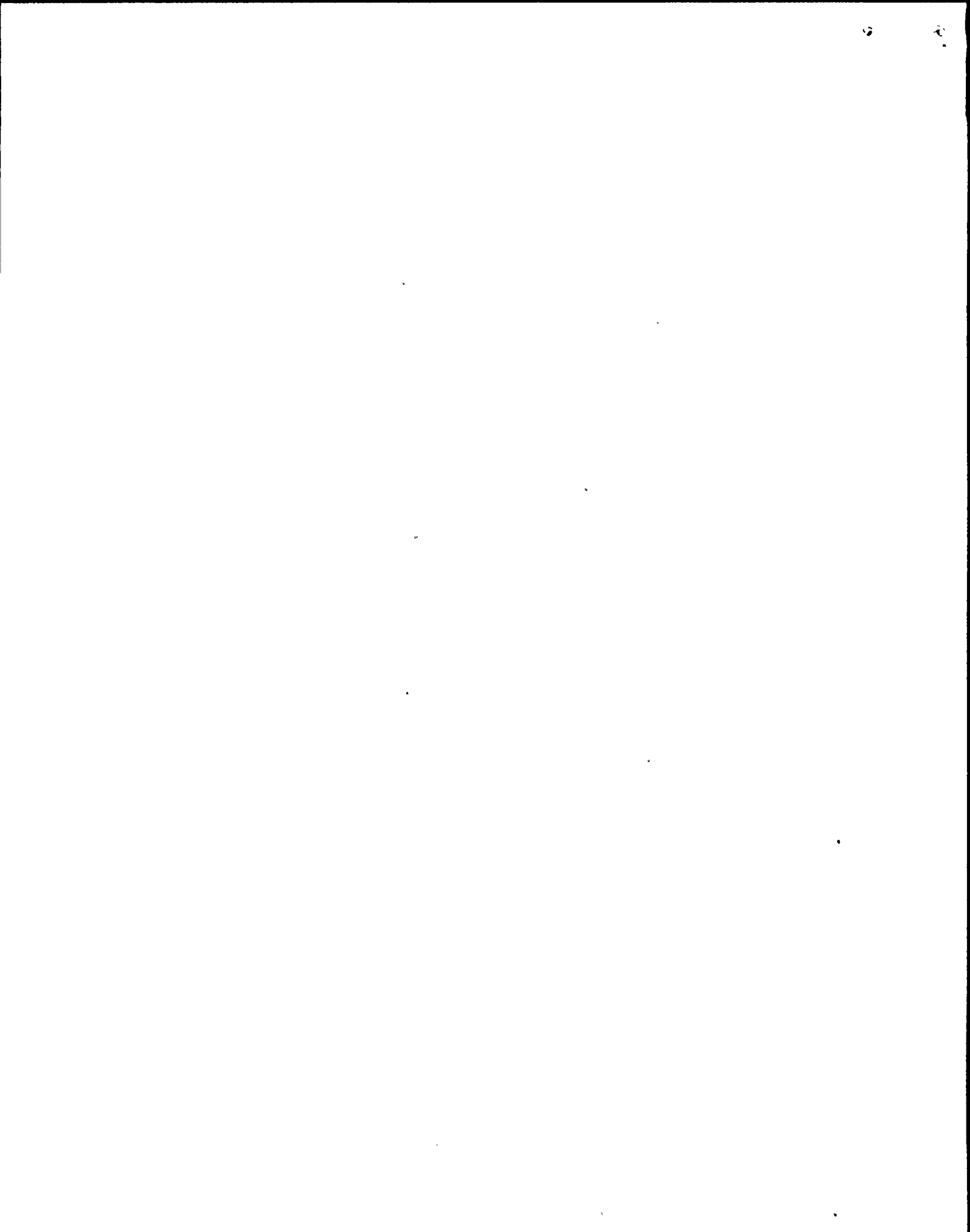
- a. MOV 8A/8B (Heat Exchanger Bypass Valves) remain closed and are sealed in position for ten (10) minutes.
- b. MOV 8A/8B (Heat Exchanger Bypass Valves) remain closed unless the control room operator manually open them.
- c. MOV 8A/8B (Heat Exchanger Bypass Valves) open or remain open and are sealed in position for ten (10) minutes.
- d. MOV 8A/8B (Heat Exchanger Bypass Valves) open automatically, but can be closed by the control room at any time.



QUESTION: 004 (1.00)

WHICH ONE (1) of the following are the indications of seized bearings on a fuel pool cooling pump?

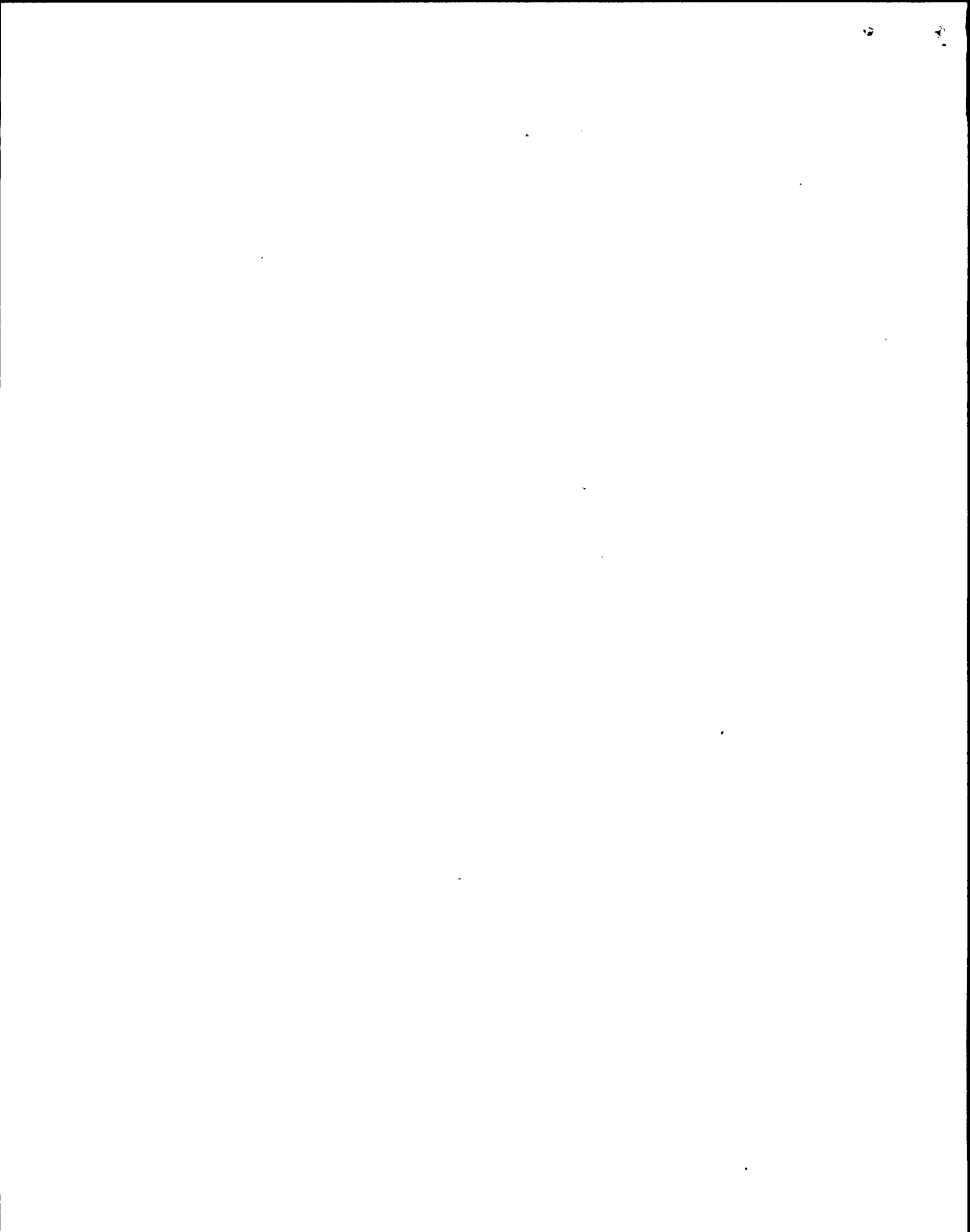
- a. high motor amps, high pump delta-p
- b. low motor amps, high pump delta-p
- c. high motor amps, low pump delta-p
- d. low motor amps, low pump delta-p



QUESTION: 005 (1.00)

For WHICH ONE (1) of the following will K-effective remain unchanged?

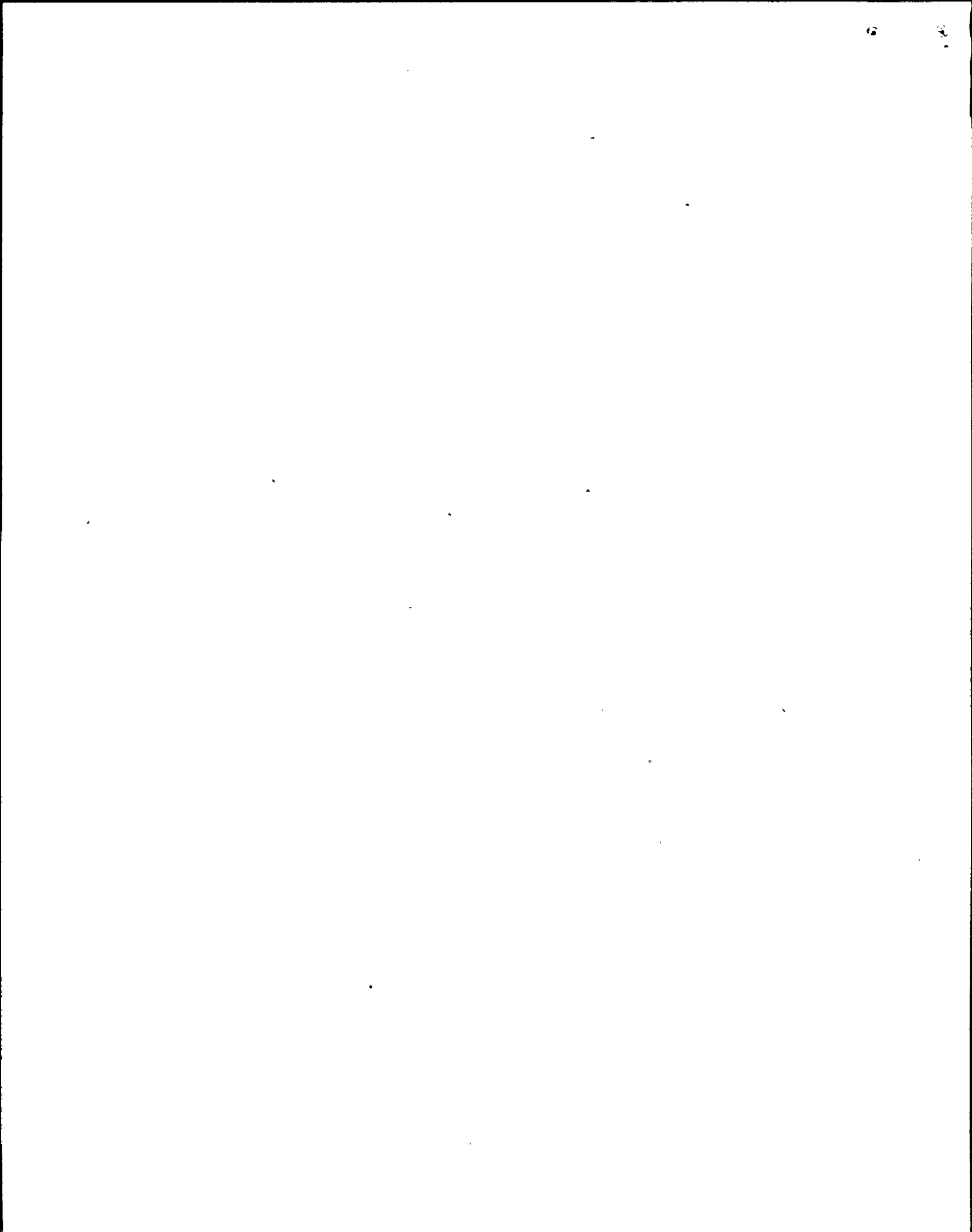
- a. installing a fuel element during refueling
- b. operating at 100% power for six months
- c. cooling down from normal operating temperature to cold shutdown
- d. installing a neutron source in a new core



QUESTION: 006 (1.00)

WHICH ONE (1) of the following is the interaction in the reactor core that is MOST efficient in thermalizing neutrons?

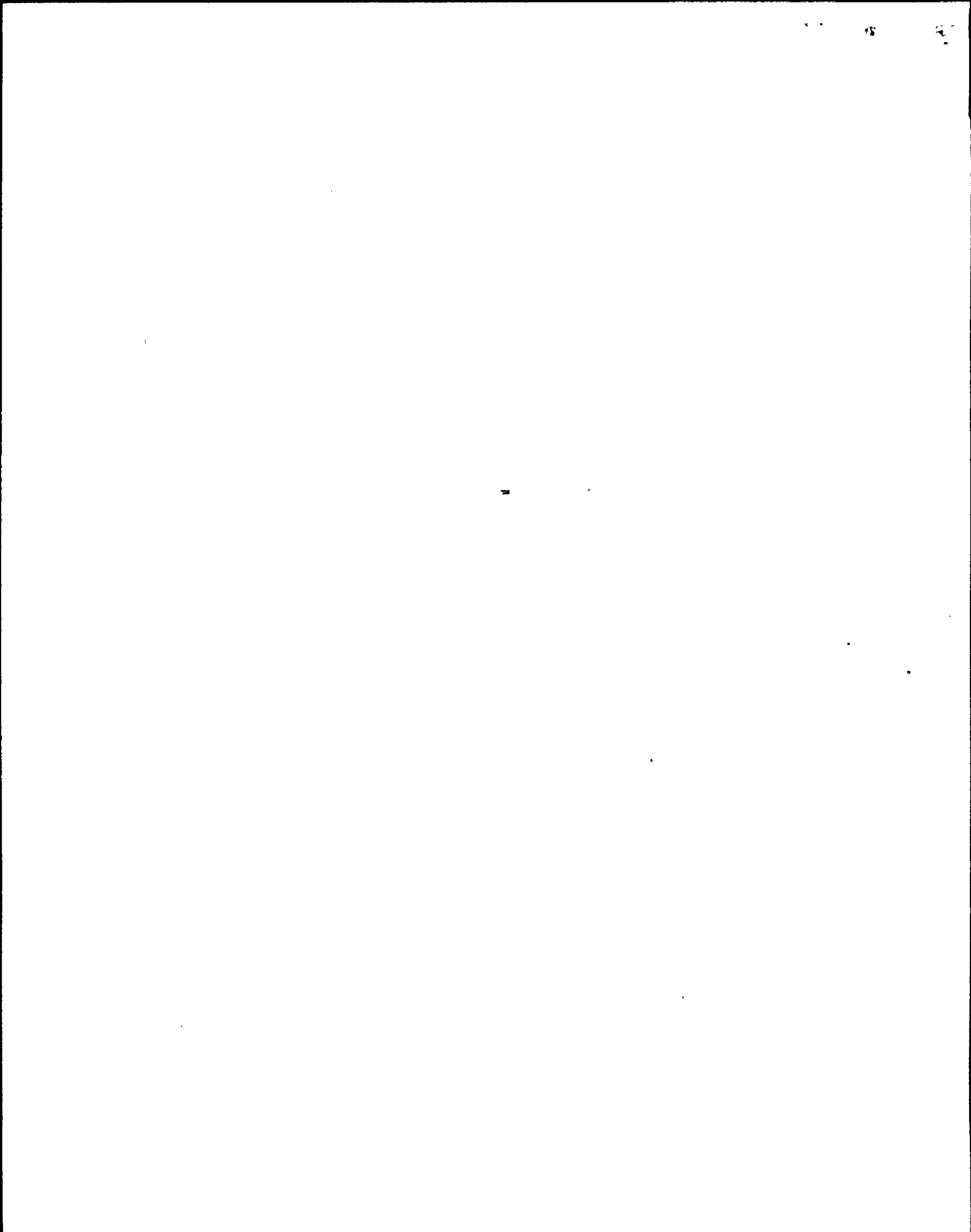
- a. oxygen atoms in the water molecules
- b. hydrogen atoms in the water molecules
- c. helium atoms in the fuel pins
- d. zirconium atoms in the fuel cladding



QUESTION: 007 (1.00)

After the first fuel cycle, source range monitoring nuclear instrumentation can adequately monitor subcritical multiplication during a reactor startup without installed neutron sources. WHICH ONE (1) of the following is the source of these neutrons?

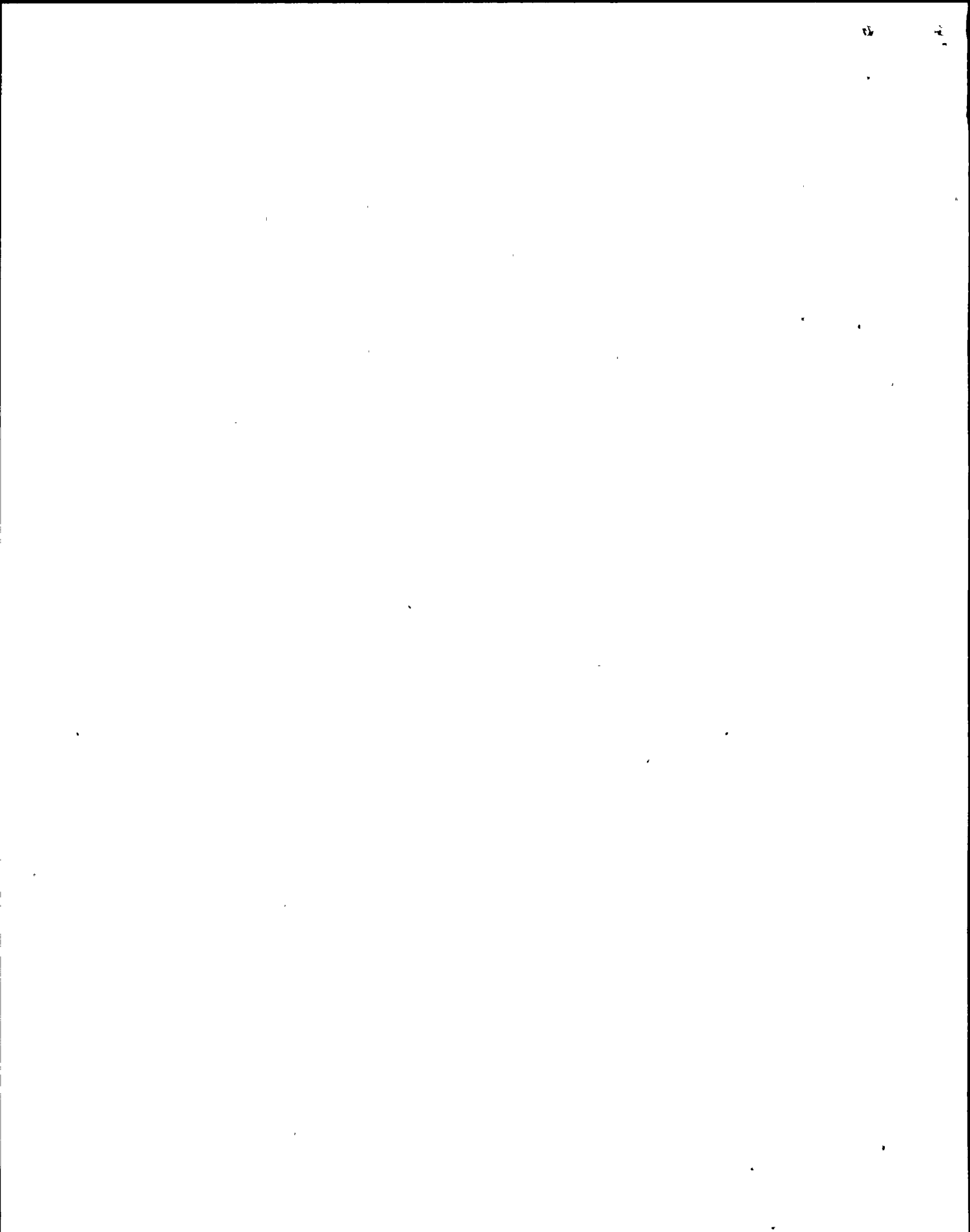
- a. cosmic ray induced fission
- b. the decay of fission products
- c. the gamma-neutron reaction with stainless steel
- d. spontaneous fission of Curium-241



QUESTION: 008 (1.00)

The HPCS valve surveillance is in progress. The operator has closed the CST suction valve CSH*MOV-101 and is opening the suppression pool suction valve CSH*MOV-118 when a HPCS automatic initiation signal is received. WHICH ONE (1) of the following is the response of the HPCS system suction valves?

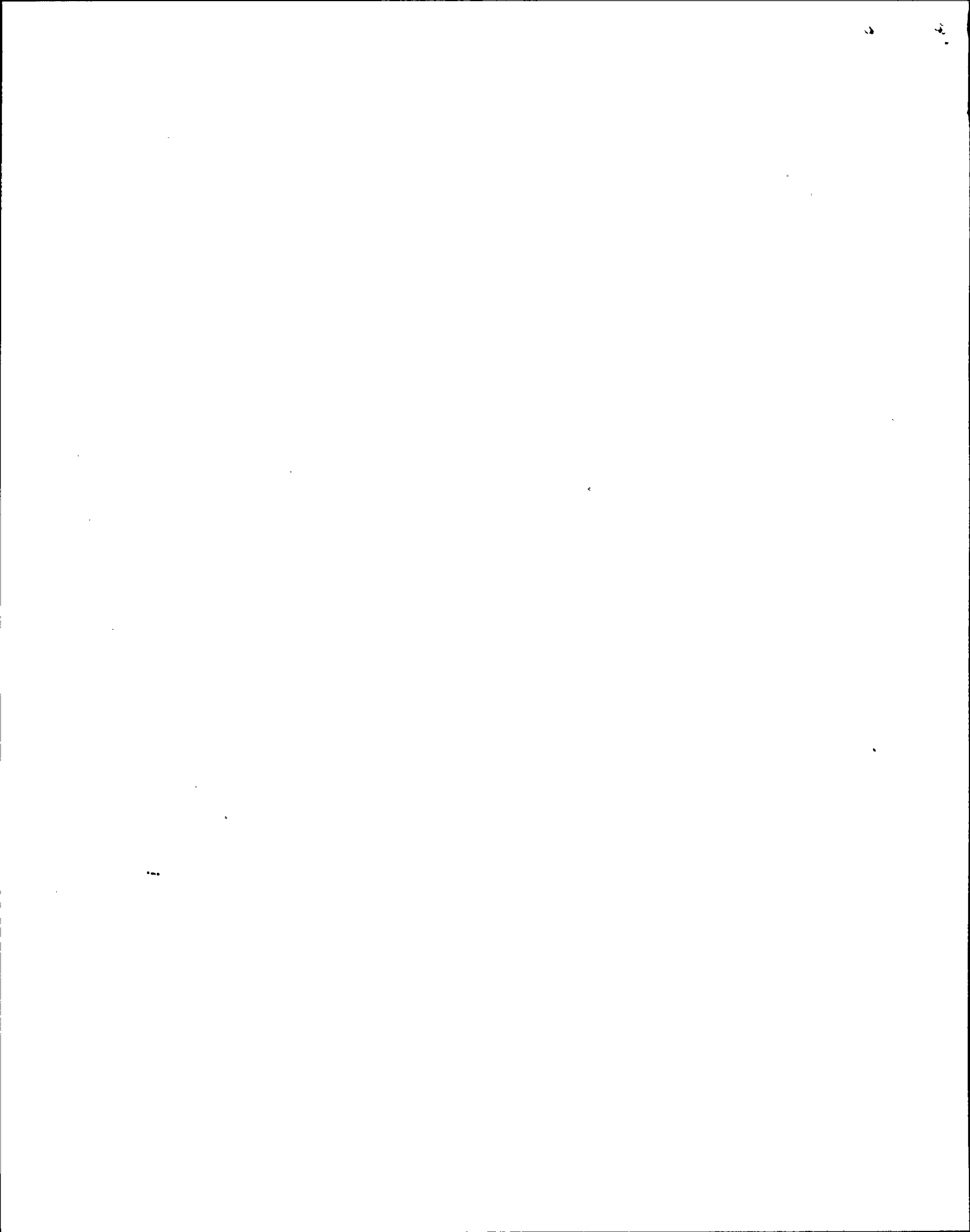
- a. MOV-101 will remain closed and MOV-118 will continue to open.
- b. MOV-101 will open immediately on receipt of the initiation signal, MOV-118 will close when MOV-101 reaches full open.
- c. MOV-118 will start closed immediately, MOV-101 will open when MOV-118 reaches full closed.
- d. MOV-118 will continue open and MOV-101 will open when MOV-118 reaches full open.



QUESTION: 009 (1.00)

Which ONE of the following level indicators can be used for valid level indication during refueling operations with the head removed prior to cavity floodup?

- a. Shutdown Range
- b. Upset Range
- c. Wide Range
- d. Fuel Zone Range



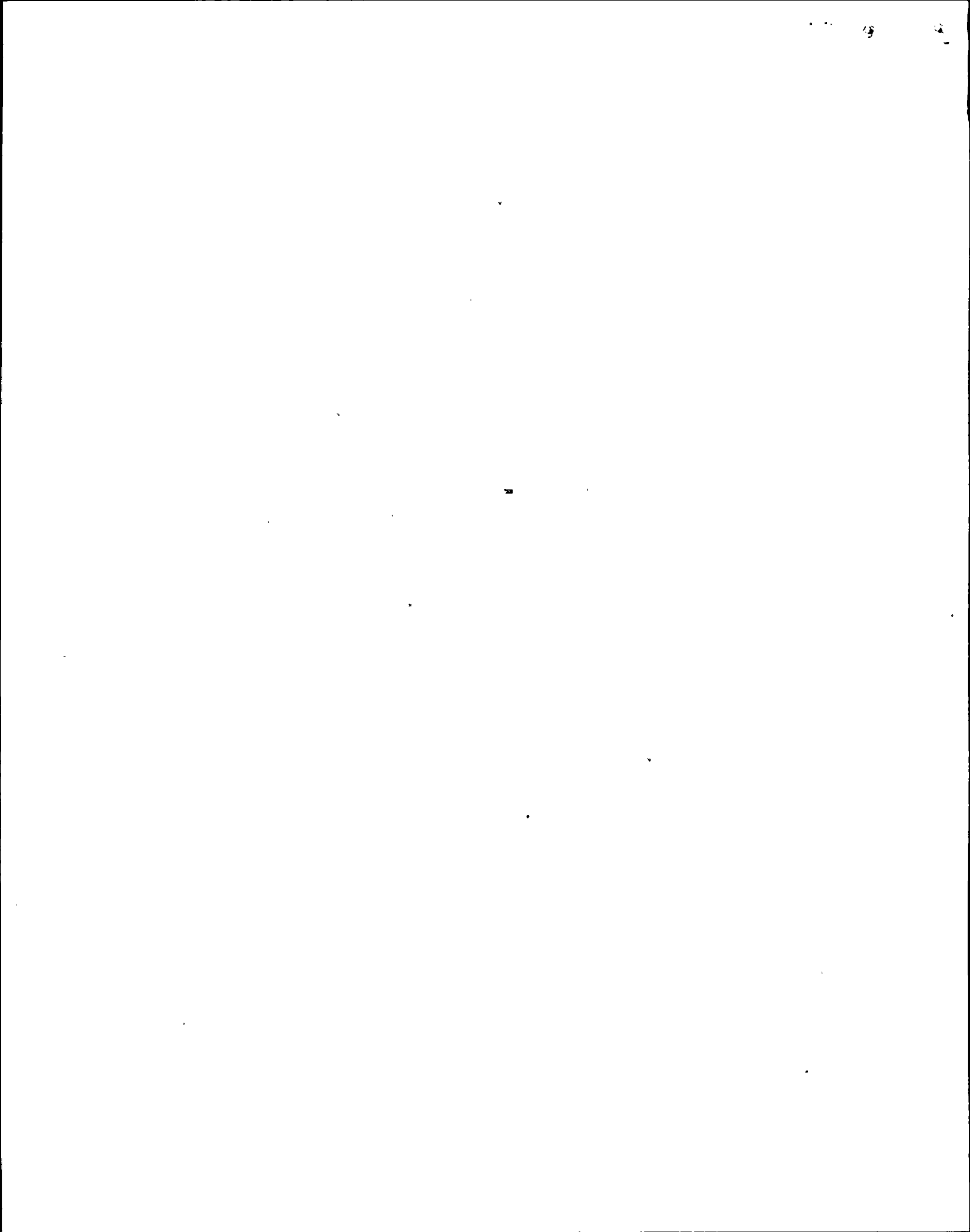
QUESTION: 010 (1.00)

The following conditions exist during refueling operations.

- * The Reactor Mode Switch is in REFUEL
- * Irradiated fuel is in the reactor
- * Reactor vessel head has been removed
- * Reactor cavity is flooded
- * The Fuel Pool gates are installed
- * Reactor water level is 25' above the reactor vessel flange

WHICH ONE (1) of the following of the following defines the operability status required for the RHS System?

- a. One RHS loop is required to be operable but neither loop is required to be in service.
- b. One RHS loop and one RHS heat exchanger is required to be operable and in service.
- c. Both loops of RHS are required to be operable and one loop is required to be in service.
- d. Both loops of RHS are required to be operable but neither is required to be in service.



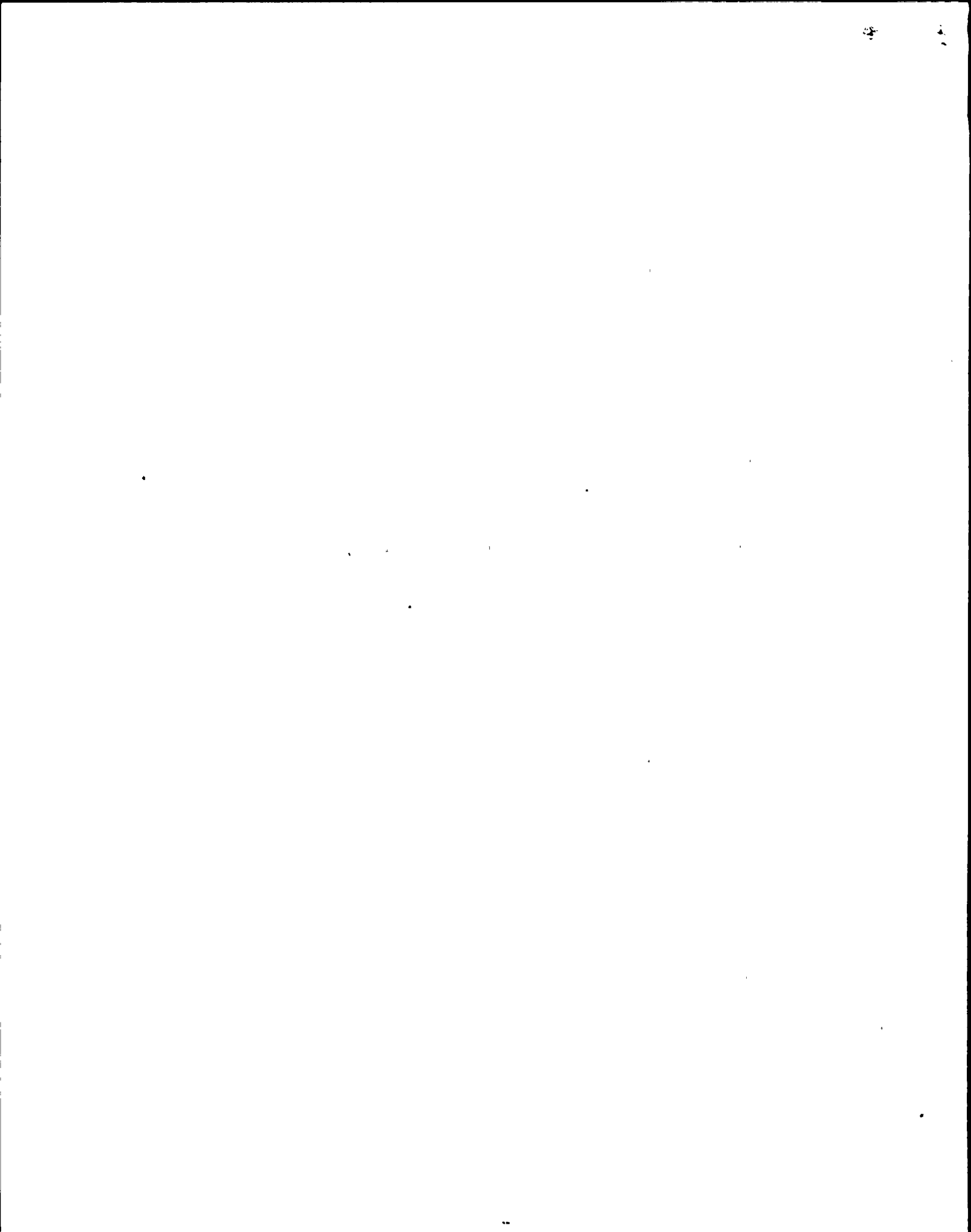
QUESTION: 011 (1.00)

Given that the following conditions exist during refueling:

- * Bridge is directly over the core
- * Main hoist is loaded to 525 lbs
- * Aux hoist is loaded to 350 lbs
- * Rod 03-17 is at position 02
- * Mode Switch is in STARTUP

WHICH ONE (1) of the following responses would indicate normal interlock functioning on the refuel bridge?

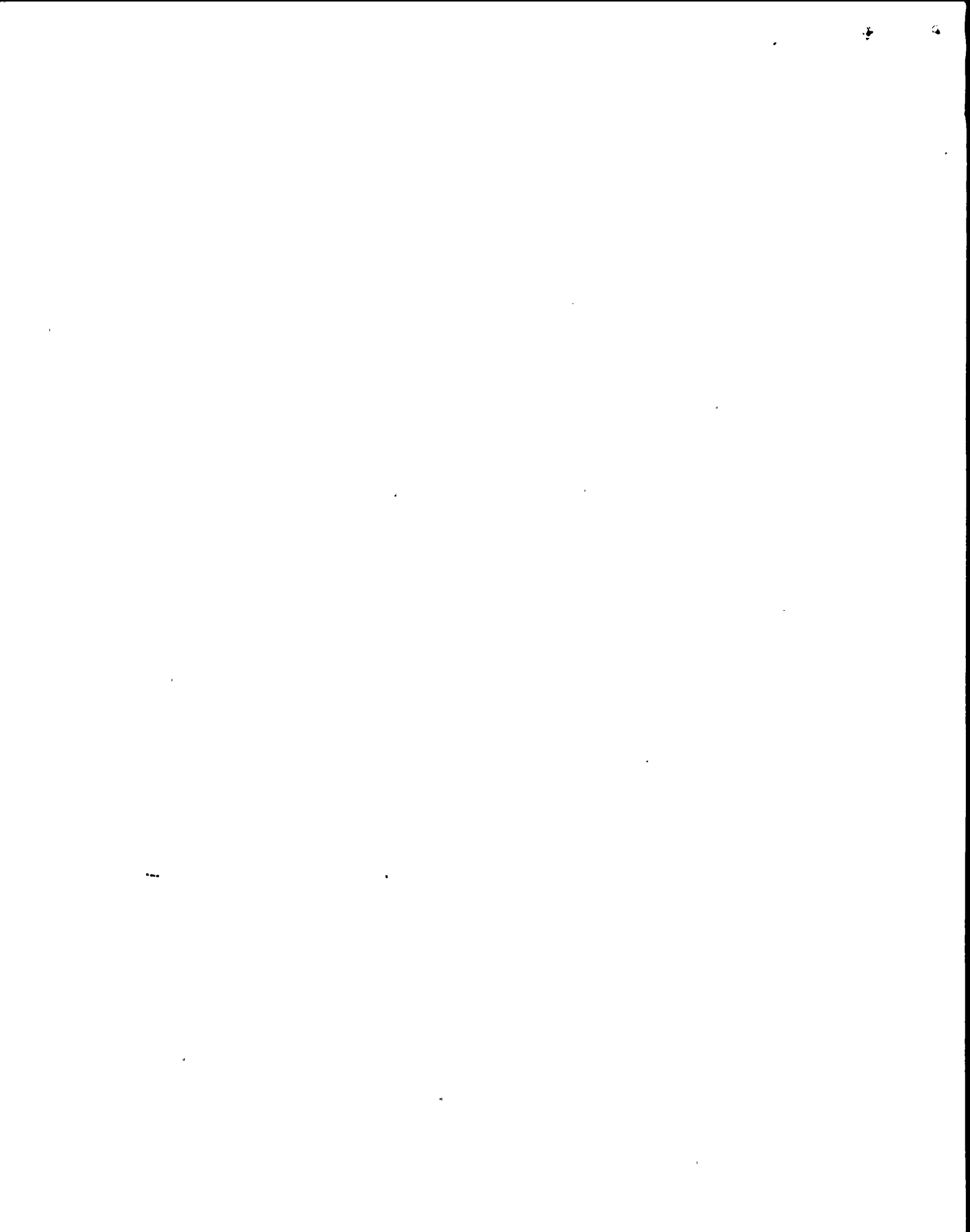
- a. Bridge will move in the forward AND reverse directions.
- b. Bridge will move in the forward direction BUT NOT reverse direction.
- c. Bridge will move in the reverse direction BUT NOT forward direction.
- d. Bridge will not move in either direction.



QUESTION: 012 (1.00)

If power is lost on DIV 2 battery bus (2BYS*SWG002B), WHICH ONE (1) of the following describes the effect on the RPS system?

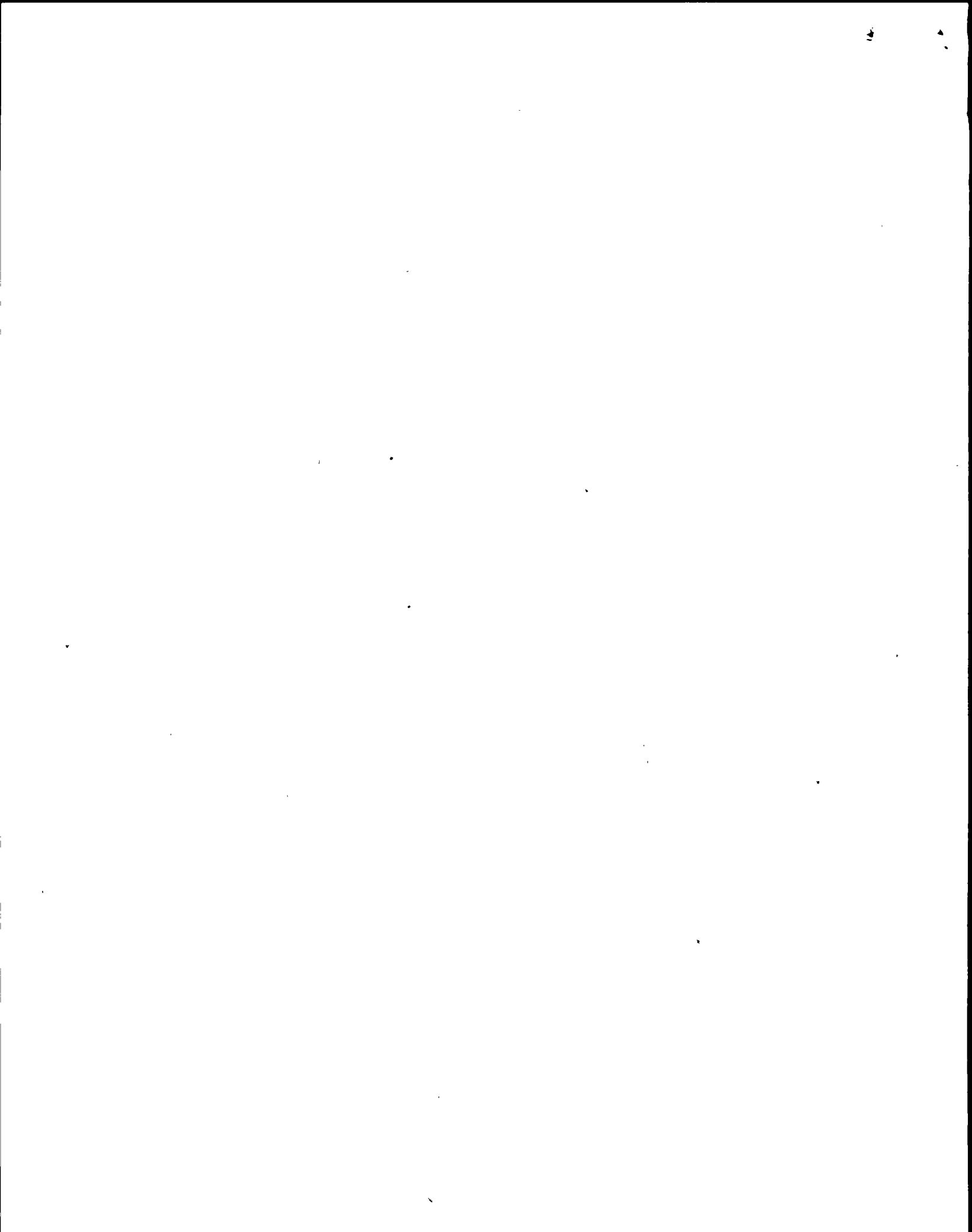
- a. A half scram is initiated due to RPS bus "B" being deenergized.
- b. The "B" EPA breaker would open.
- c. The backup scram valves would fail to bleed the air off the scram header on a scram.
- d. The Scram Discharge Volume vent and drain valves will fail open.



QUESTION: 013 (1.00)

Fuel reload has just been completed, the reactor head has been replaced but the hold-down studs have NOT been fully tensioned. The Reactor Engineer informs you that shutdown margin has been calculated to be 0.32%. The MODE switch is in Startup for the performance of a surveillance. WHICH ONE (1) of the following describes the actions required by Technical Specifications?

- a. Lock the Mode Switch in SHUTDOWN.
- b. Establish the required shutdown margin within 6 hours and establish Secondary Containment within 8 hours.
- c. Lock the Mode Switch in REFUEL.
- d. Insert all insertable control rods within 1 hour, and Establish Secondary Containment within 8 hours.

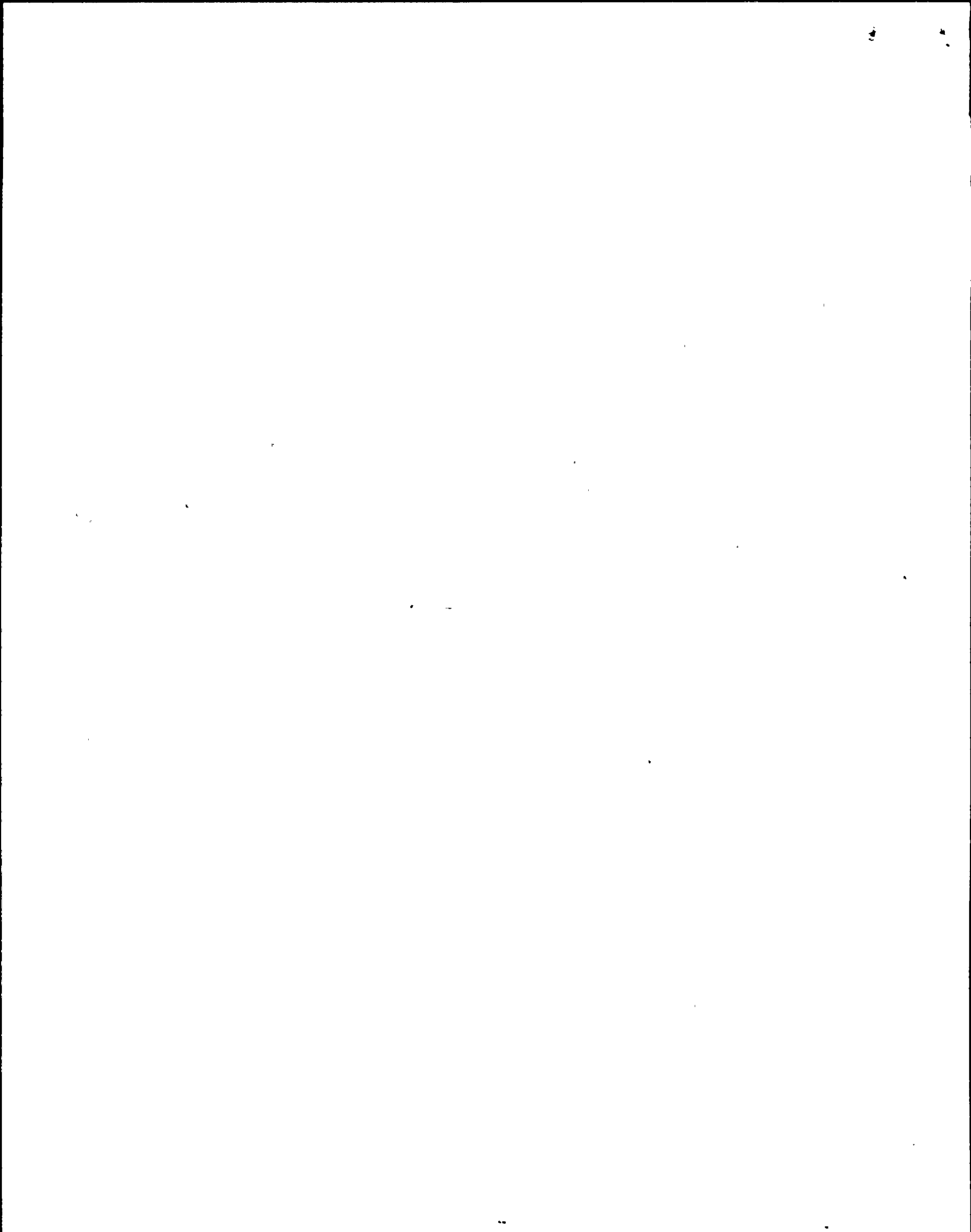


QUESTION: 014 (1.00)

Refueling preparations are in progress with the reactor vessel head removed and a partial load of fuel in the vessel.

WHICH ONE (1) of the following is a core alteration?

- a. withdrawal of Source Range Monitor
- b. removal of an LPRM string
- c. conduct of a TIP trace
- d. removal of a jet pump nozzle



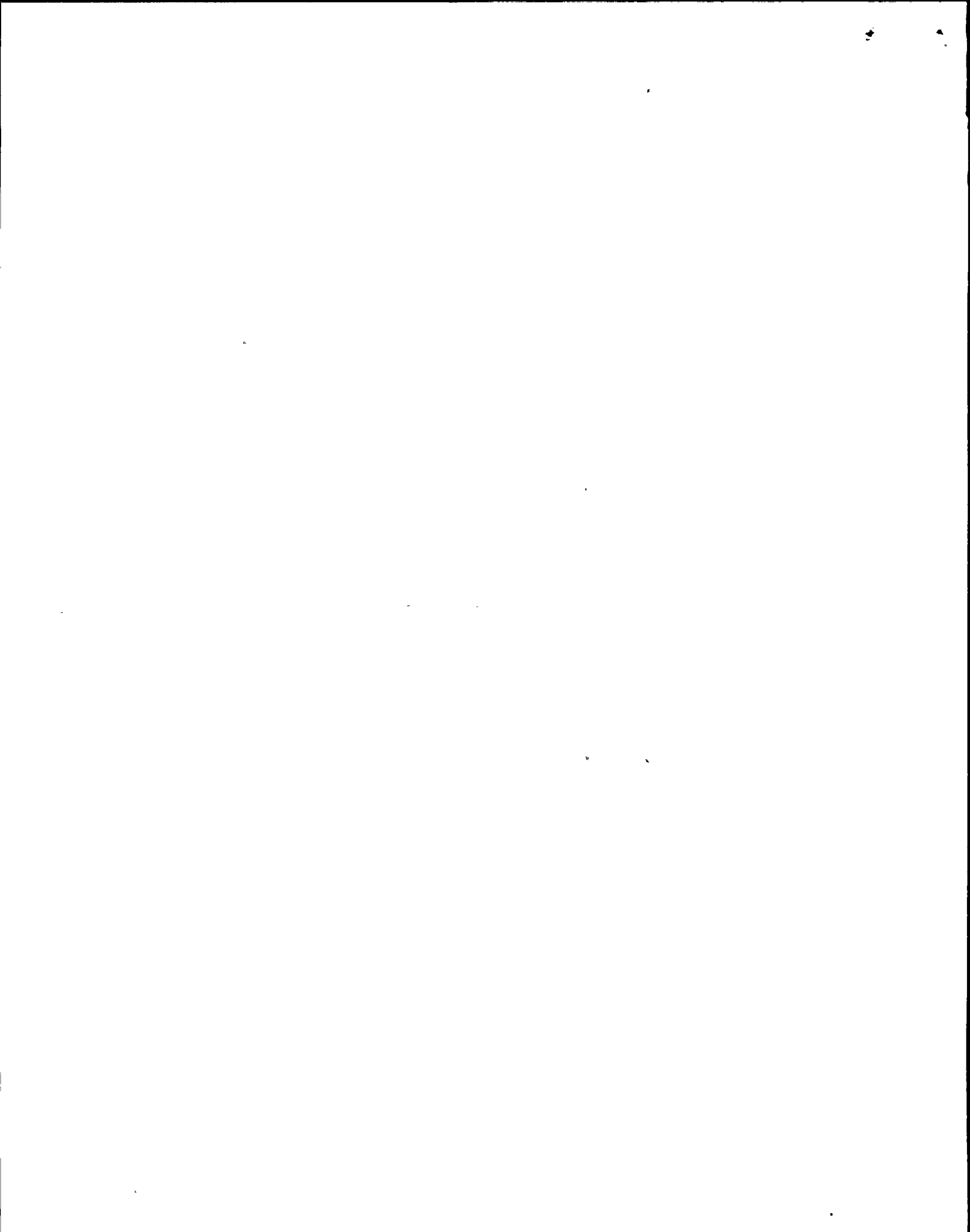
QUESTION: 015 (1.00)

Refueling operations are in progress. The MODE SWITCH is in REFUEL. During an instrument surveillance, an Instrument Technician inadvertently causes a High Drywell signal on an UNBYPASSED channel.

WHICH ONE (1) of the following correctly complete this statement?

Reactor Building Ventilation _____ and SBT _____.

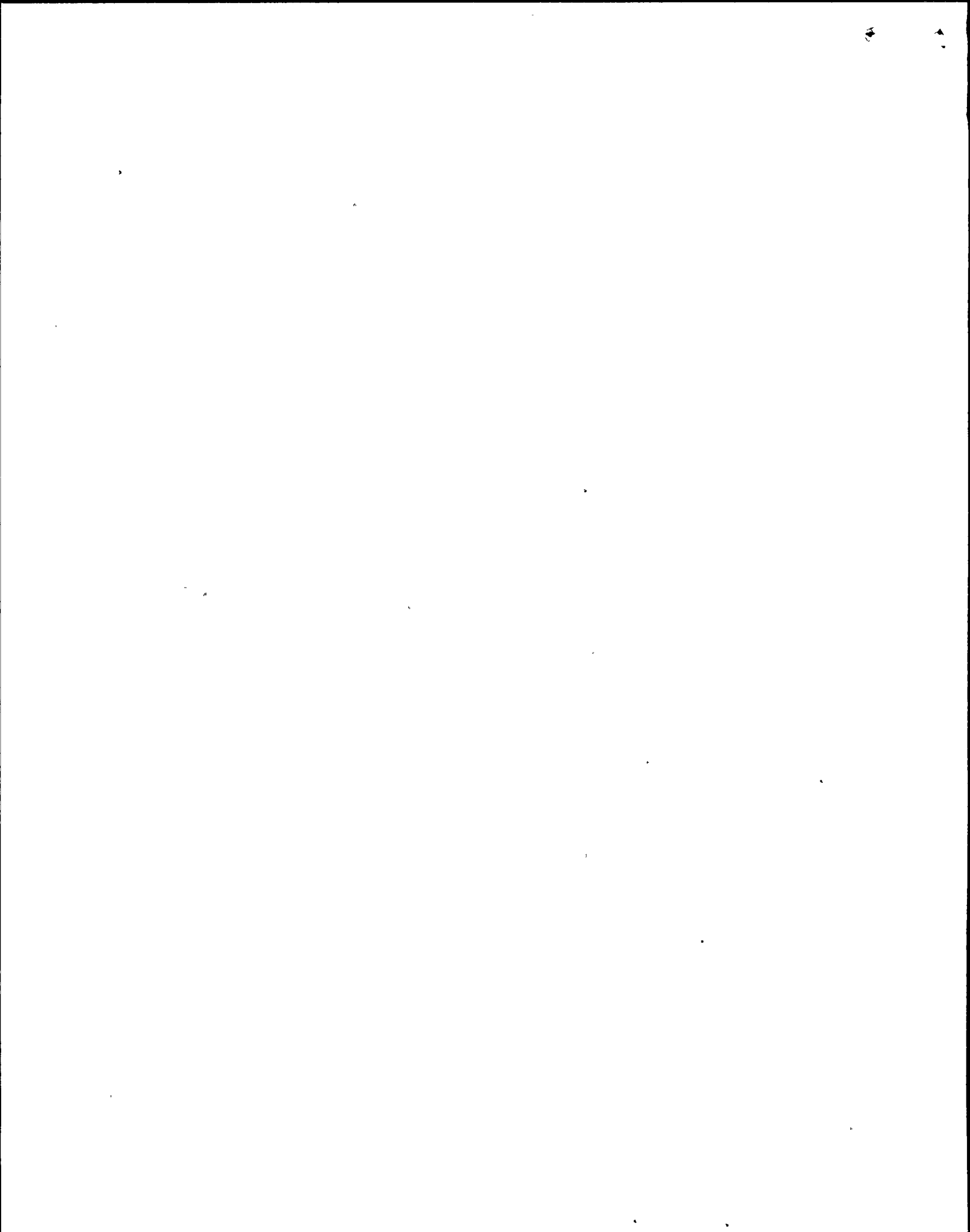
- a. remains running; remains in standby.
- b. isolates; remains in standby.
- c. isolates; starts automatically.
- d. remains running; starts automatically.



QUESTION: 016 (1.00)

WHICH ONE (1) of the following conditions will result in an automatic isolation of the Shutdown Cooling System?

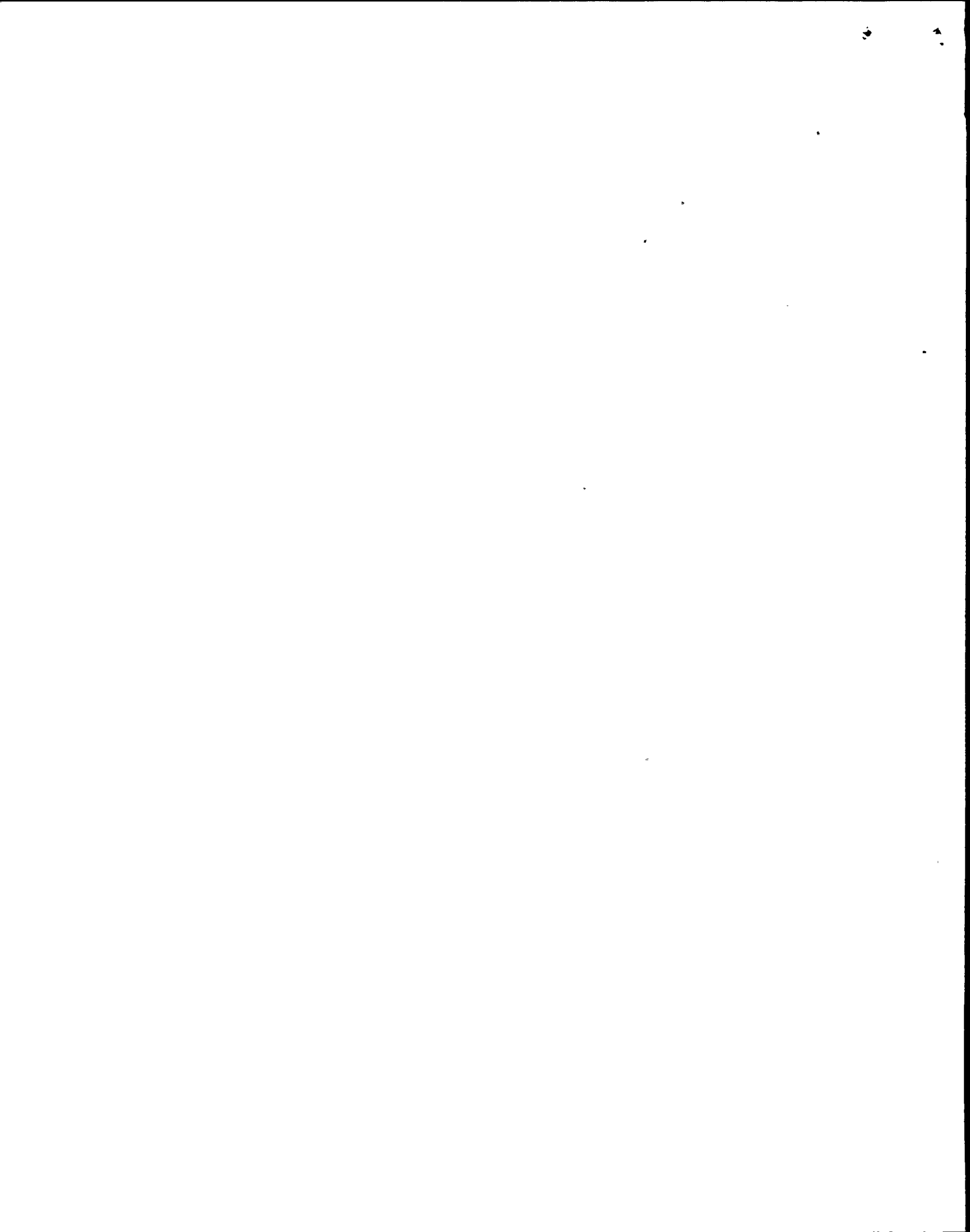
- a. RHS area temperature 137 deg F or reactor water level 155 inches
- b. reactor building pipe chase temperature 130 deg F or reactor water level 168 inches
- c. drywell pressure 1.68 psig or reactor pressure 110 psig
- d. reactor building temperature 125 deg F or reactor pressure 115 psig



QUESTION: 017 (1.00)

WHICH ONE (1) of the following describes core orifice location and the purpose of core orificing?

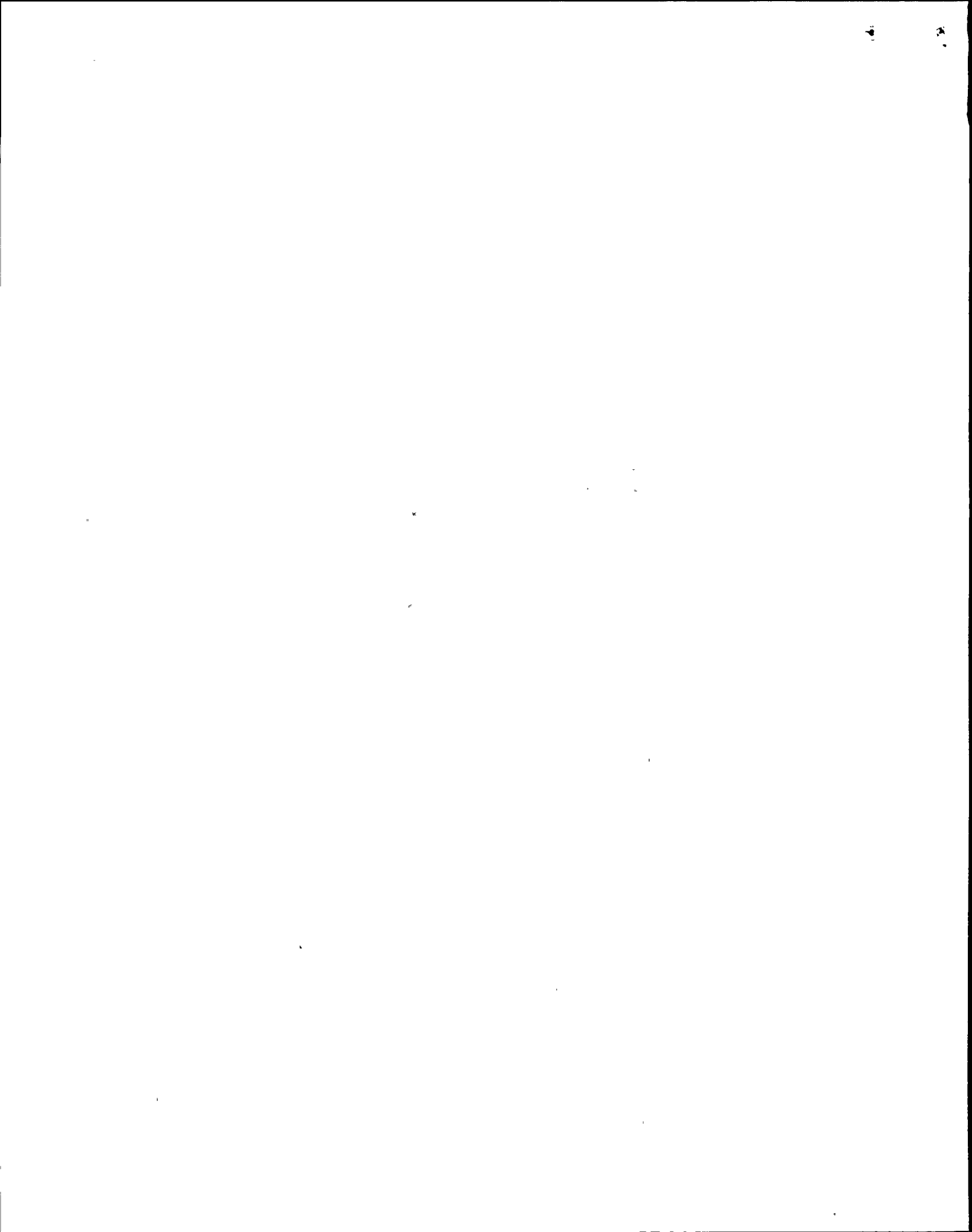
- a. located in the lower tie plate; provide maximum flow to fuel bundles in the central region
- b. located in the fuel support pieces; provide even flow distribution throughout the core
- c. located in the lower tie plate; provide even flow distribution throughout the core
- d. located in the fuel support pieces; provide maximum flow to fuel bundles in the central region



QUESTION: 018 (1.00)

Refueling is in progress, when a double-ended shear of the "A" recirculation suction line is caused by dropping a replacement recirculation pump in the drywell. WHICH ONE (1) of the following will prevent the core from being completely uncovered if no automatic ECCS pumps start and no operator action is taken?

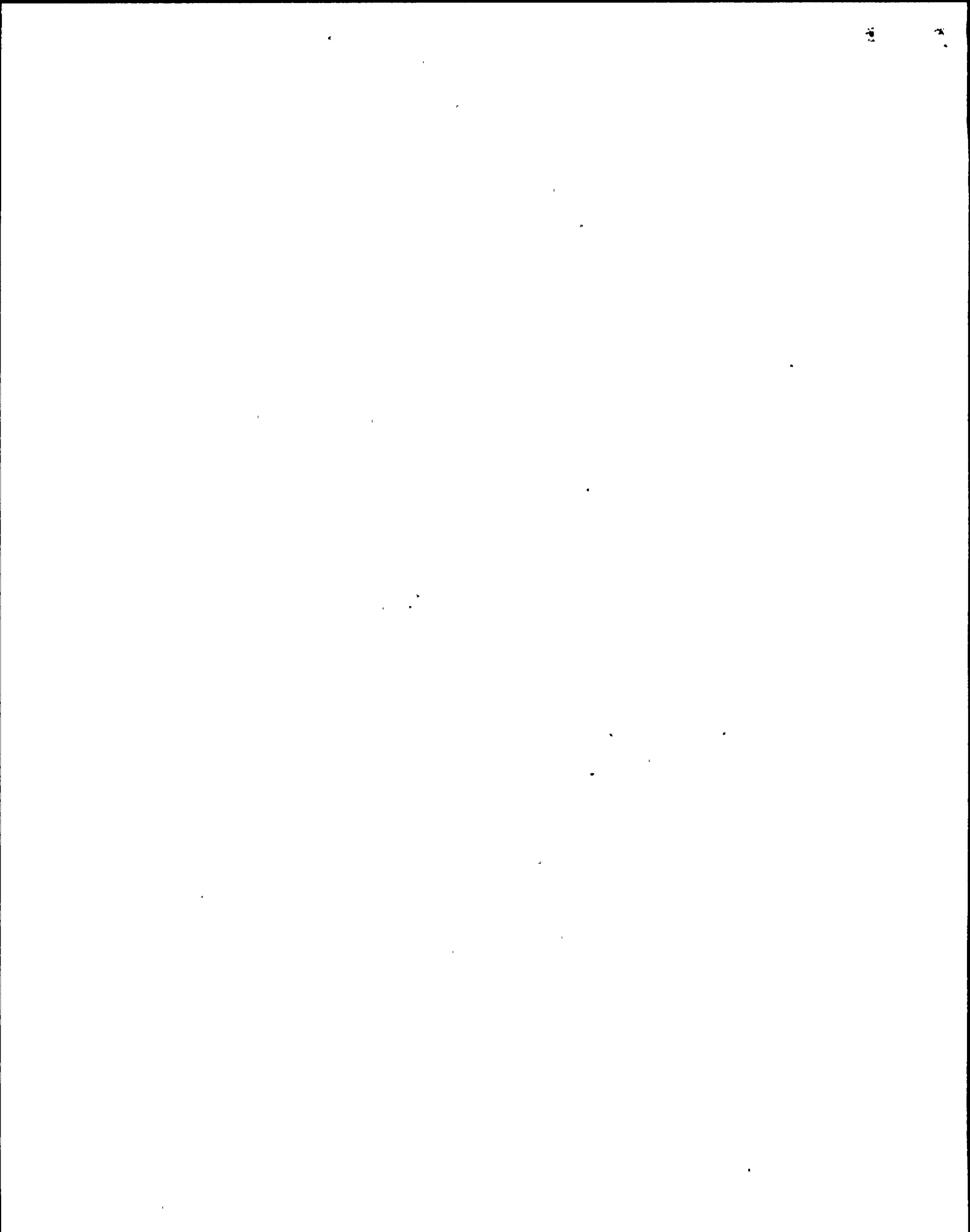
- a. The core shroud will remain full of water providing complete core coverage to the top of active fuel.
- b. The recirculation suction line connects to the reactor vessel above the core beltline, providing partial core coverage.
- c. The jet pumps will act as a standpipe and maintain partial core coverage.
- d. The volume of water in the reactor cavity during refueling will fill the containment to a level above the top of active fuel.



QUESTION: 019 (1.00)

The RHS system has an interlock which prevents opening the shutdown cooling isolation valves (MOV 2A/B) unless the suppression pool suction valves (MOV 1A/B) are fully closed, the test return valve (FV 38A/B) is closed, and the suppression pool spray valves (MOV 33A/B) are closed. WHICH ONE (1) of the following is the reason for the interlock?

- a. To prevent inadvertently draining the reactor vessel to the suppression pool.
- b. To avoid unnecessarily injecting suppression pool water into the reactor vessel.
- c. To avoid pump runout caused by activating suppression pool cooling and shutdown cooling at the same time.
- d. To prevent starting a pump without a suction path from either the suppression pool or the reactor vessel.



QUESTION: 020 (1.00)

A core offload is in progress at Unit 2.

Given the following conditions:

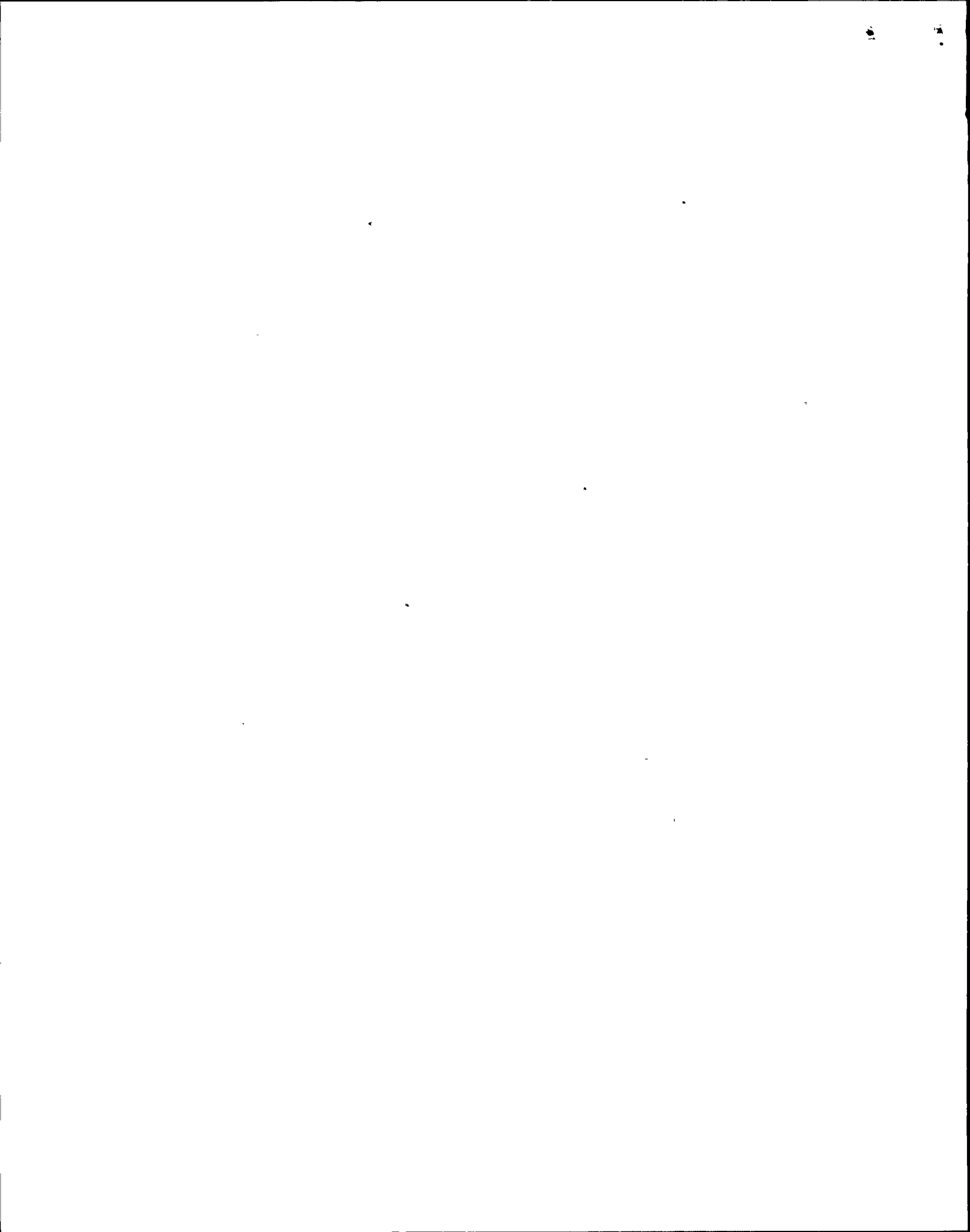
No dunking chambers are installed.
SRM indications are:

SRM A	5 cps	Quadrant I
SRM B	2 cps	Quadrant II
SRM C	3 cps	Quadrant III
SRM D	4 cps	Quadrant IV

Following the removal of a fuel bundle in Quadrant III, the count rate on SRM C DROPPED to 2 cps. The count rates on the other SRMs remain unchanged.

WHICH ONE (1) of the following describes an impact of this condition on core off loading? (See Figure 2, Core Coordinate Map)

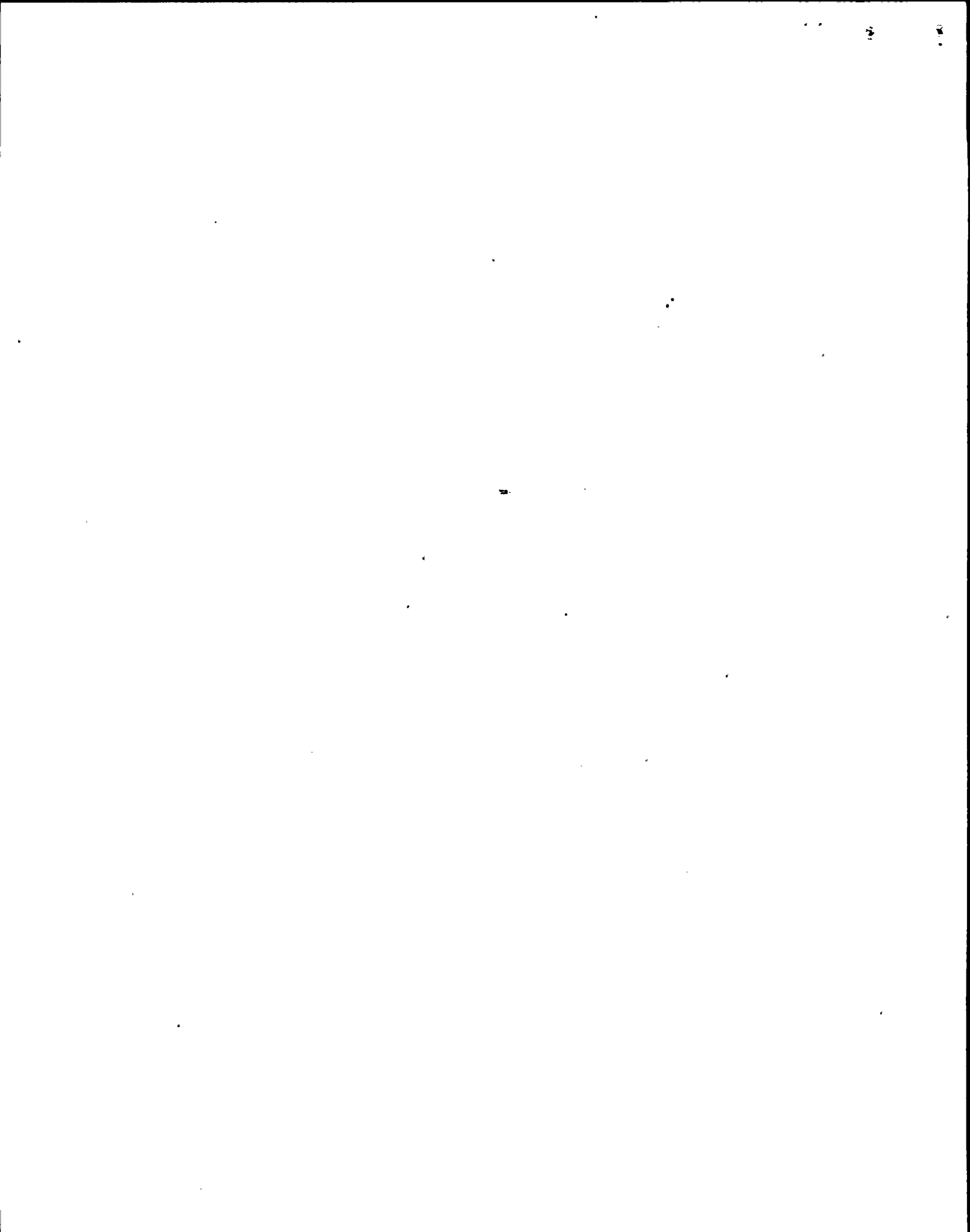
- a. Core off load may continue in Quadrant I, but not in Quadrant IV.
- b. Core off load may continue in Quadrant II, but not in Quadrant III.
- c. Core off load may continue in Quadrant I, but not in Quadrant III.
- d. Core off load may continue in Quadrant II, but not in Quadrant IV.



QUESTION: 021 (1.00)

WHICH ONE (1) of the following conditions will cause the fuel pool cooling pump to trip?

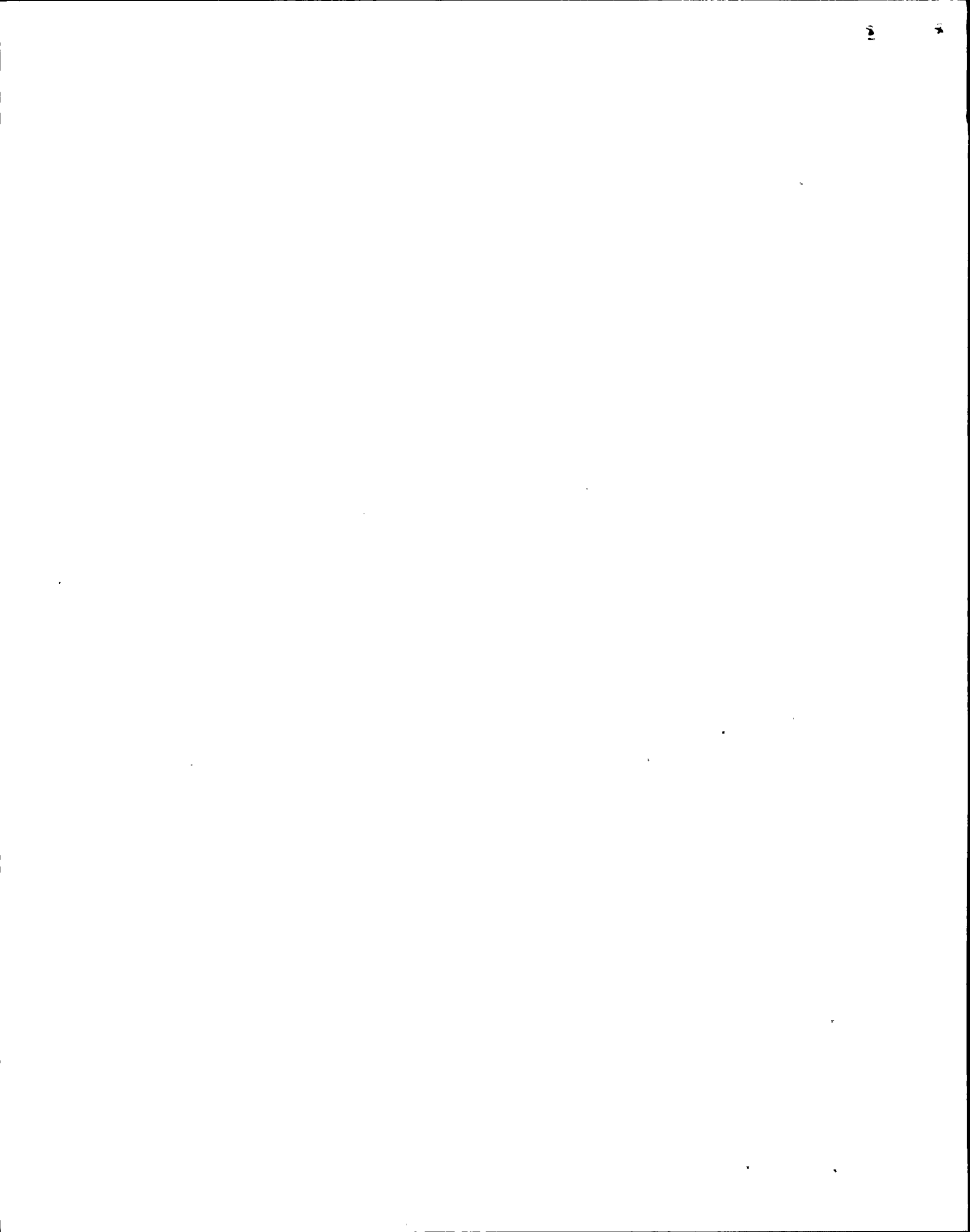
- a. Pump discharge pressure 180 psig for 5 seconds.
- b. Pump discharge flow 700 gpm for 2 minutes.
- c. Pump suction pressure 6 psig for 10 seconds.
- d. Pump discharge flow 500 gpm for 15 seconds.



QUESTION: 022 (1.00)

The Nine Mile Unit 2 Technical Specifications limit the concentration of chloride ions in the reactor coolant during operation and shutdown. WHICH ONE (1) of the following is the BASIS for allowing the higher chloride concentration in modes 4 and 5?

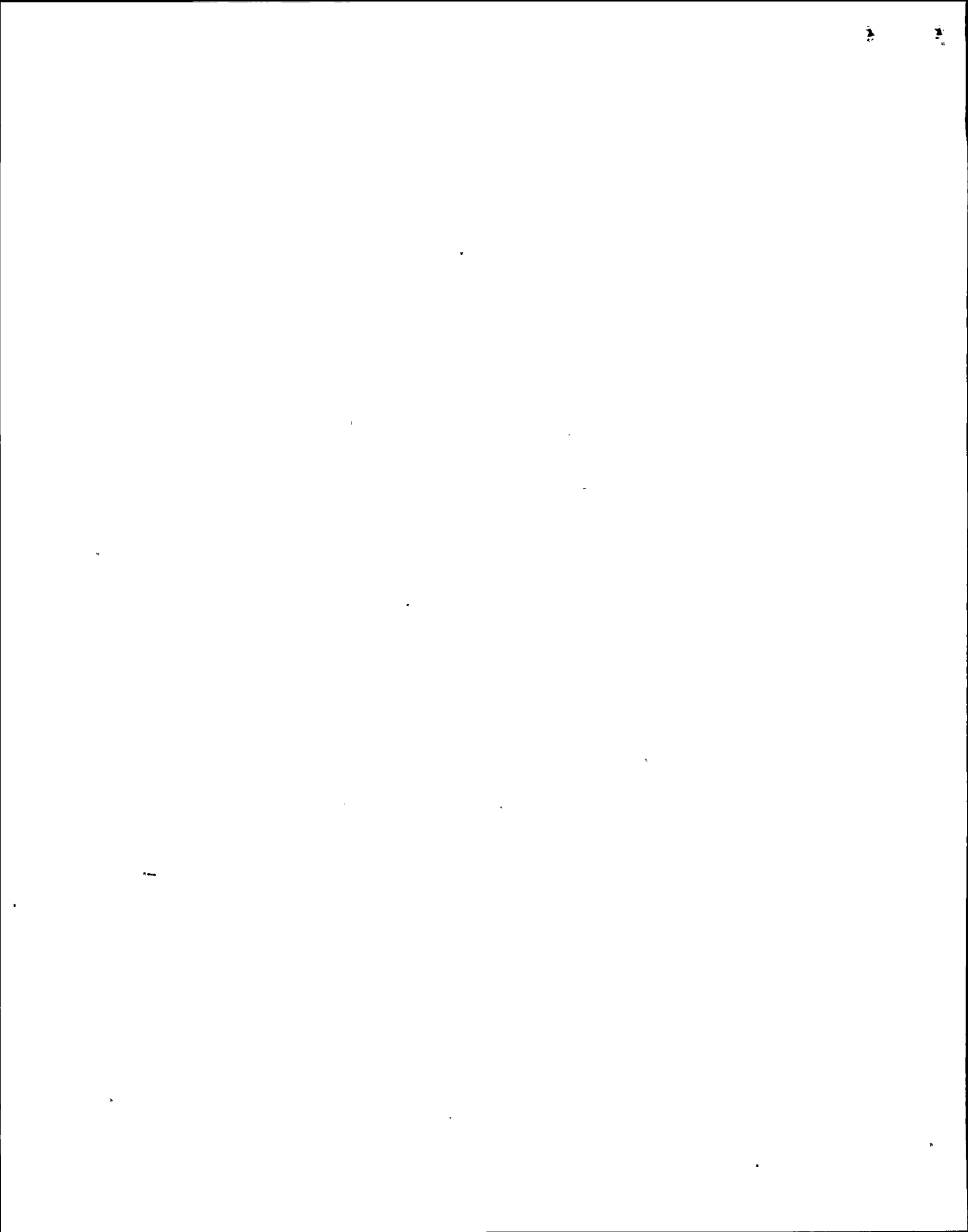
- a. The unclad carbon steel reactor head is removed.
- b. The oxygen concentration necessary for stress corrosion is not present.
- c. Higher chloride concentration can be tolerated for the short duration of a refueling outage.
- d. The temperature necessary for stress corrosion is not present.



QUESTION: 023 (1.00)

During refueling operations, Nine Mile Unit 2 Technical Specifications require a minimum amount of delay time between subcriticality and movement of fuel. WHICH ONE (1) of the following states the BASIS for this minimum time between shutdown and fuel movement?

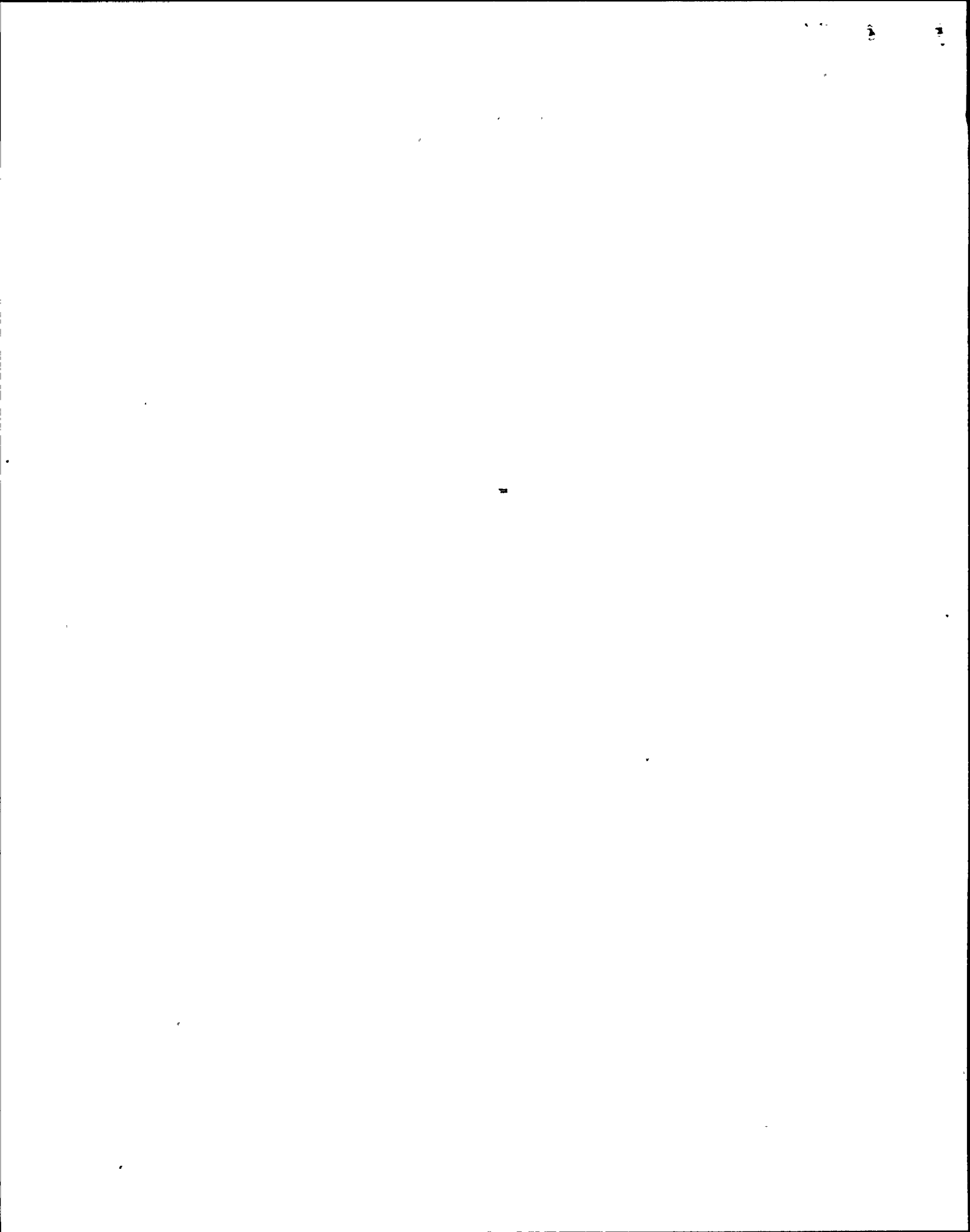
- a. Allows for the decay of short-lived fission products.
- b. Ensures that decay heat loads will be within the capacity of the spent fuel pool cooling system.
- c. Allows for the buildup of Samarium-149.
- d. Ensures that fission product gases in the reactor coolant come out of solution before the head is removed.



QUESTION: 024 (1.00)

WHICH ONE (1) of the following groups of components provide LATERAL SUPPORT for the fuel bundles?

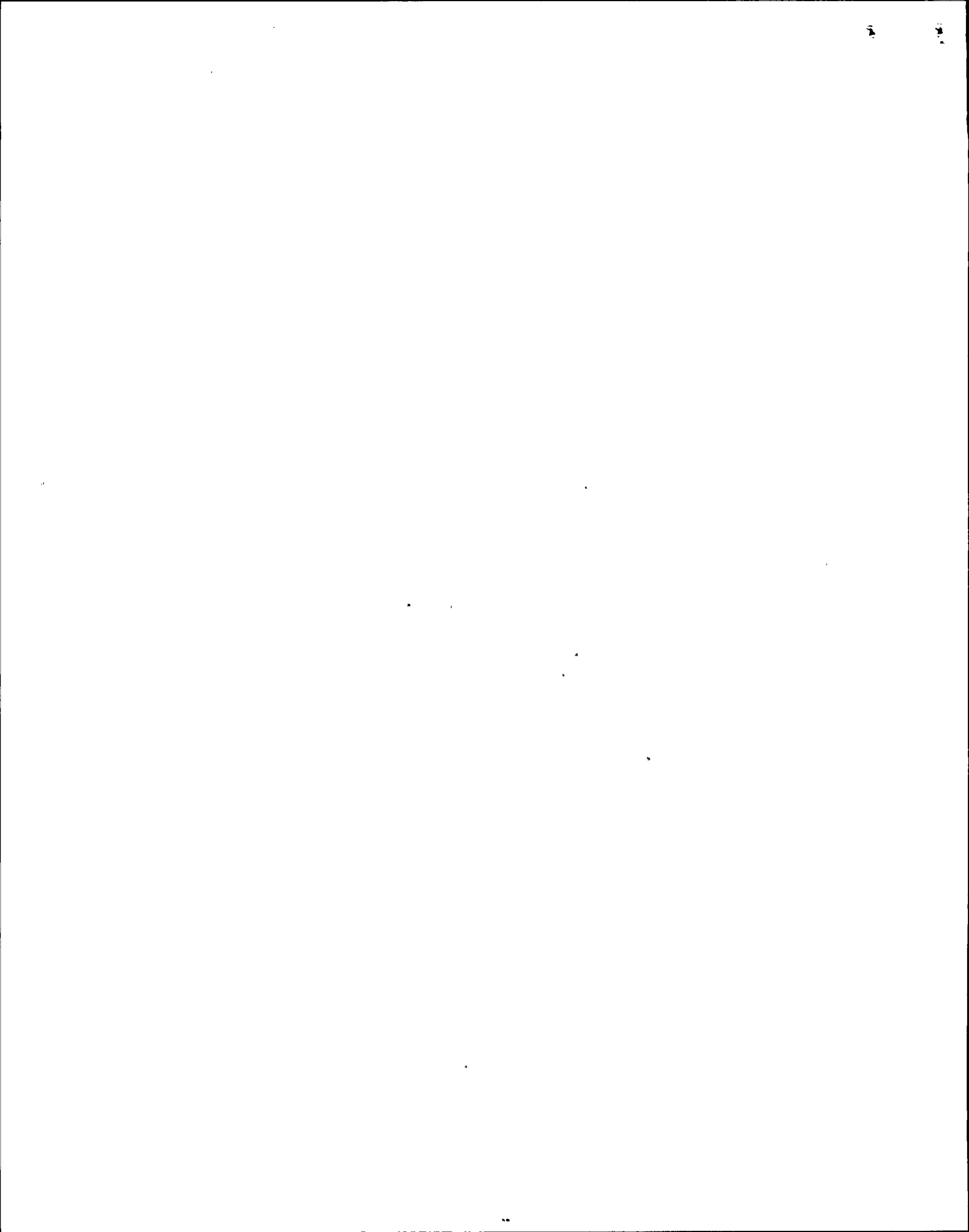
- a. core shroud, core plate and top guide
- b. fuel support castings and control rod guide tubes
- c. shroud support and the core plate
- d. top guide, incore guide tubes and control rod stub tube



QUESTION: 025 (1.00)

WHICH ONE (1) of the following describes control of the secondary containment doors?

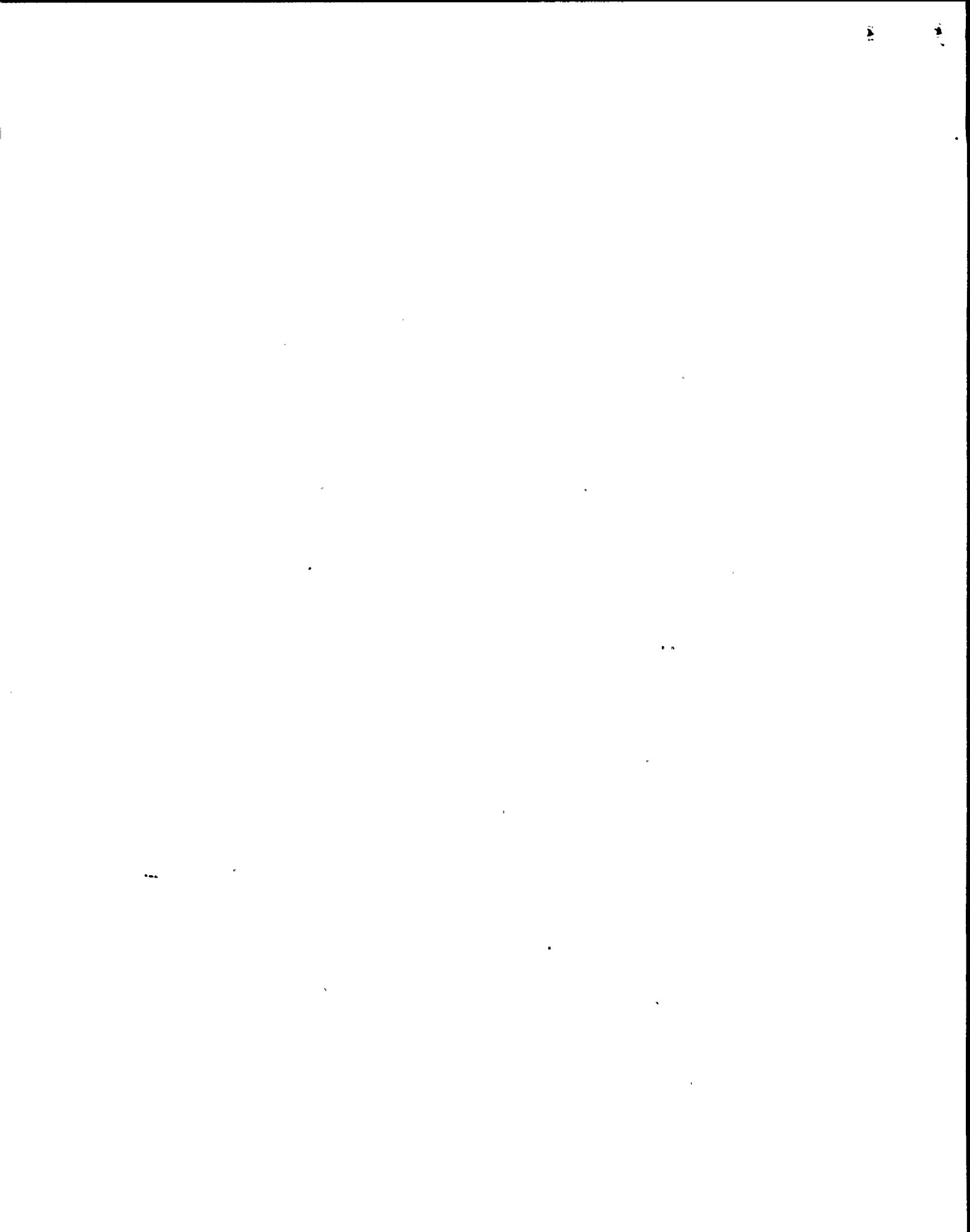
- a. All doors have automatic interlocks to prevent inadvertent violation of secondary containment.
- b. The track bay, or railroad doors, have automatic interlocks to prevent inadvertent violation of secondary containment. All others are administratively controlled only.
- c. The track bay, or railroad doors, are administratively controlled only. All others have automatic interlocks to prevent inadvertent violation of secondary containment.
- d. All doors are administratively controlled only.



QUESTION: 026 (1.00)

WHICH ONE (1) of the following situations will stop or prohibit the raising AND lowering of the MAIN hoist?

- a. The platform is over the core, a fuel bundle is on the main hoist, Control Room operator attempts to withdraw a control rod.
- b. The platform is over the fuel pool, a fuel bundle is on the main hoist, Control Room operator attempts to withdraw a control rod.
- c. A control rod is withdrawn, the main hoist is unloaded and the platform operator attempts to move the platform towards the core.
- d. A control rod is withdrawn, the platform is over the core, and the platform operator attempts to lift a fuel bundle.



QUESTION: 027 (1.00)

WHICH ONE (1) of the following describes the failure modes of the Fuel Grapple on the refueling platform?

- a. Fuel Grapple fails closed on loss of electrical power, fails as-is on a loss of air pressure.
- b. Fuel Grapple fails as-is on loss of electrical power, fails closed on a loss of air pressure.
- c. Fuel Grapple fails closed on loss of electrical power or on a loss of air pressure.
- d. Fuel Grapple fails as-is on loss of electrical power or on a loss of air pressure.

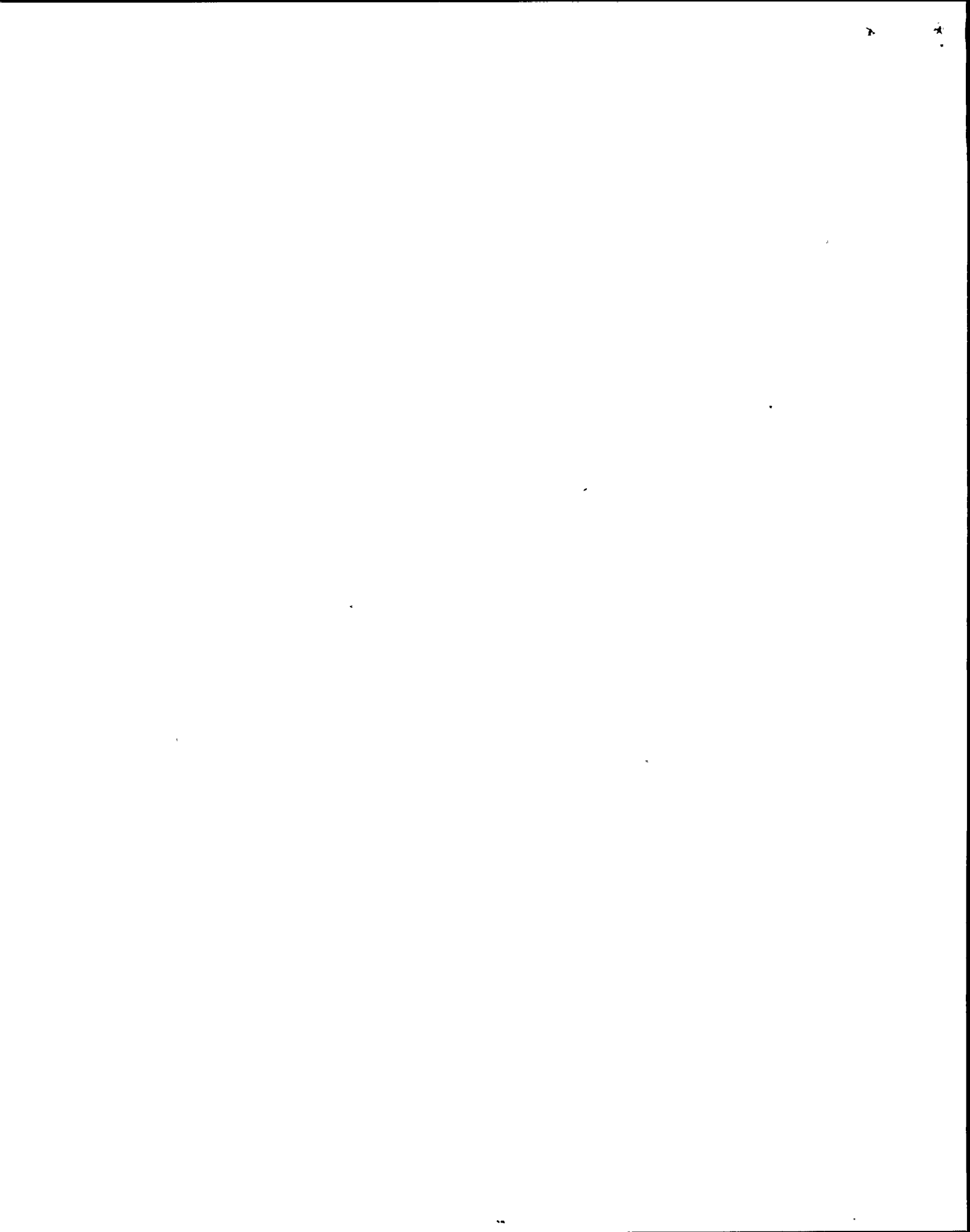
QUESTION: 028 (1.00)

Plant conditions are as follows:

- * Reactor is shutdown for refueling
- * RPV water temperature is 155 deg F
- * RWCU is isolated
- * RPV level is 25 feet

WHICH ONE (1) of the following is the reason that RHS loop B is the preferred loop for shutdown cooling?

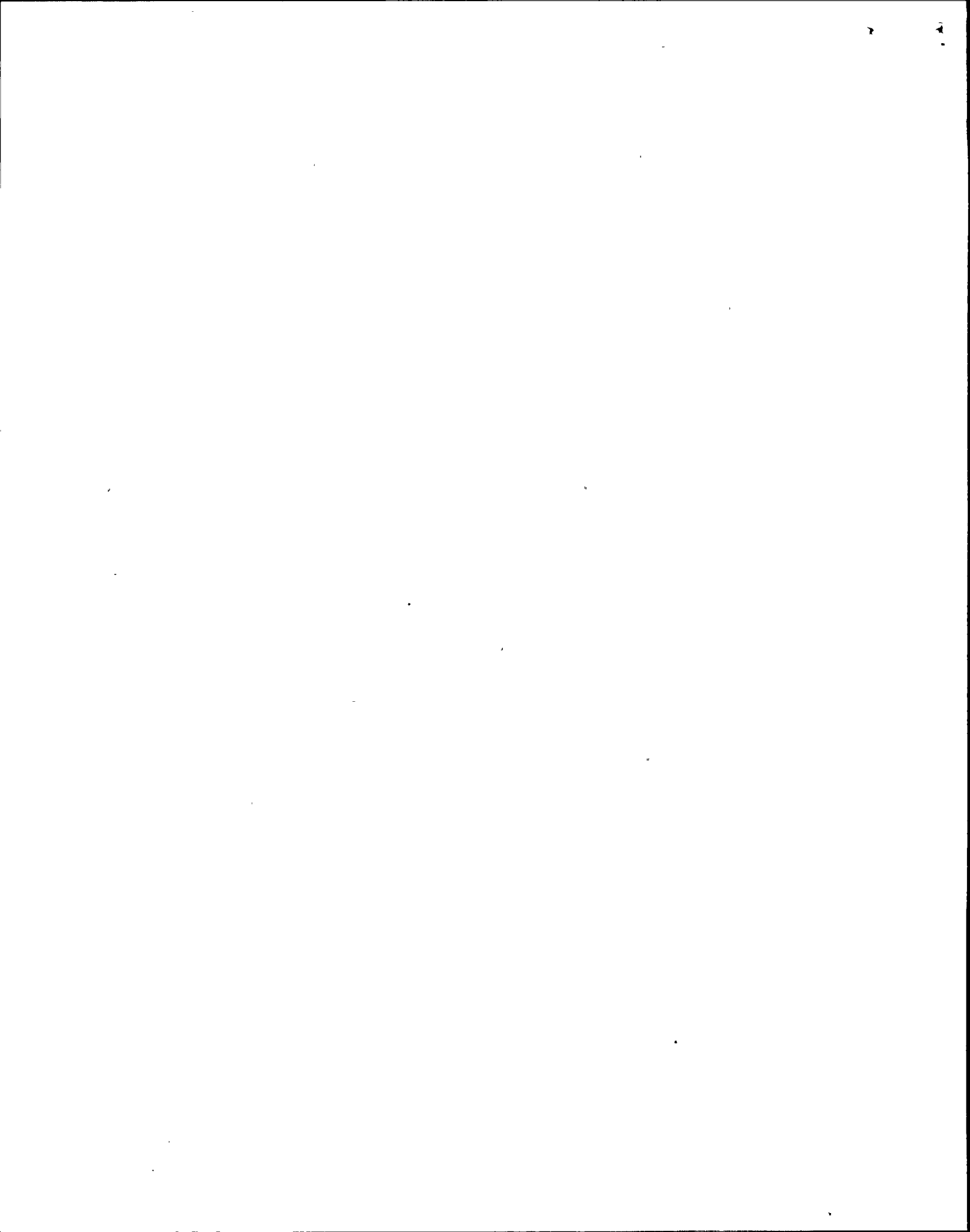
- a. The discharge to radwaste can be cooled.
- b. Loop "A" and "C", each with an independent power supply, are reserved for LPCI injection.
- c. Provides bottom head temperature indication.
- d. It is capable of finer temperature control than loop "A".



QUESTION: 029 (1.00)

The plant is shutdown with refueling operations in progress. The fuel pool cooling system is in operation with two pumps running when a loss of off site power occurs. WHICH ONE (1) of the following describes the response of the Spent Fuel Cooling Pumps?

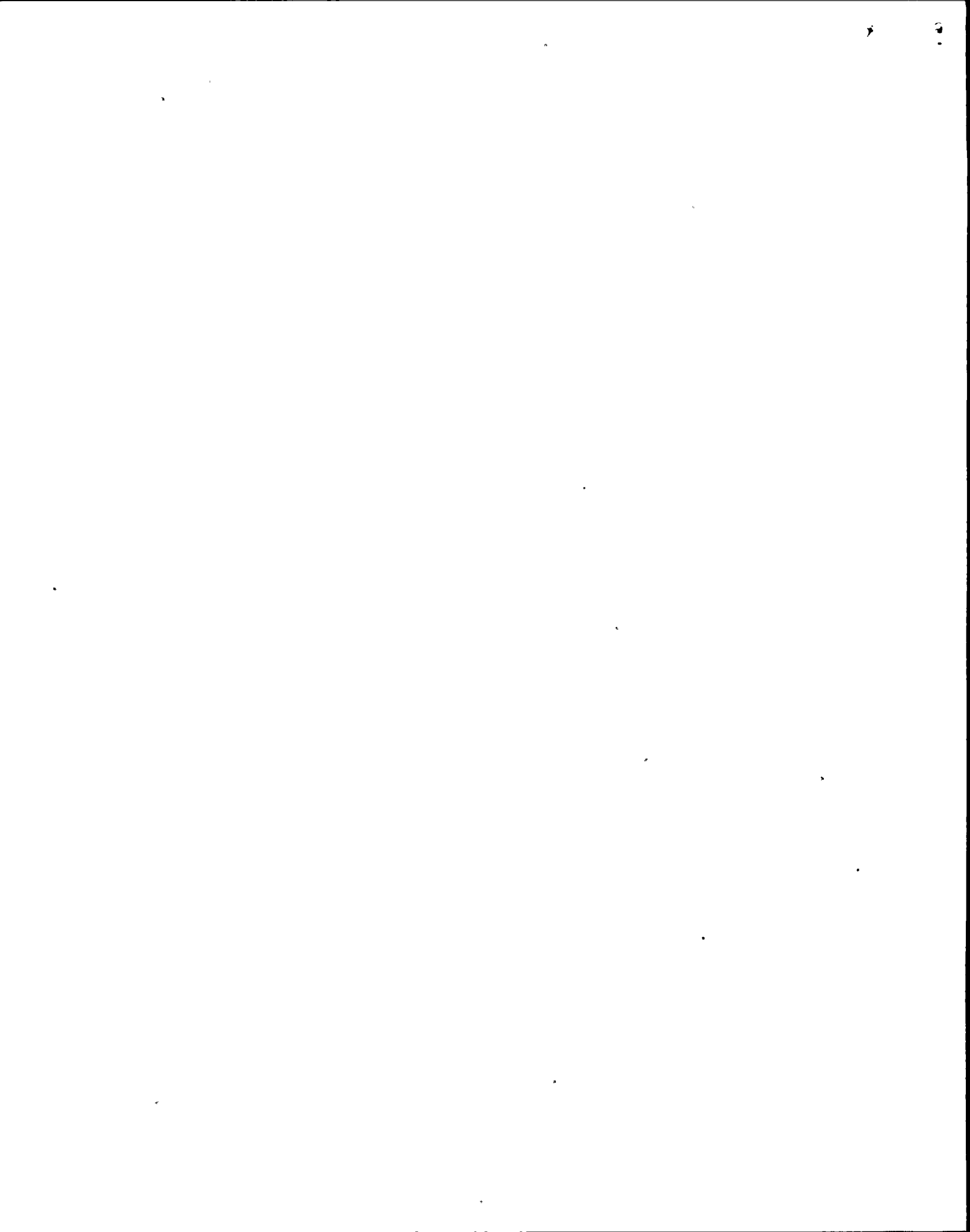
- a. Both pumps trip, the lead pump starts as soon as power is restored to the bus; the second pump is locked out for sixty (60) seconds.
- b. Both pumps trip, the lead pump restarts automatically sixty (60) seconds after power is restored to the bus, the second pump starts in ninety (90) seconds.
- c. Both pumps trip and are locked out until the lockout relays are reset at the pump breakers, then they can be manually started.
- d. Both pumps trip and are locked out for sixty (60) seconds after power is restored to the buses, then they can be manually started.



QUESTION: 030 (1.00)

A precaution in the Nine Mile Point 2 Refueling Manual (N2-FHP-3) limits total drive flow from RHS/Recirculation Pumps to 5700 gpm during certain refueling situations. WHICH ONE (1) of the following describes these situations and the reason that the precautions apply in these situations? (Assume no blade guides are present in the core.)
Flow is limited to 5700 GPM:

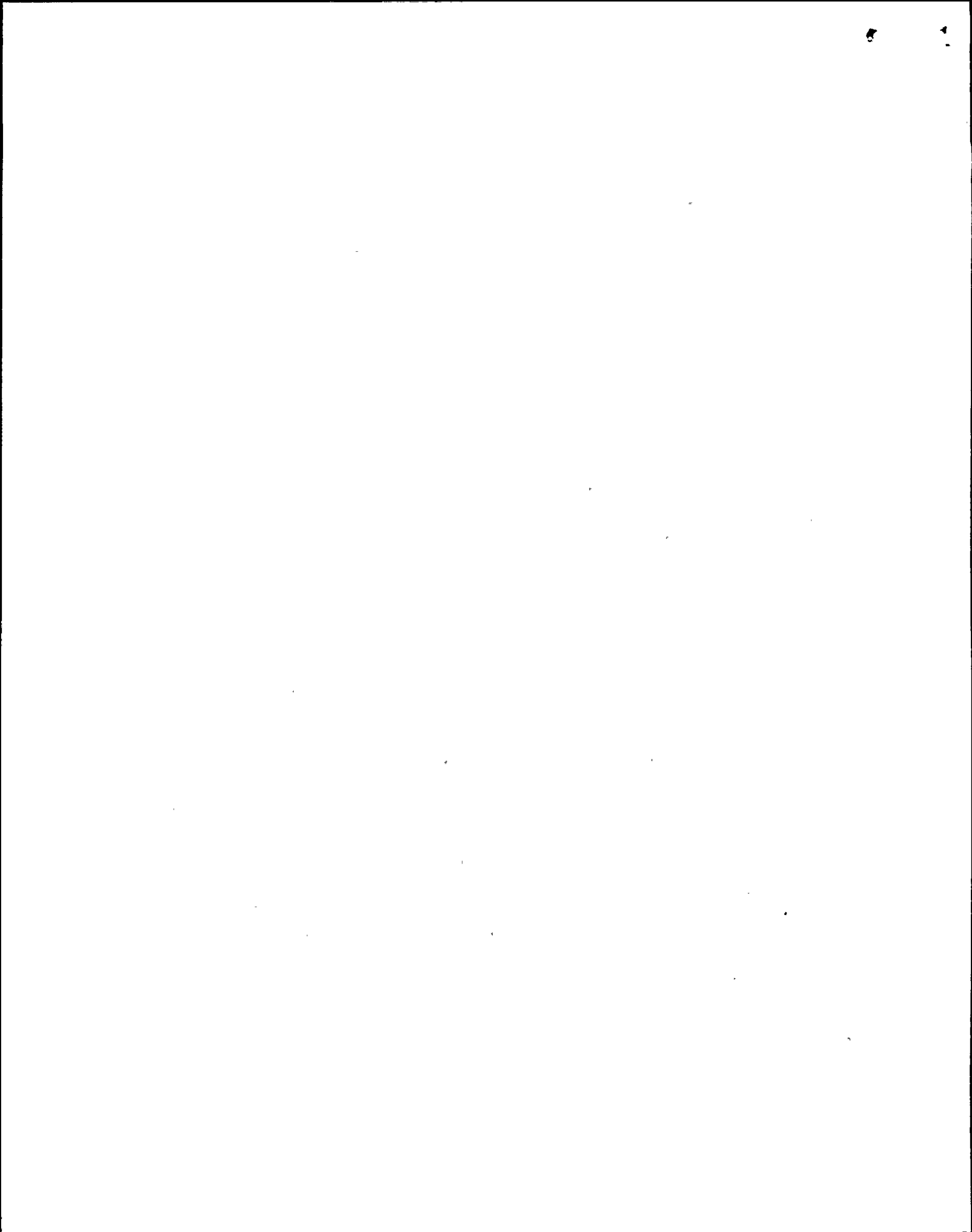
- a. when any in-core instrumentation is not fully surrounded by fuel assemblies to prevent damage from flow-induced vibration.
- b. when reactor cavity level is less than 22 feet 3 inches to avoid excessive disturbance of the water surface and loss of visibility.
- c. when the reactor head is removed and water temperature is above 110 deg F to prevent Jet Pump cavitation.
- d. when only one recirculation loop is in service and water temperature is above 110 deg F to prevent recirculation pump cavitation.



QUESTION: 031 (1.00)

WHICH ONE (1) of the following conditions REQUIRES that Fuel Movement be immediately halted?

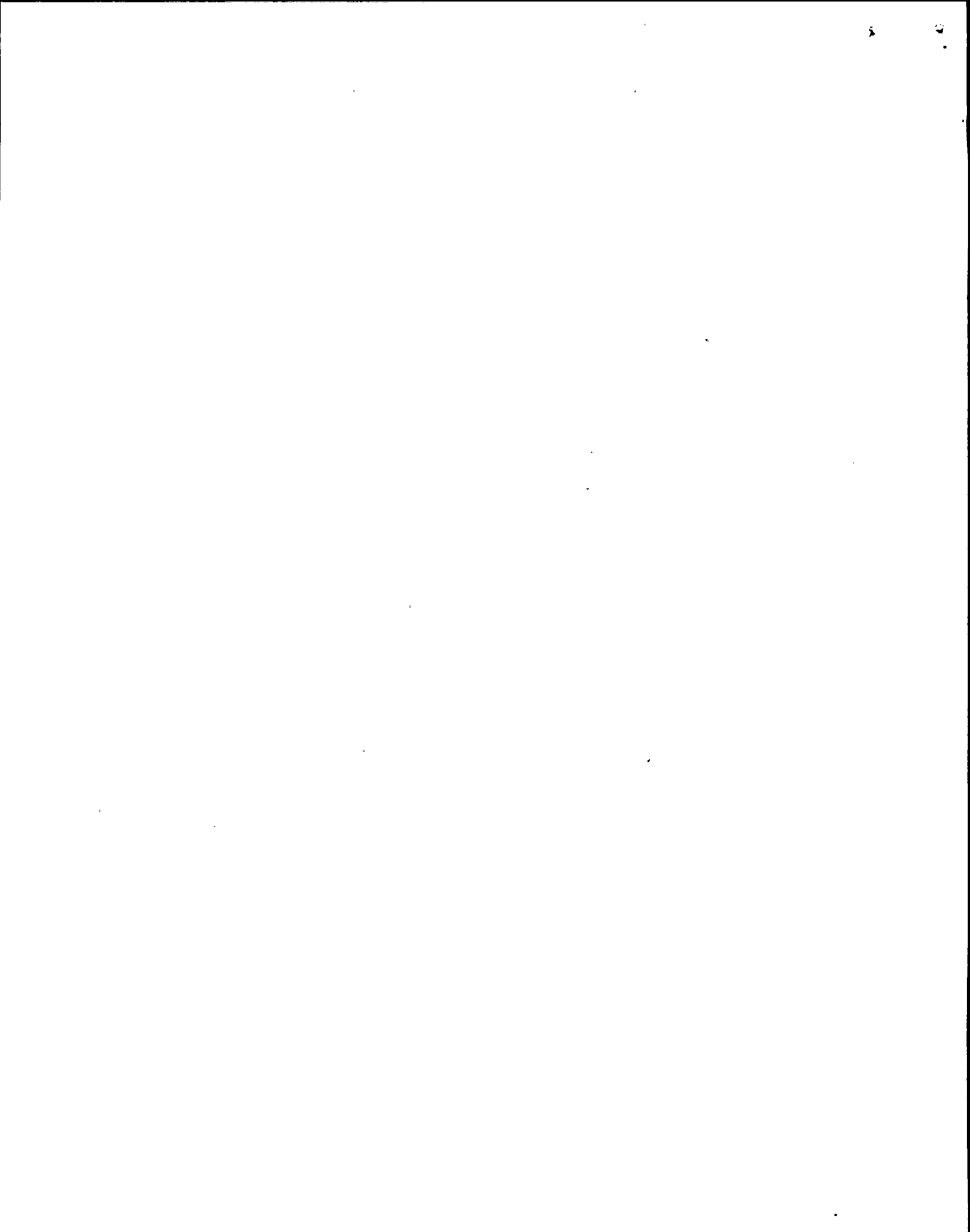
- a. loss of one control rod position indication
- b. damage to the incore portion of any SRM
- c. refuel Floor area high radiation alarm
- d. loss of 4.16KV Emergency Bus Div I



QUESTION: 032 (1.00)

During fuel reload, prior to engaging the grapple, Nine Mile Point procedures require that the fuel grapple must be independently verified to be resting on the correct fuel assembly by WHICH ONE (1) of the following individuals?

- a. any qualified SRO or LSRO on the refuel floor
- b. the Shift Reactor Engineer on the refuel floor
- c. any Quality Assurance Inspector on the refuel floor
- d. the Refuel Floor Supervisor

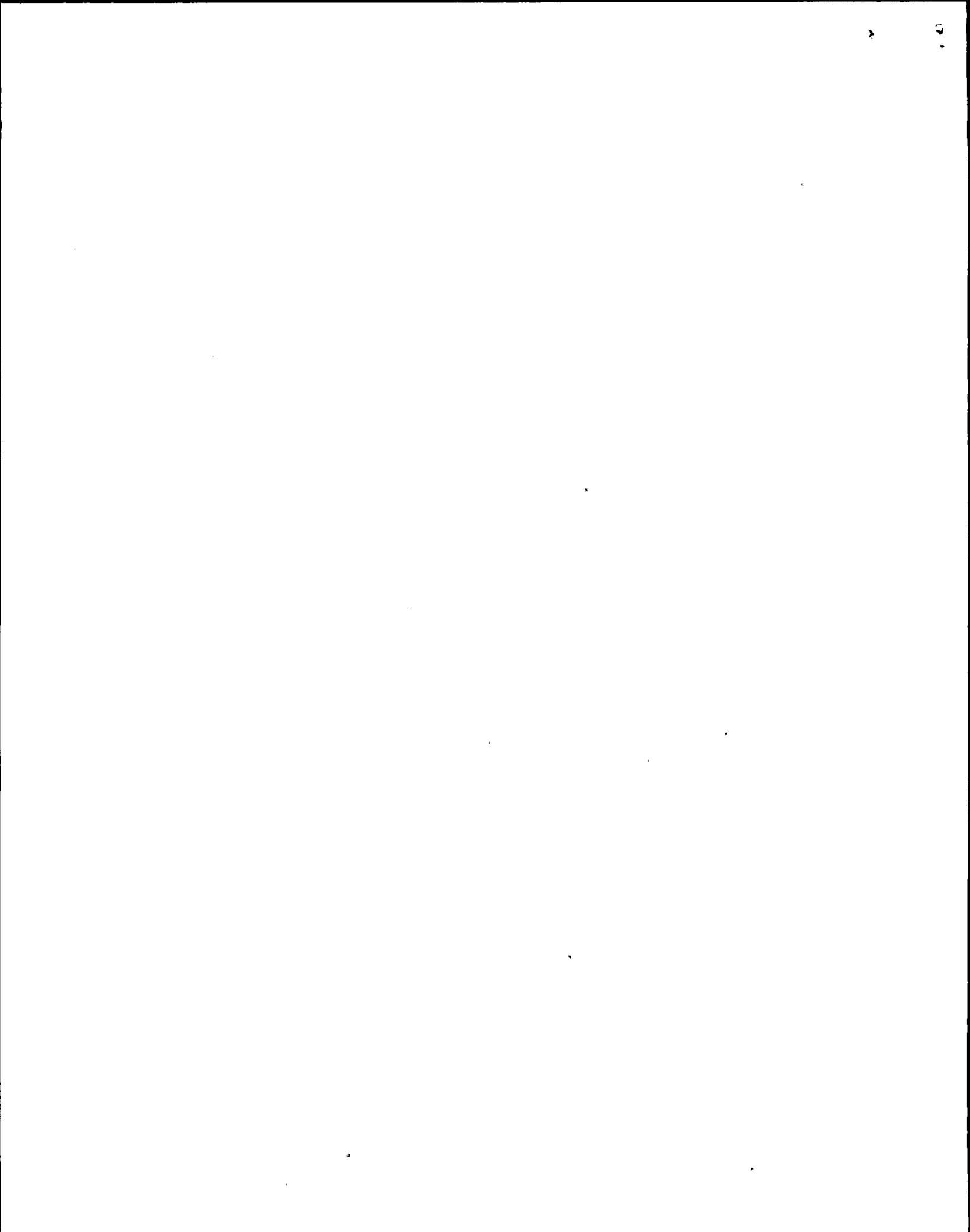


QUESTION: 033 (1.00)

WHICH ONE (1) of the following choices correctly completes the following statement?

The Reactor Building is maintained at _____ by ensuring that the ventilation system fans _____ more air than is _____ to the Reactor Building.

- a. -0.25 inches wg; exhaust; supplied
- b. -0.25 inches wg; supply; exhausted
- c. +0.25 inches wg; supply; exhausted
- d. +0.25 inches wg; exhaust; supplied



QUESTION: 034 (1.00)

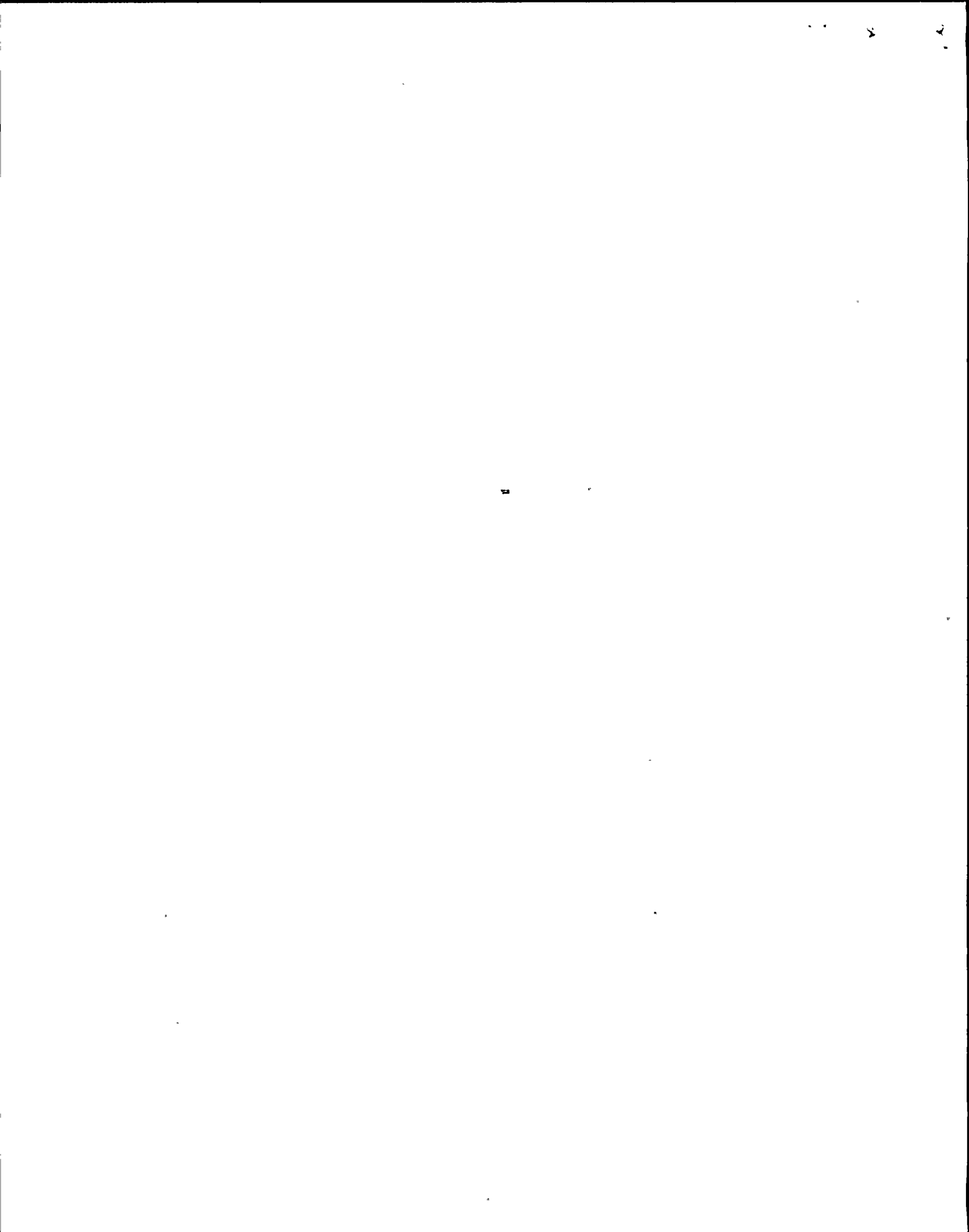
WHICH ONE (1) of the following would be classified as Special Nuclear Material in accordance with the NIP-SNM-01, "Special Nuclear Material Control"?

- a. an irradiated fuel channel (with the fuel bundle removed)
- b. a Local Power Range Monitor (LPRM) string
- c. an irradiated control rod
- d. a cobalt 60 radiography source

QUESTION: 035 (1.00)

A control rod is being removed from the reactor during refueling. After the grapple is attached to the control rod and lifting has begun, the control room contacts the refuel floor and states that the position indication for this rod reads '46' and is decreasing. WHICH ONE (1) of the following is the reason for this indication?

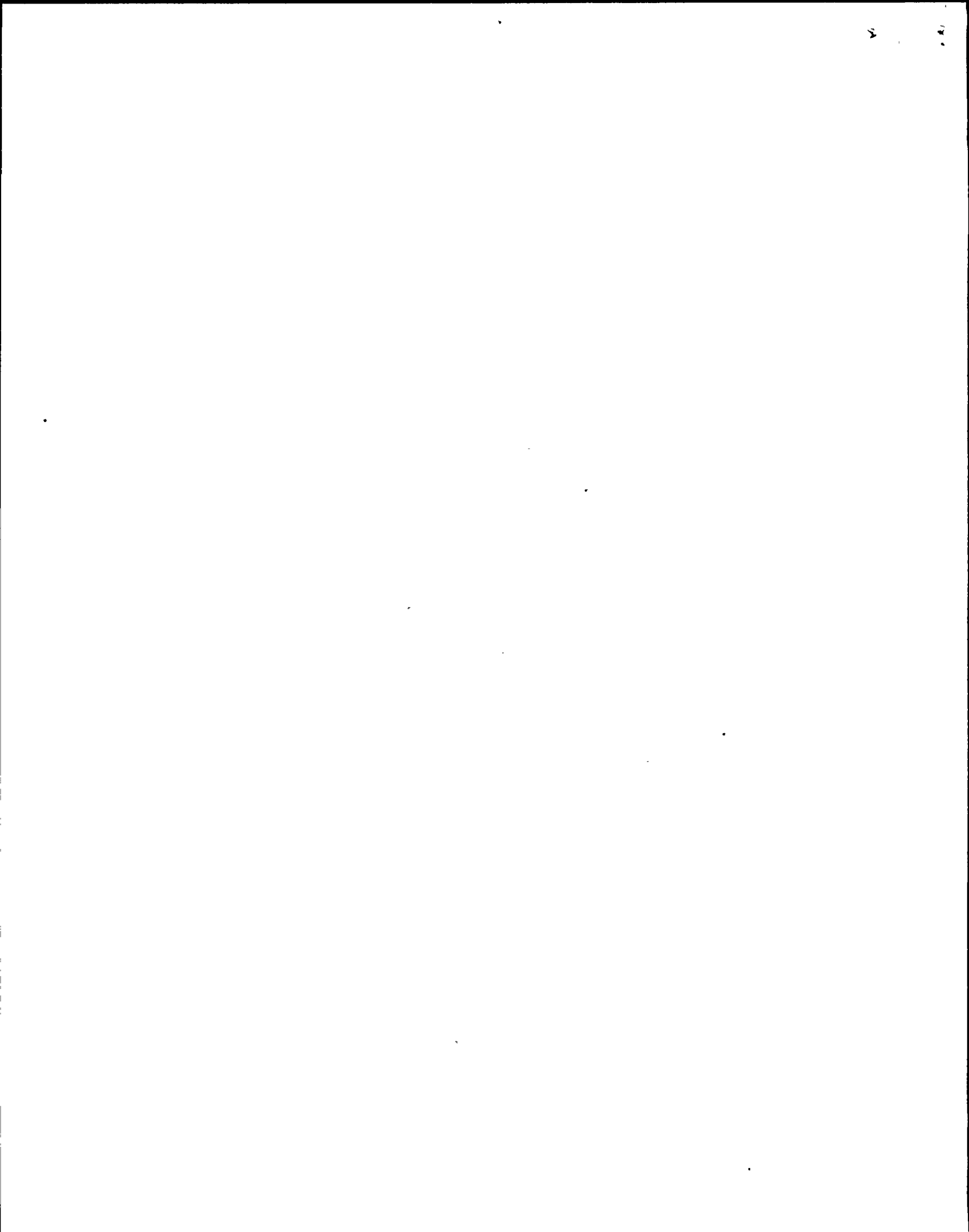
- a. the rod is latched
- b. the rod is NOT hydraulically isolated
- c. the rod is electrically isolated
- d. the over-piston area of the CRDM is NOT vented



QUESTION: 036 (1.00)

WHICH ONE (1) of the following will cause the cask handling pump to trip?

- a. cask handling area water level high
- b. either skimmer surge tank water level high-high
- c. low pump suction pressure
- d. low pump flow for 10 seconds



QUESTION: 037 (1.00)

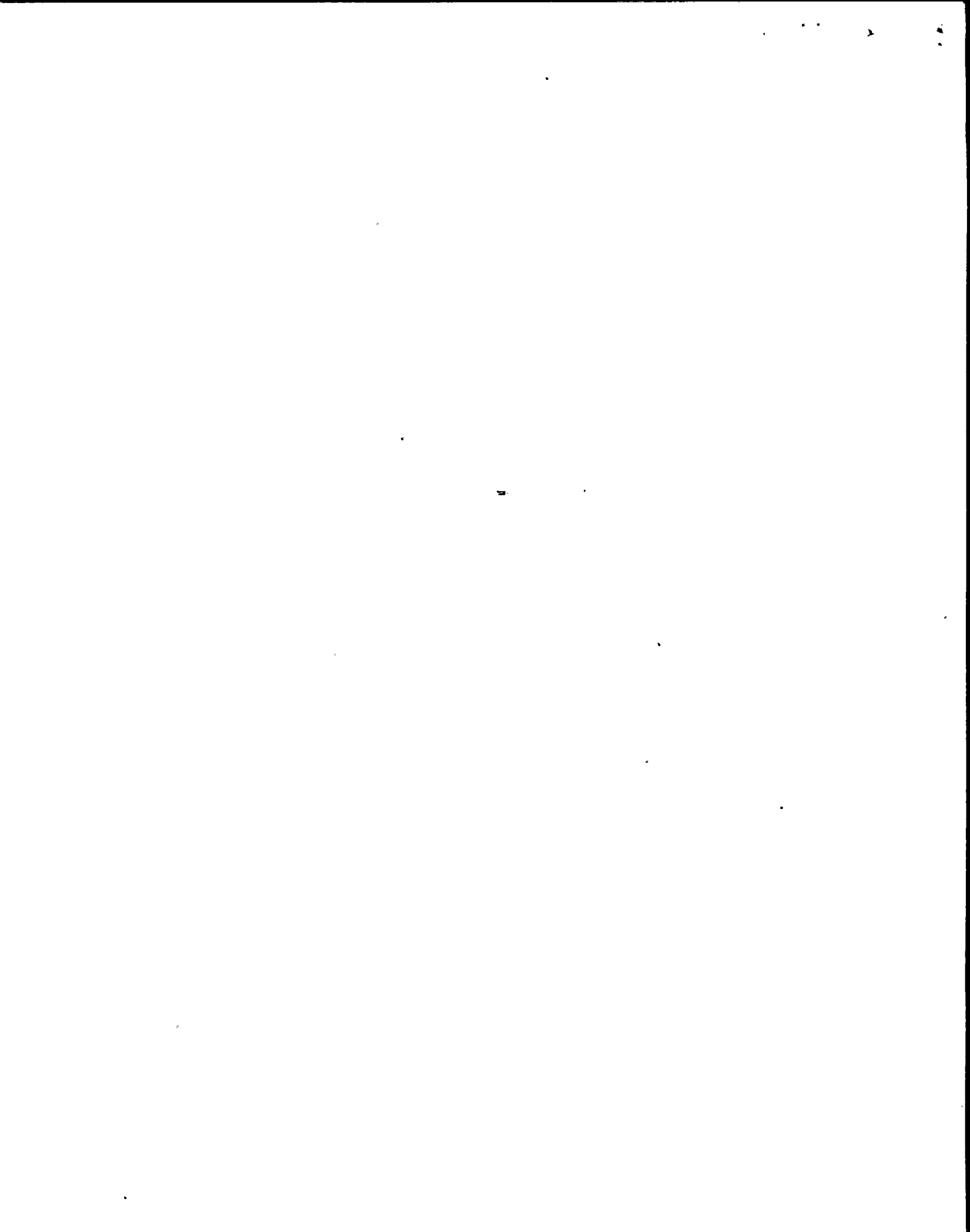
During core alterations, the refueling bridge has been inadvertently driven out of the Boundary Zone. WHICH ONE (1) of the following actions must be taken to return the bridge to the Boundary Zone?

- a. Permission to use TRAVEL OVERRIDE to drive the bridge back into the Boundary Zone must be obtained from the Senior Reactor Operator.
- b. Core Alterations must be suspended. Permission to use TRAVEL OVERRIDE and resume Core Alterations must be obtained from the Reactor Engineer.
- c. Core Alterations must be suspended. Permission to use TRAVEL OVERRIDE and resume Core Alterations must be obtained from the Station Shift Supervisor.
- d. The refueling platform operator can use TRAVEL OVERRIDE to drive the bridge back into the Boundary Zone at his own discretion.

QUESTION: 038 (1.00)

WHICH ONE (1) of the following describes one sign of a correctly installed fuel cell?

- a. The bail handles on the fuel bundles should point towards the center of the cell.
- b. The orientation boss on the fuel assembly handle points to the outside of the fuel cell.
- c. The channel fastener assemblies should be oriented towards the inside of the fuel cell.
- d. The bundle serial number should appear to be right-side up from the outside of the cell.



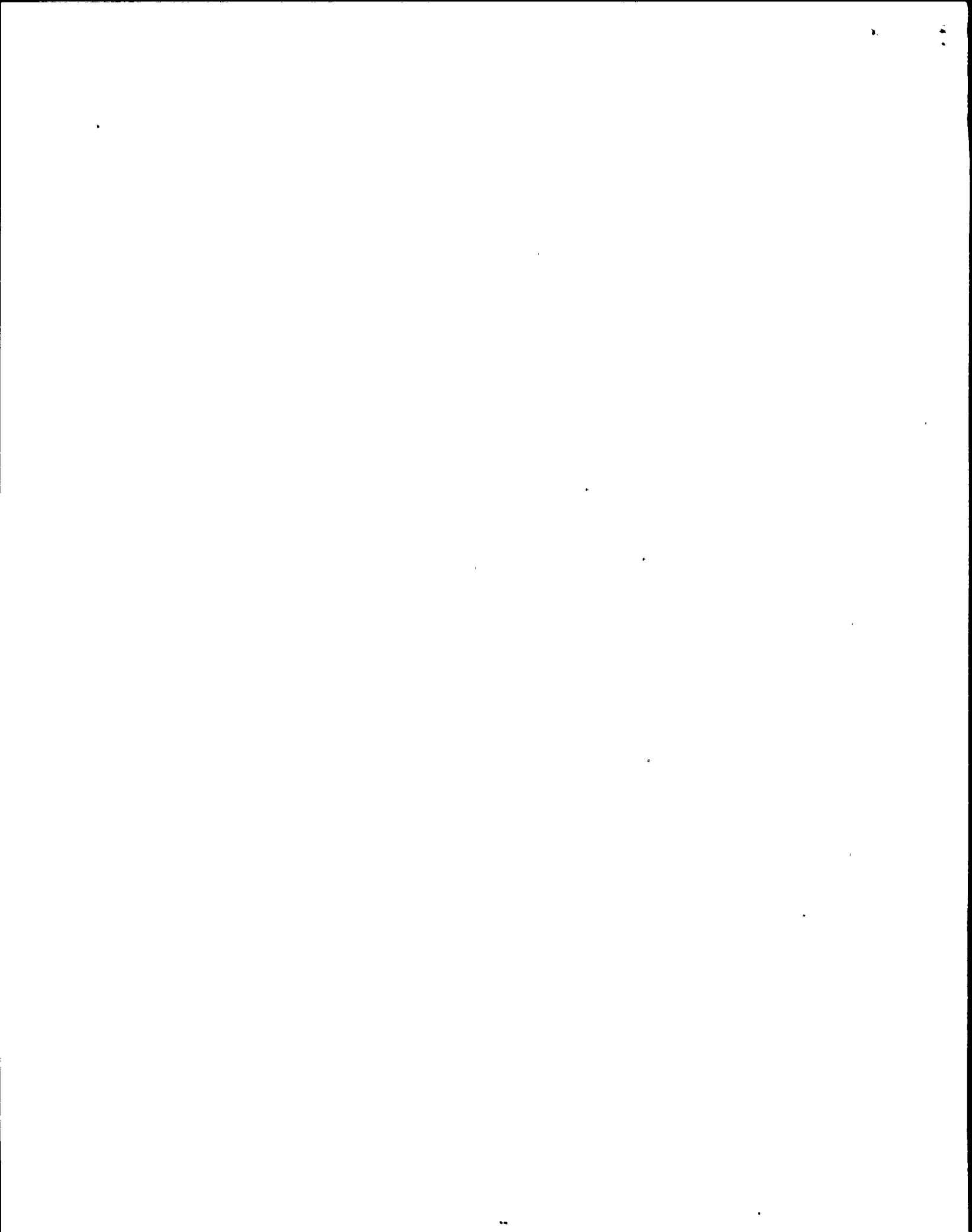
QUESTION: 039 (1.00)

Plant conditions are as follows:

- * RHS "B" is in shutdown cooling.
- * Cooldown rate is approaching 100 deg. F per hour.
- * RHS Service Water outlet temperature for the "B" heat exchanger is approaching its upper limit.

WHICH ONE (1) of the following is your immediate action?

- a. Throttle open RHS Heat Exchanger 1B Inlet Bypass valve 2RHS*MOV8B.
- b. Throttle injection valve 2RHS*MOV40B if Recirculation pump B is operating.
- c. Throttle shut RHS Heat Exchanger 1B Inlet Bypass valve 2RHS*MOV8B.
- d. Throttle injection valve 2RHS*MOV40B if Recirculation pump A is operating.

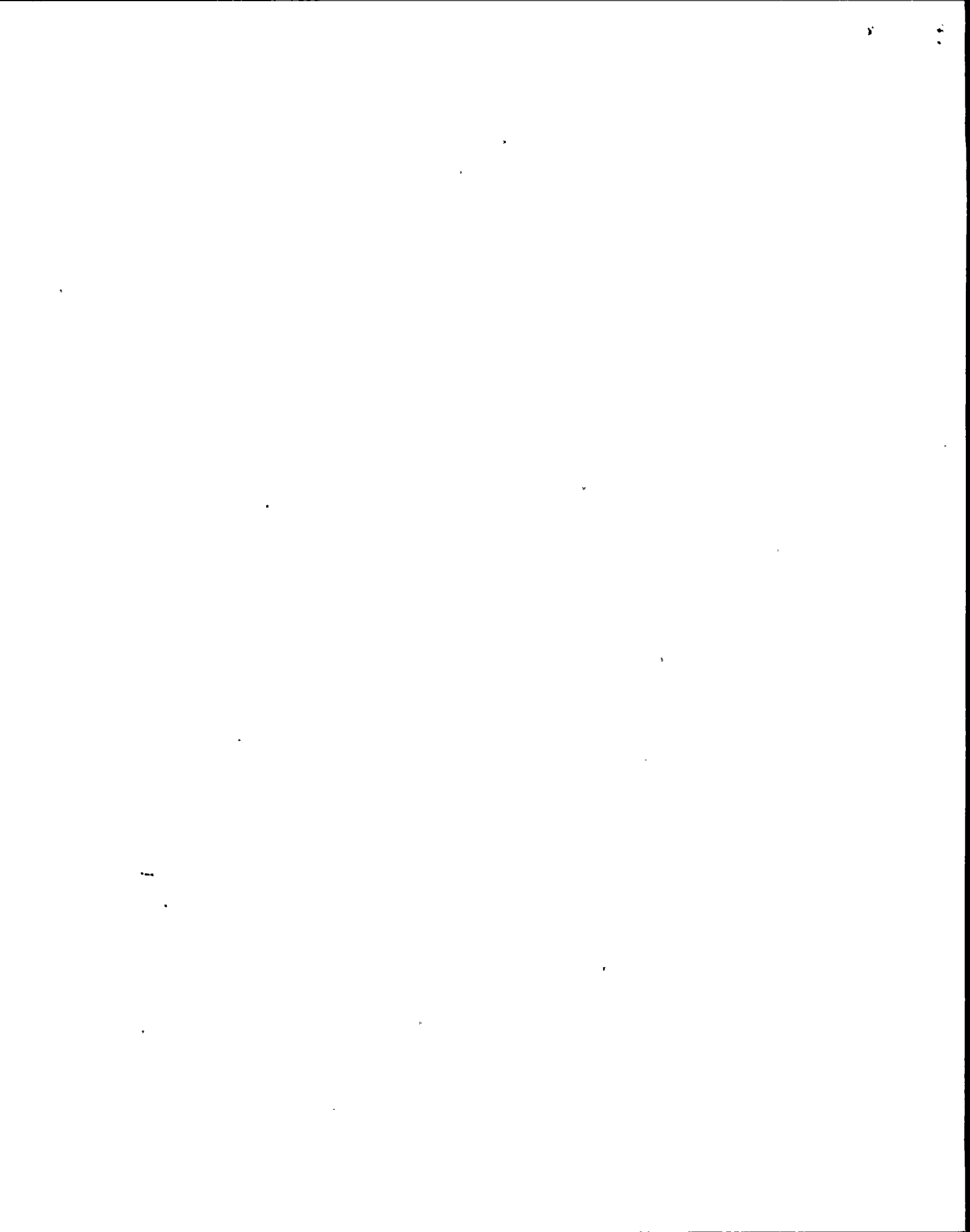


QUESTION: 040 (1.00)

While refueling operations are in progress, a routine test has determined that the one-rod-out interlock is inoperable.

WHICH ONE (1) of the following is the required action to be taken?

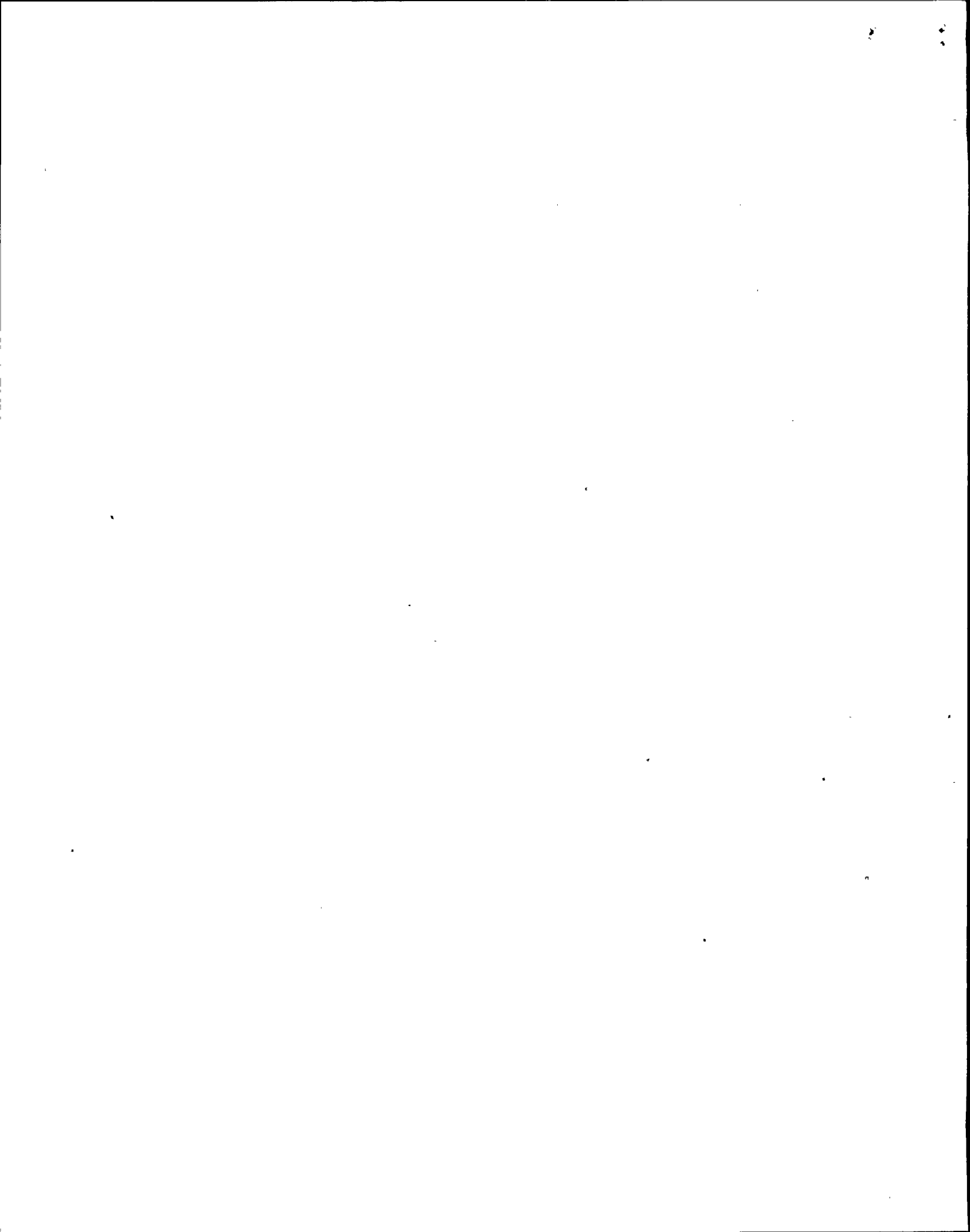
- a. Suspend all core alterations.
- b. Lock the Reactor Mode Switch in the REFUEL position.
- c. Manually insert any withdrawn rod(s) to the 00 position within 1 hour.
- d. Lock the Reactor Mode Switch in the SHUTDOWN position.



QUESTION: 041 (1.00)

Loss of decay heat removal subsystems can impact the operability of the Standby Gas Treatment system. Given the failure of part or all of the decay heat removal subsystems, WHICH ONE (1) of the following describes the minimum operability status of the Standby Gas Treatment system?

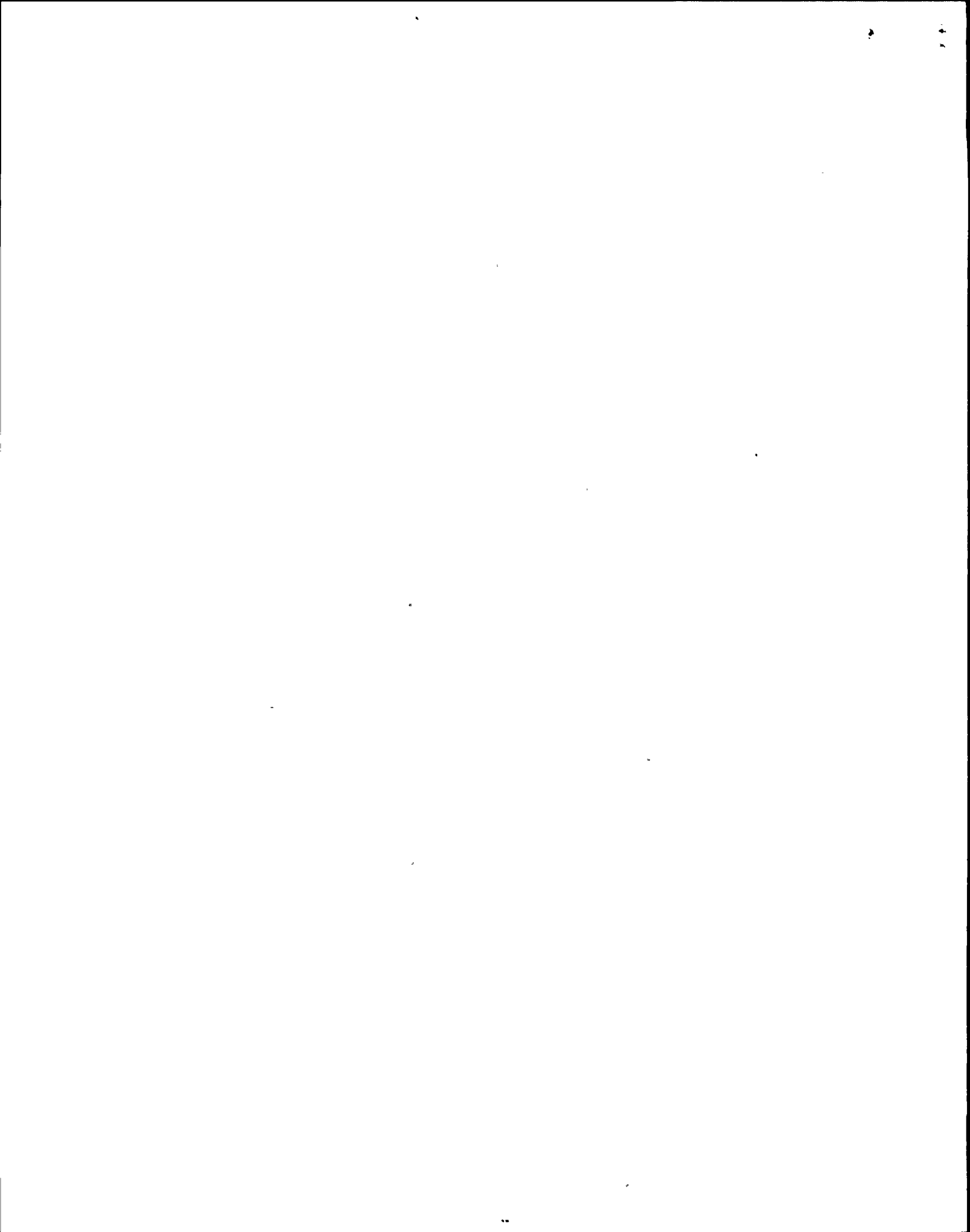
- a. If Air cooling only is lost to both trains, one SGBT train must be declared inoperable.
- b. If Fire Protection cooling only is lost to both trains, one SGBT train must be declared inoperable.
- c. If Air and Fire Protection cooling are both lost, one SGBT train must be declared inoperable.
- d. If Air and Fire Protection cooling are both lost, both SGBT trains must be declared inoperable.



QUESTION: 042 (1.00)

During refueling operations, a plant operator reports the discovery of a Fuel Pool Cooling system manual valve out of position. WHICH ONE (1) of the following is your course of action?

- a. Immediately correct the valve position and notify the Markup Desk.
- b. Immediately correct the valve position and notify the SSS.
- c. DO NOT alter the valve position. DO notify the Markup Desk.
- d. DO NOT alter the valve position. DO notify the SSS.

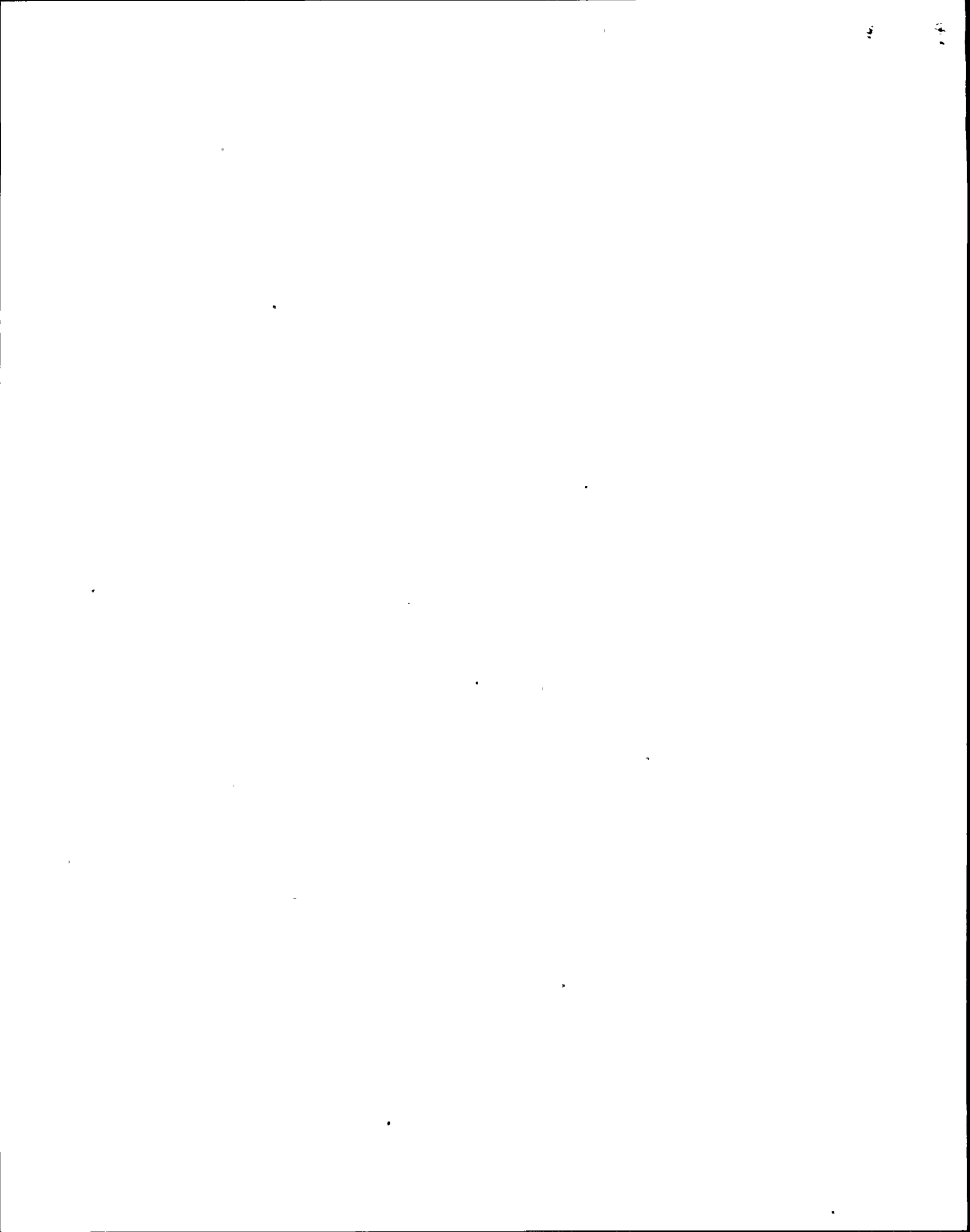


QUESTION: 043 (1.00)

Refueling is in progress with the Reactor Well flooded and the Fuel Pool Gates removed.

WHICH ONE (1) of the following actions must be suspended on the loss of secondary containment integrity?

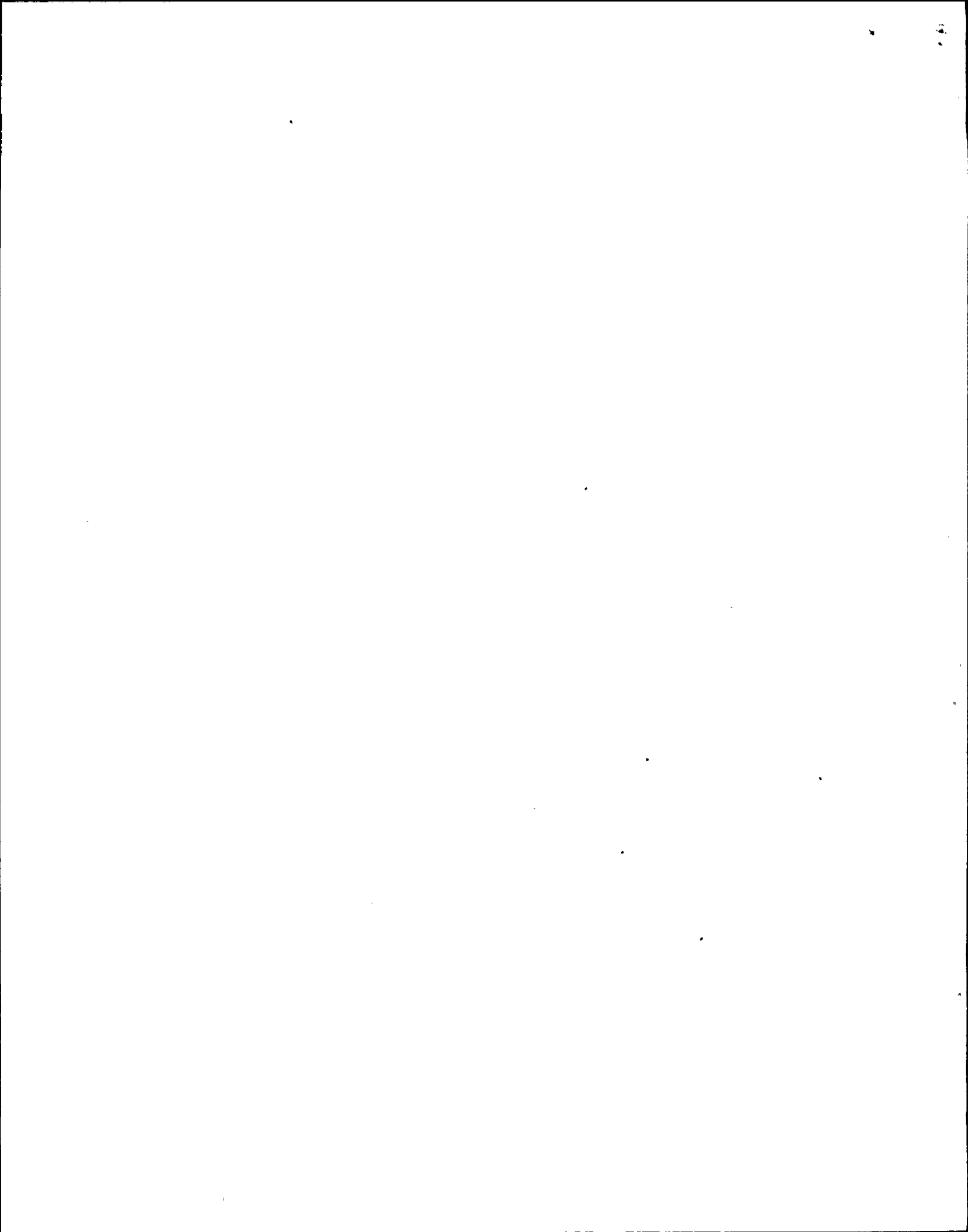
- a. removal of a jet pump nozzle
- b. moving a fuel cask over the Spent Fuel Pool
- c. channeling new fuel
- d. adding water to the Spent Fuel Pool with hoses



QUESTION: 044 (1.00)

Refueling is in progress. New fuel is being unloaded from shipping containers, 3 new fuel elements are uncovered in the new fuel storage vault. One new fuel element is in the fuel prep. machine. Seven new fuel elements are in the racks in the spent fuel pool. WHICH ONE (1) of the following is the MAXIMUM number of additional new fuel elements that can be allowed outside of their shipping containers?

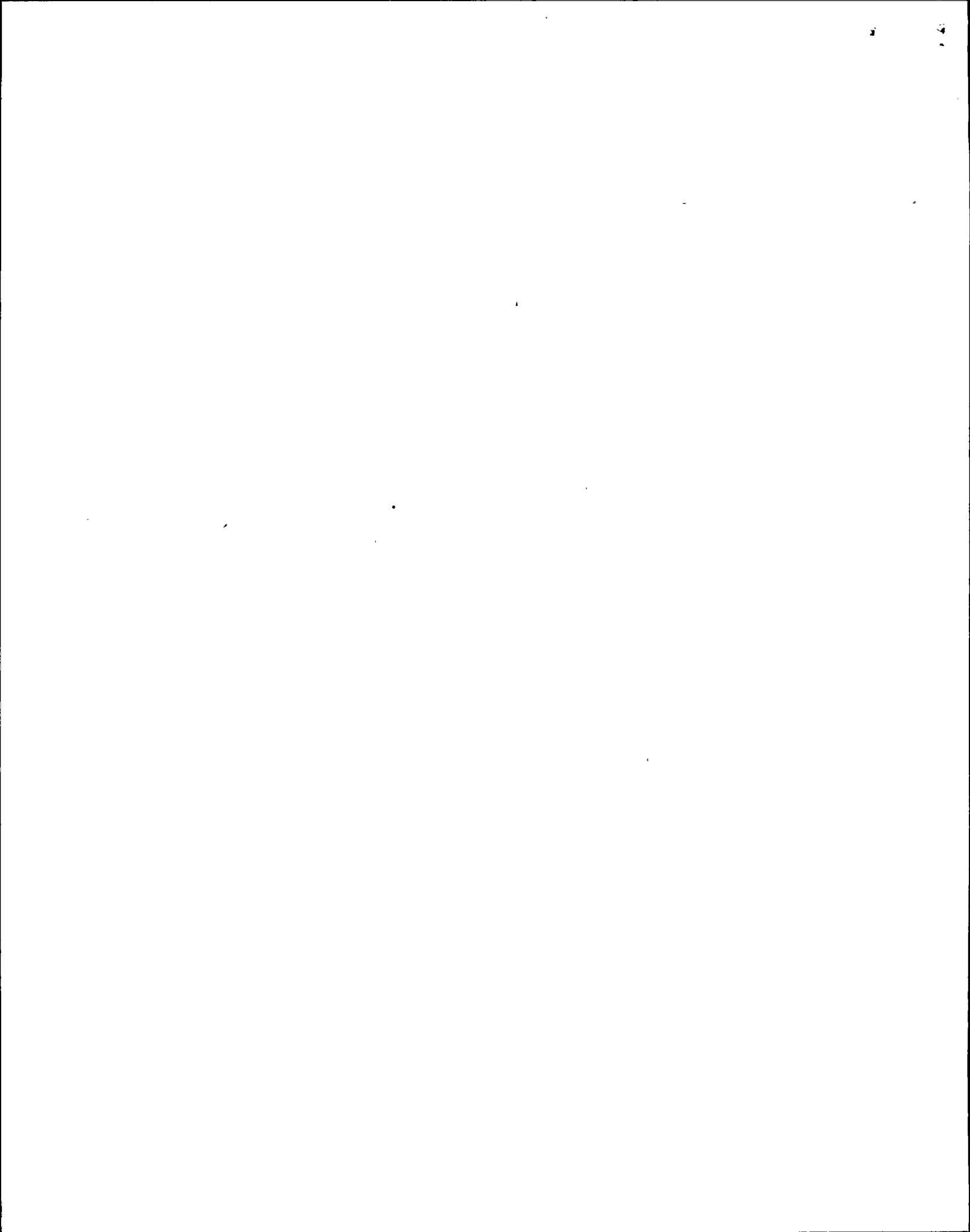
- a. 1
- b. 2
- c. 3
- d. 5



QUESTION: 045 (1.00)

Refueling is in progress. All fuel is out of the vessel. You are moving a fuel support piece from the spent fuel pool toward the reactor vessel. Spent fuel pool level begins to lower at a slow rate. WHICH ONE (1) of the following describes your immediate actions regarding the fuel support piece?

- a. Lower it to the bottom of the reactor vessel, removing the weight of the piece from the crane.
- b. Lower it to the bottom of the reactor cavity, removing the weight of the piece from the crane.
- c. Stop moving the piece toward the vessel, leave the piece as is.
- d. Lower it into the spent fuel rack; maintain the weight of the piece on the crane.



QUESTION: 046 (1.00)

A severe refueling accident is in progress. WHICH ONE (1) of the following is an allowable reason to depart from Technical Specifications or license conditions in an emergency per 10 CFR 50.54? No actions consistent with Technical Specifications or the license is immediately apparent that will provide protection and Immediate action is needed to prevent:

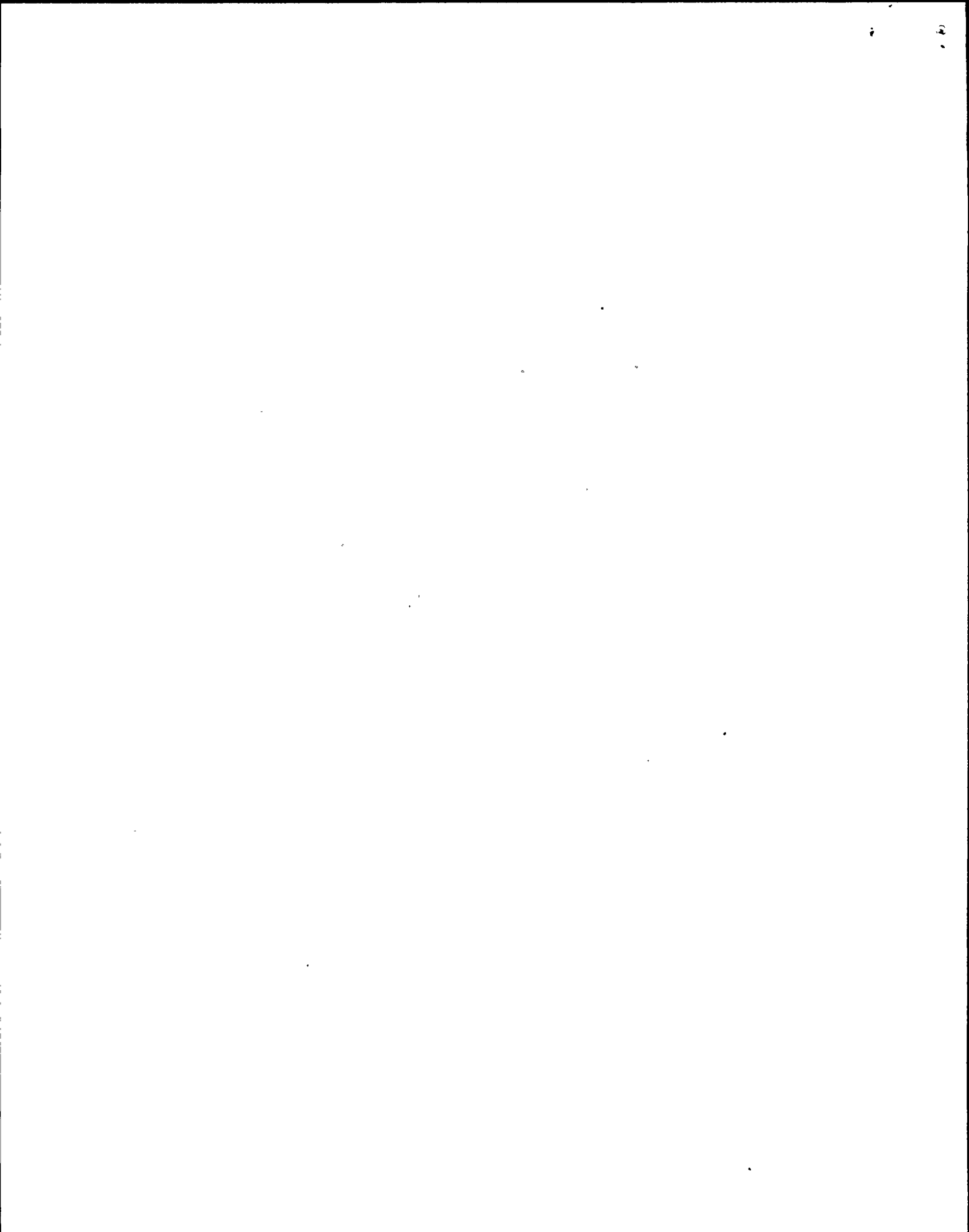
- a. an employee at Nine Mile Unit 2 from exceeding 25 REM of whole body radiation, concurrence is obtained from a senior licensed individual.
- b. an employee at Nine Mile Unit 2 from exceeding 25 REM of whole body radiation, concurrence is obtained from the Plant Manager.
- c. off-site whole-body doses in excess of 10 REM, concurrence is obtained from a senior licensed individual.
- d. off-site whole-body doses in excess of 10 REM, concurrence is obtained from the Plant Manager.



QUESTION: 047 (1.00)

Independent verification of valve position is generally required for valve lineups important to safety. WHICH ONE (1) of the following conditions would allow the Station Shift Supervisor to waive independent verification of one or more valves in a valve lineup?

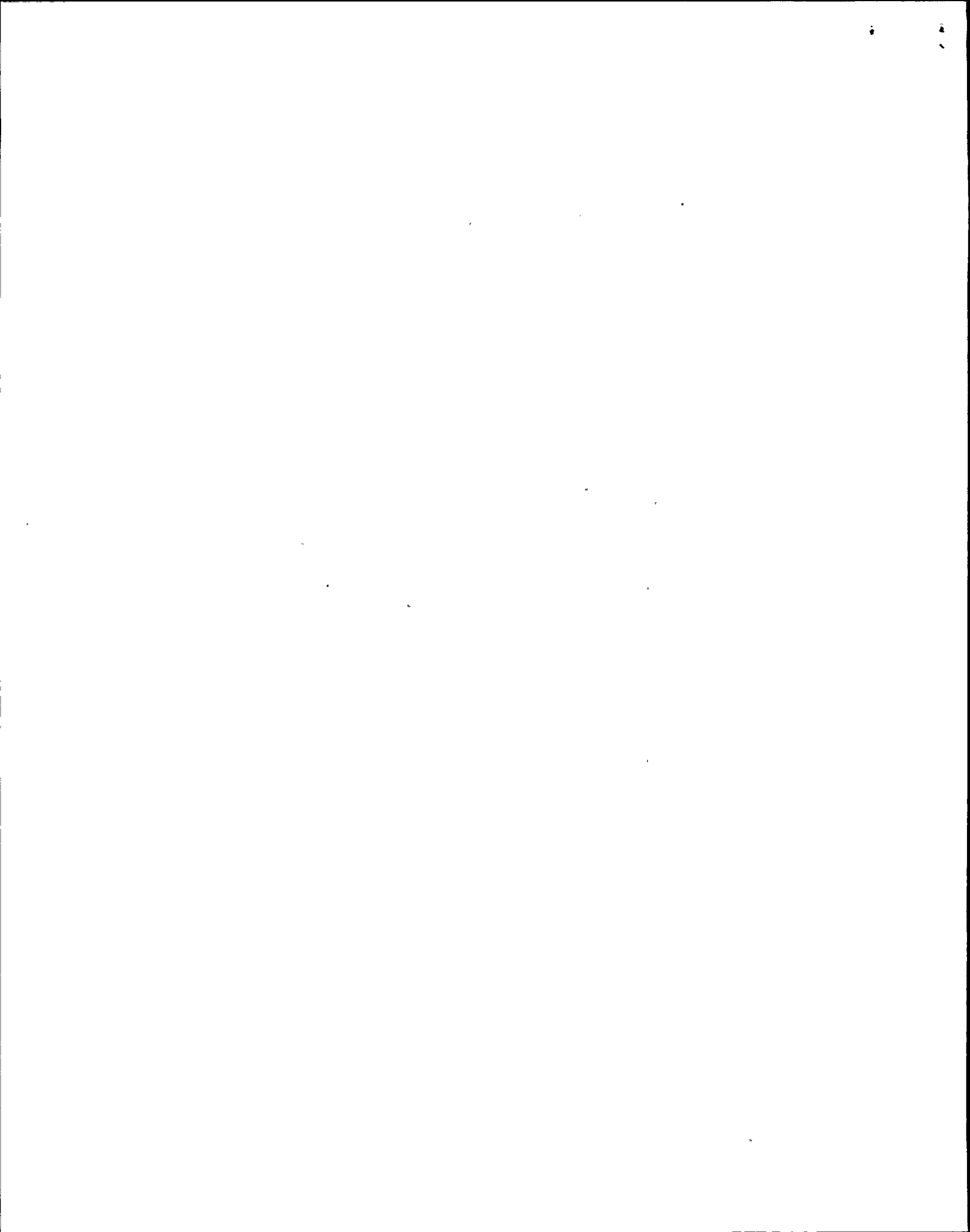
- a. Performing the verification would expose the verifier to excessive radiation exposure.
- b. The valves in question have indicating lights in the control room.
- c. Performing the verification would expose the verifier to excessive temperature levels.
- d. The valves in question are normally locked in position.



QUESTION: 048 (1.00)

WHICH ONE (1) of the following describes the color coded sticker used at Nine Mile Unit 2 to indicate that ALL inputs to an annunciator with multiple inputs have been defeated?

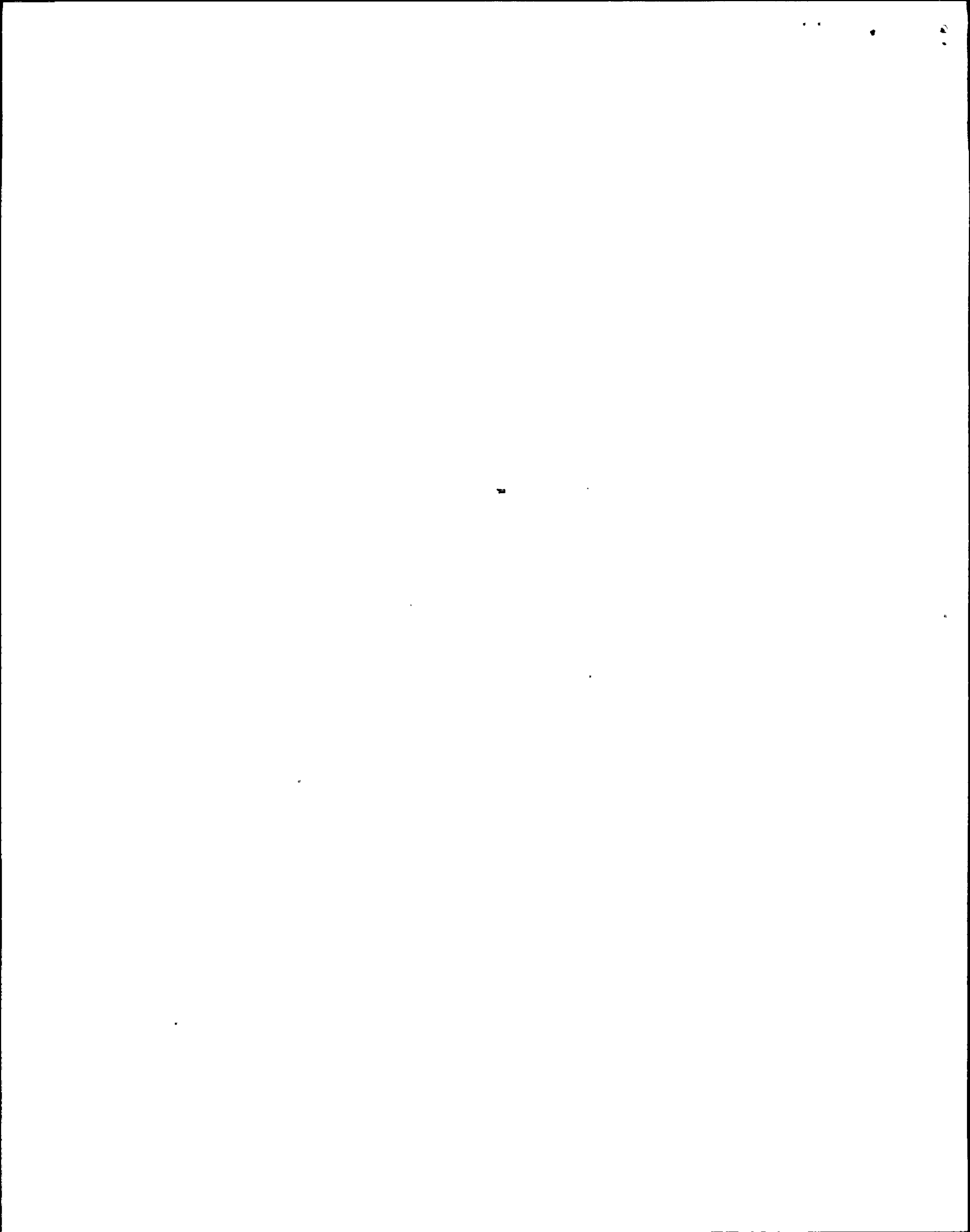
- a. a transparent red sticker
- b. a transparent yellow sticker
- c. a red striped sticker
- d. a yellow striped sticker



QUESTION: 049 (1.00)

WHICH ONE (1) of the following describe the difference between a "RED MARKUP" and a "BLUE MARKUP"?

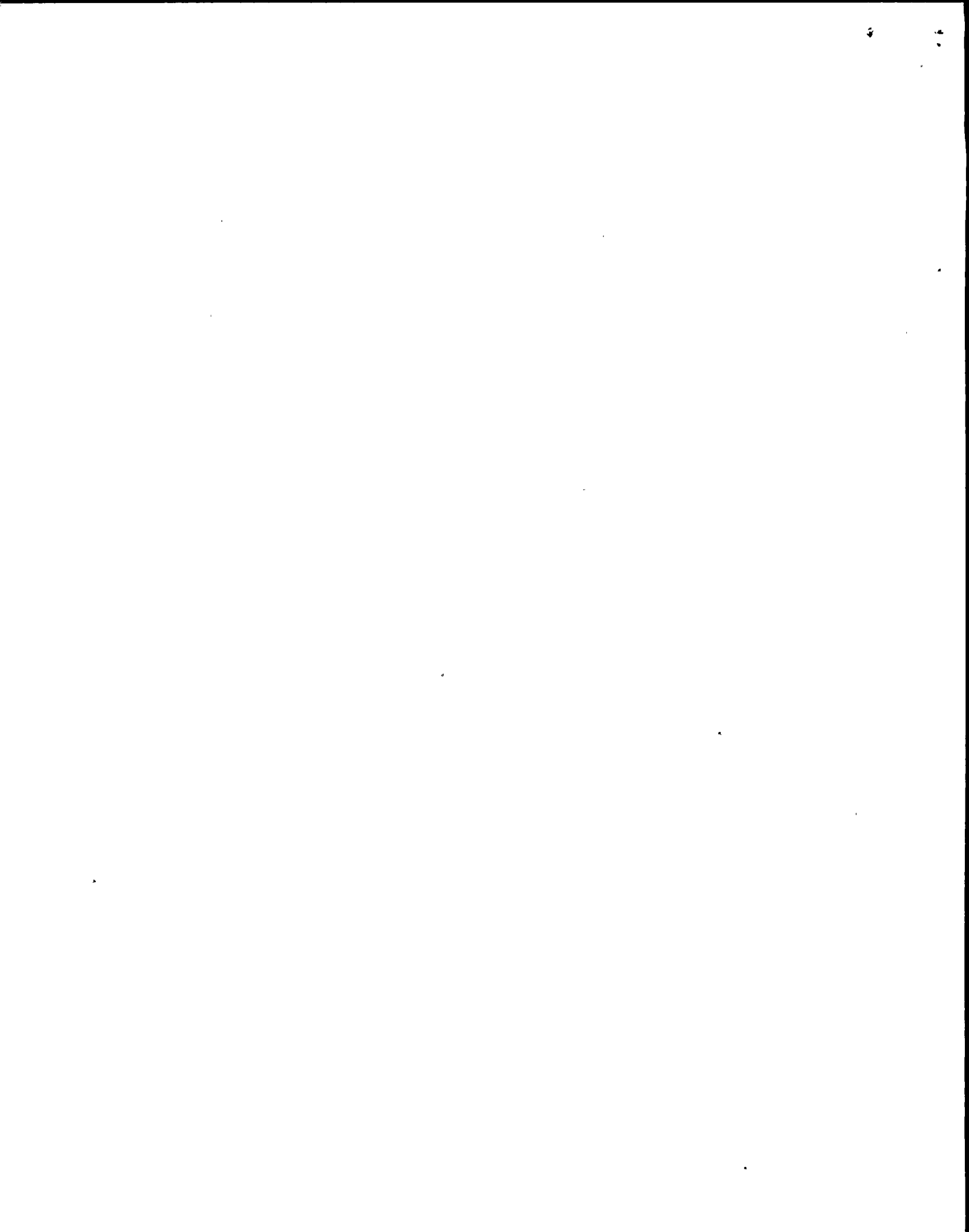
- a. A "RED MARKUP" is used to protect personnel, a "BLUE MARKUP" is used to protect equipment.
- b. A "RED MARKUP" is used for mechanical systems, a "BLUE MARKUP" is used for electrical systems.
- c. A "RED MARKUP" is used to for pressures above 500 psi, fluids above 200 deg.F, and voltages above 480V. A "BLUE MARKUP" is used below these values.
- d. A "RED MARKUP" is used to absolutely prohibit the operation of the tagged device, a "BLUE MARKUP" is used to restrict operation of the tagged device to the "Markup Man" or personnel under his specific direction.



QUESTION: 050 (1.00)

WHICH ONE (1) of the following describes the requirements for moving a 1200 pound load over spent fuel using the reactor building crane?

- a. The crane must be operated by an SRO or SRO limited to fuel handling, #3 (125 ton) hoist must be used to handle the load.
- b. Secondary containment must be established; #3 (125 ton) hoist must be used to handle the load.
- c. The crane must be operated by an SRO or SRO limited to fuel handling, A single-failure-proof handling system must be used.
- d. A single-failure-proof handling system must be used; secondary containment must be established



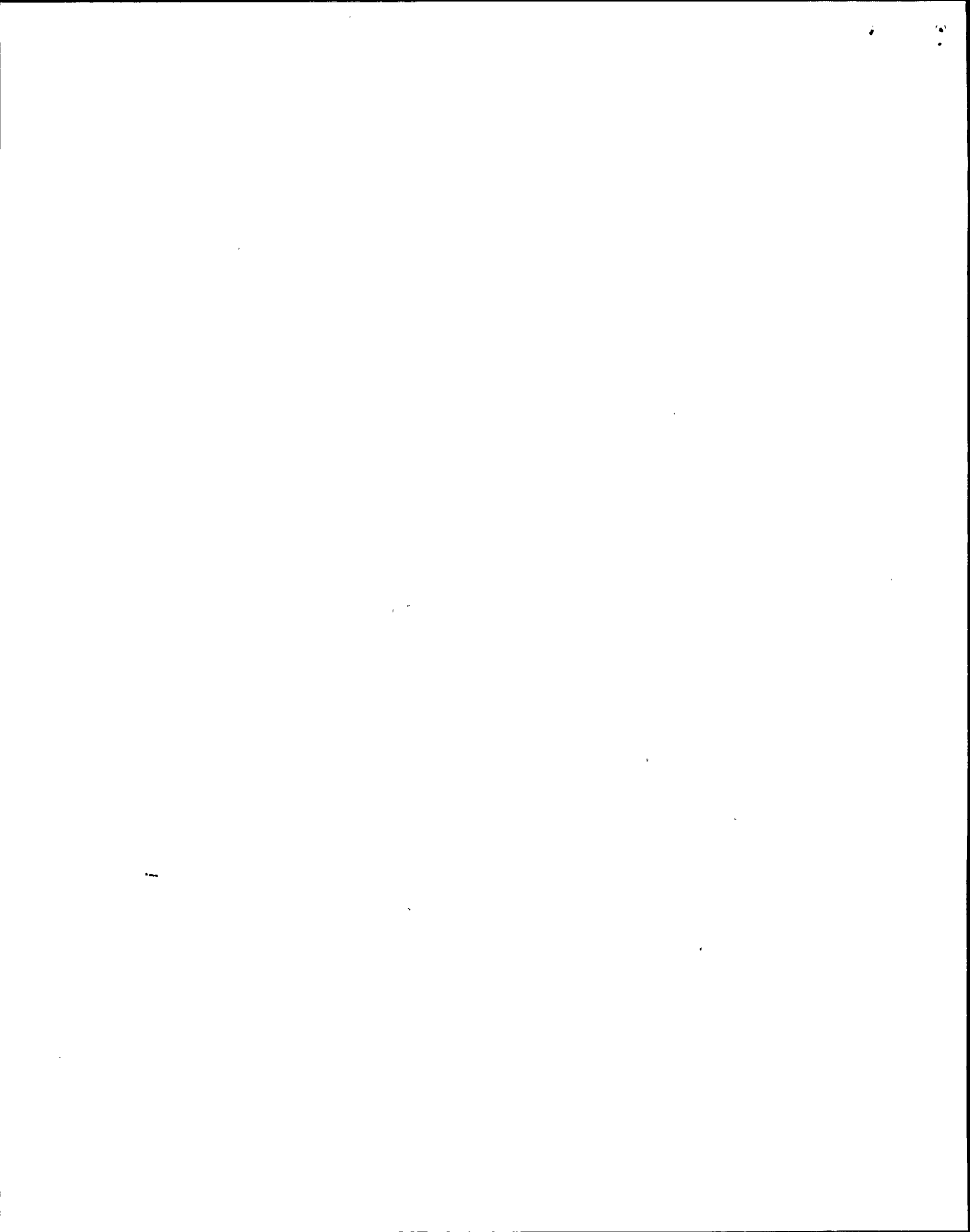
QUESTION: 051 (1.00)

During a refueling outage, a Refueling Platform Operator has worked the following hours: (No non-working breaks were taken, turnover time has been excluded)

Friday	1600 to 0400
Saturday	1200 to 2400
Sunday	0800 to 1600
Monday	0800 to 1600
Tuesday	0800 to 2400
Wednesday	0800 to 2000

Which ONE of the statements below identifies the violations of the Overtime Guidelines which occurred?

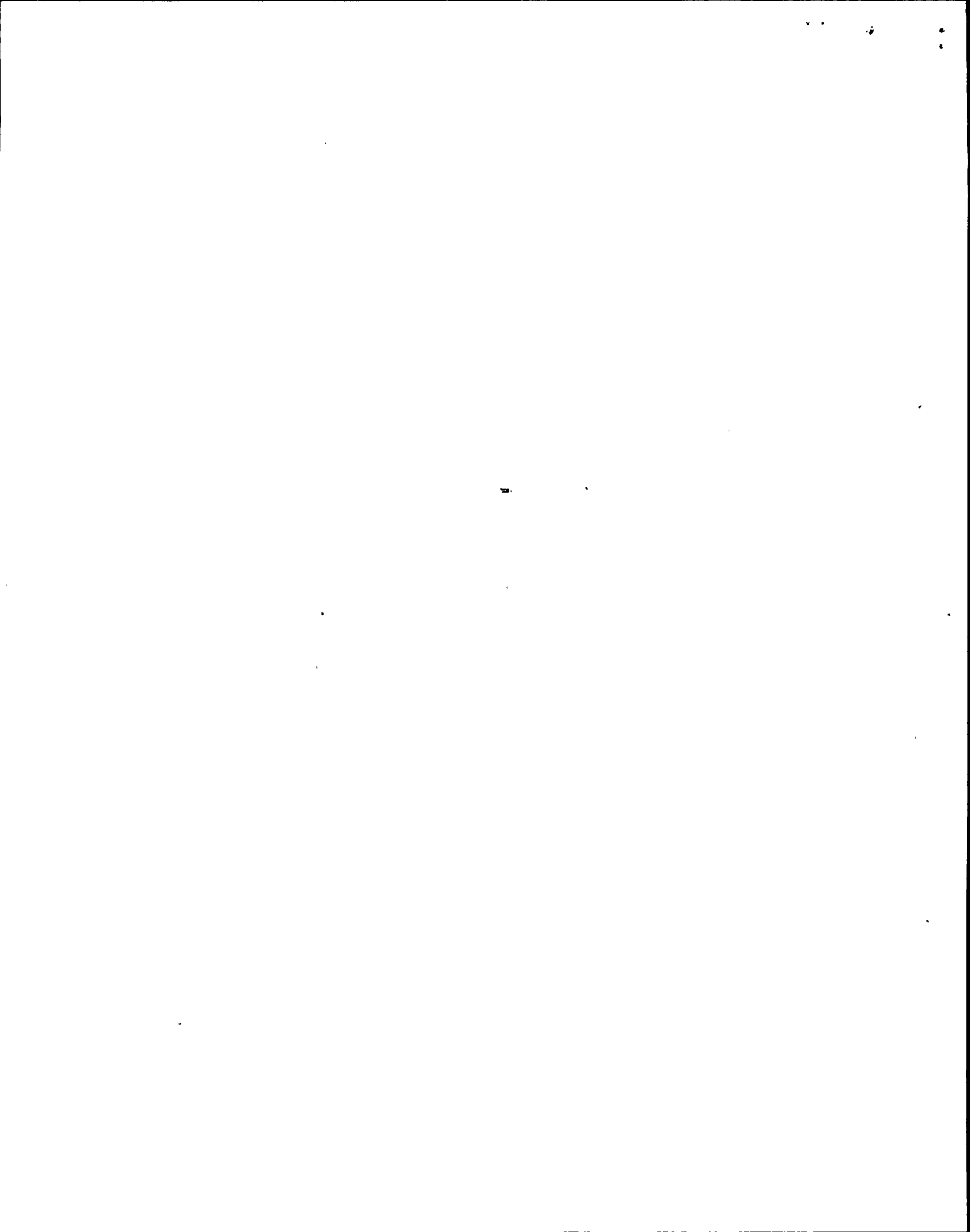
- a. The operator worked more than 24 hours in 48 on Tuesday and Wednesday.
- b. The operator worked more than 24 hours in 72 on Saturday.
- c. The operator worked more than 12 hours in 24 on Tuesday.
- d. The operator worked more than 16 hours in 48 on Friday and Saturday.



QUESTION: 052 (1.00)

WHICH ONE (1) of the following individuals is authorized to waive or modify the established station radiation exposure controls or Respiratory Protection Program requirements during an emergency?

- a. General Supervisor R.P. Operations (GSRP)
- b. Radiological Assessment Manager (RAM)
- c. Corporate Emergency Director (CED)
- d. Site Emergency Director (SED)

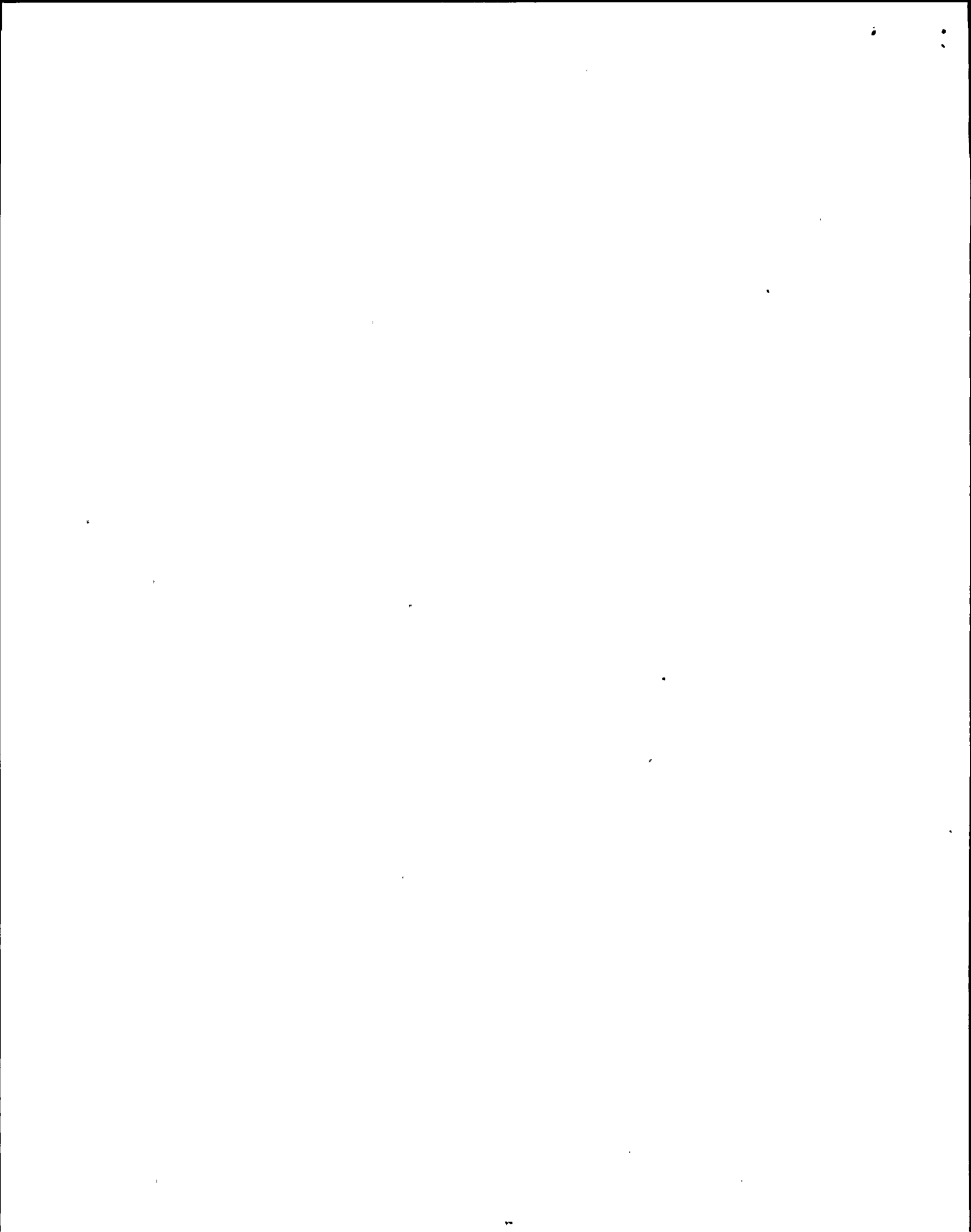


QUESTION: 053 (1.00)

A spent fuel bundle was loaded in the Fuel Preparation Machine when a loss of level occurred in the Spent Fuel Pool. The spent fuel bundle in the machine is partially uncovered, however the fuel storage racks remain covered with water. The Refueling Floor was evacuated. During the evacuation, one of the workers fell and hit his head. He is now lying near the Fuel Preparation Machine.

WHICH ONE (1) of the following describes the MAXIMUM Whole Body Emergency Exposures that may be authorized? (Assume that two separate volunteers are available, one will lower the Fuel Prep Machine and one will attend the injured worker.)

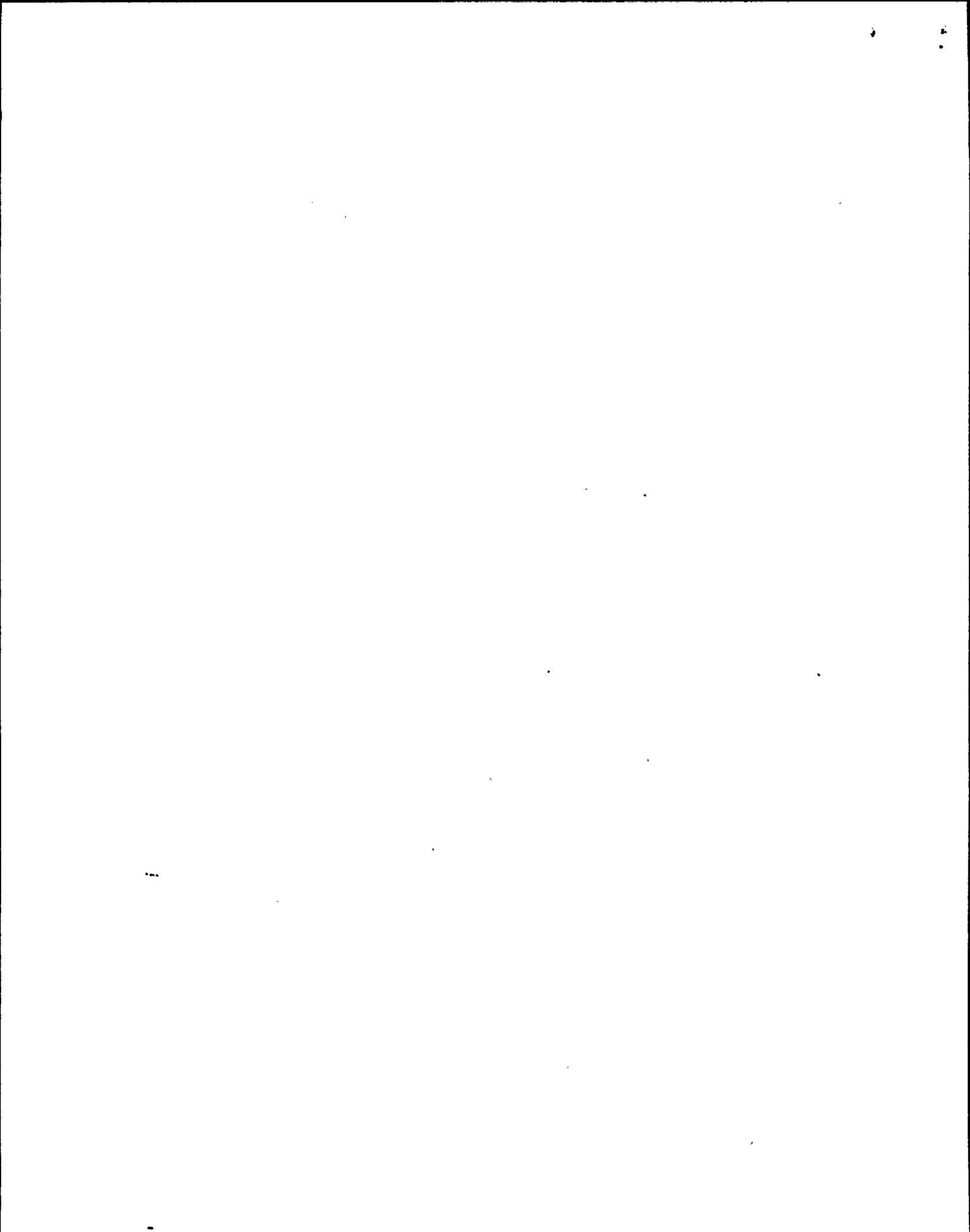
- a. 75 Rem to attend to the injured worker and 5 Rem to lower the Fuel Preparation Machine.
- b. 50 Rem to attend to the injured worker and 5 Rem to lower the Fuel Preparation Machine.
- c. 75 Rem to attend to the injured worker and 25 Rem to lower the Fuel Preparation Machine.
- d. 50 Rem to attend to the injured worker and 25 Rem to lower the Fuel Preparation Machine.



QUESTION: 054 (1.00)

WHICH ONE (1) of the following point sources would cause the greatest biological damage under the conditions stated?

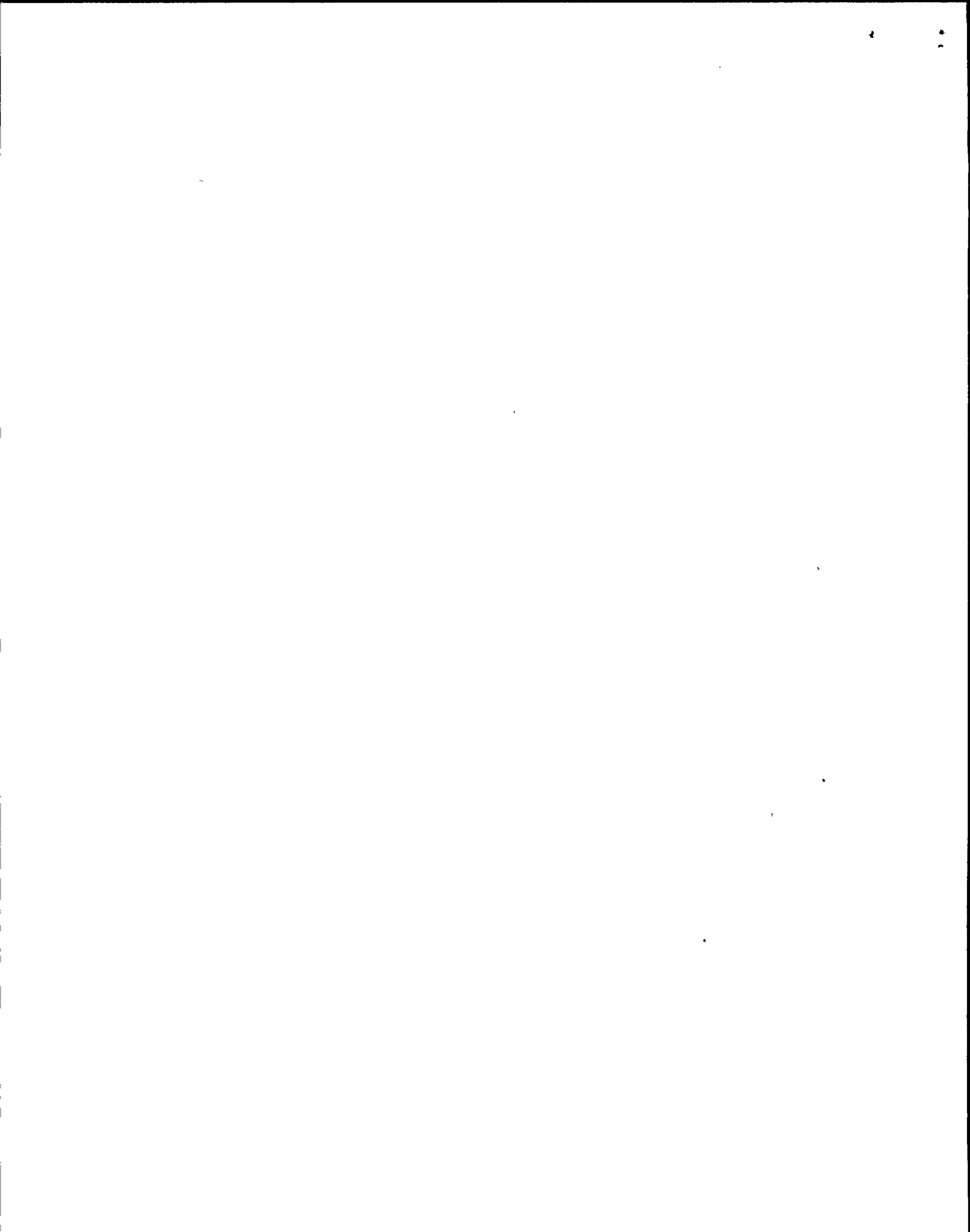
- a. 1 Curie neutron source 3 feet away
- b. 3 Curie beta source 3 feet away
- c. 5 Curie gamma source 6 feet away
- d. 10 Curie gamma source 12 feet away



QUESTION: 055 (1.00)

The refuel floor ARM alarms. You are dressed in double protective clothing. The situation requires urgent evacuation of the refuel floor. WHICH ONE (1) of the following actions is required by procedure prior to proceeding to the access control area ?

- a. Proceed directly without removing protective clothing at the stepoff pad.
- b. Remove only shoe covers at the step-off pad.
- c. Remove one set of protective clothing at the step-off pad.
- d. Remove both sets of protective clothing at the step-off pad.

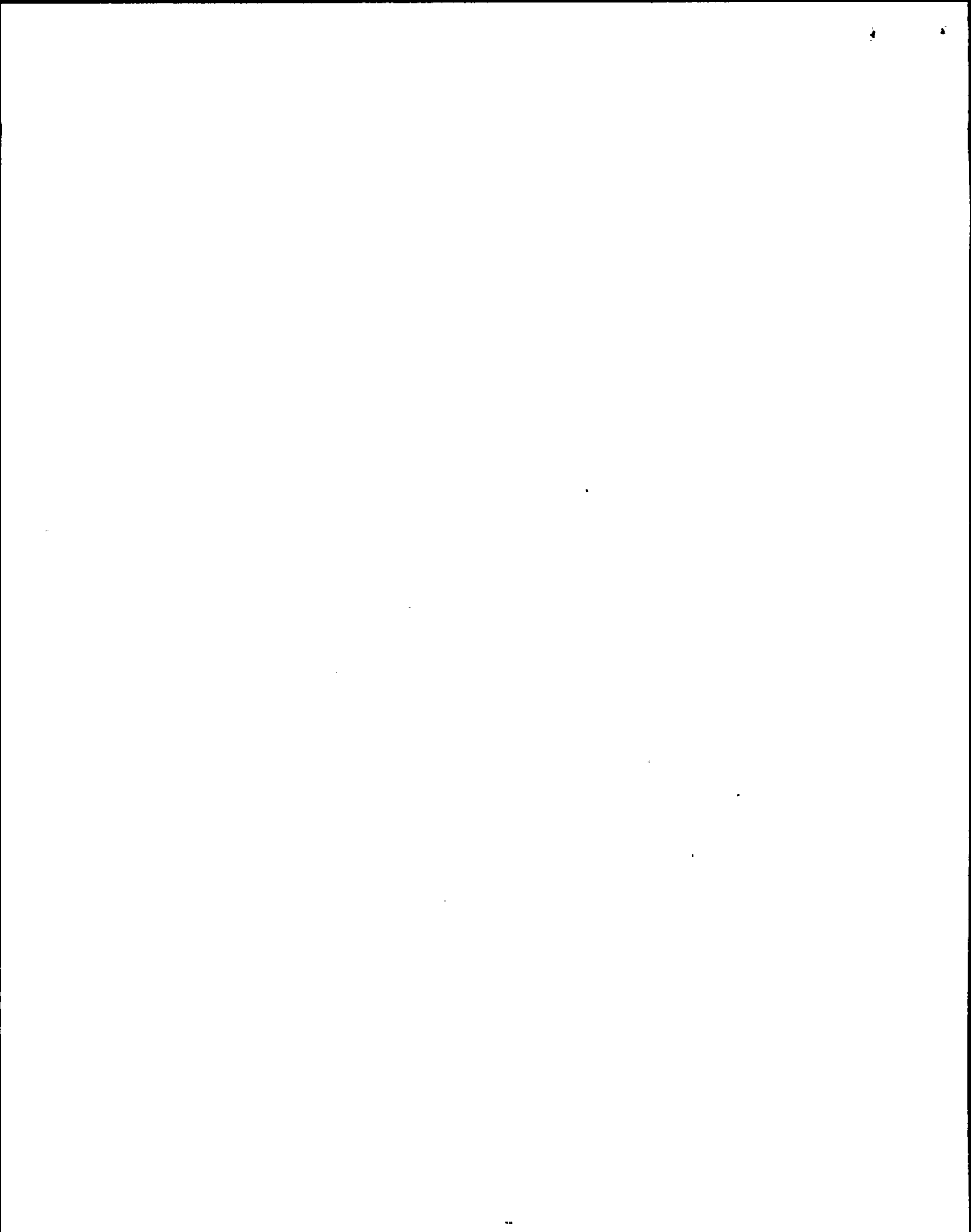


QUESTION: 056 (1.00)

The level of activity in a fuel support piece decays from 3.2 curies to 2.4 curies in one week (168 hours).

WHICH ONE (1) of the following is the decay constant for the isotopes on the fuel support piece?

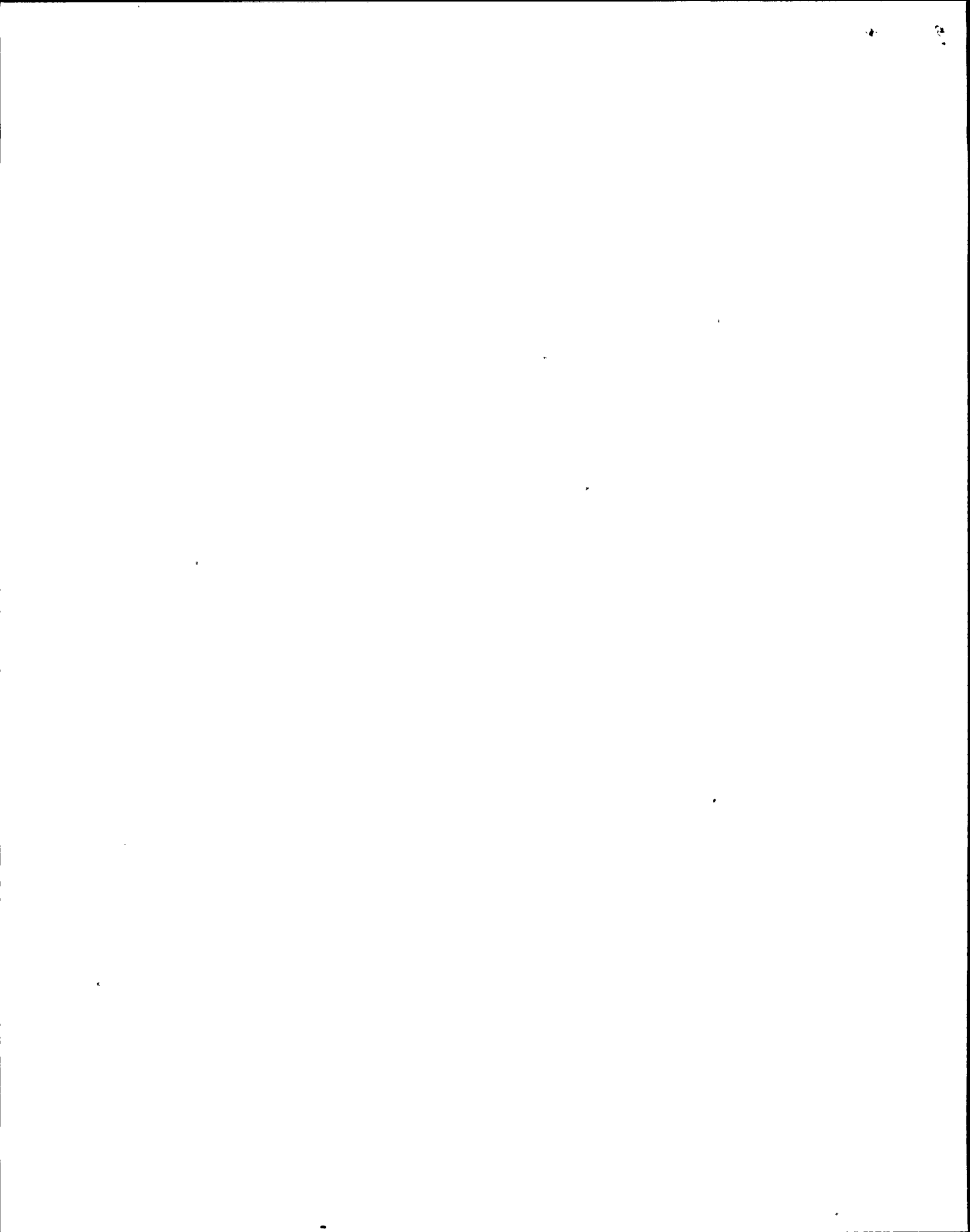
- a. 4.76 E-7/sec
- b. 8.00 E-7/sec
- c. 2.80 E-6/sec
- d. 1.15 E-5/sec



QUESTION: 057 (1.00)

WHICH ONE (1) of the following people meet the requirements for entry into a Transient High Radiation Area? All personnel have an instrument that continuously indicates dose rates.

- a. Is signed in on a general RWP, has approval from Radiation Protection Manager AND ASSS, has authorized delta-exposure of 450 mRem.
- b. Is signed in on a specific RWP, has approval from Radiation Protection Supervisor AND SSS, has authorized delta-exposure of 350 mRem.
- c. Is signed in on a general RWP, has approval from Radiation Protection Supervisor AND SSS, has authorized delta-exposure of 350 mRem.
- d. Is signed in on a specific RWP, has approval from Radiation Protection Manager AND ASSS, has authorized delta-exposure of 450 mRem.



QUESTION: 058 (1.00)

While working in an area with a radiation level of 1000 mRem per hour, an operator drops his dosimeter. When he picks it up, it is off scale and he leaves the area. If he had been working in the area for 45 minutes, WHICH ONE (1) of the following is the maximum dose he should have received? (Assume the dosimeter is off-scale due to being dropped)

- a. 45 mRem
- b. 75 mRem
- c. 450 mRem
- d. 750 mRem



QUESTION: 059 (1.00)

WHICH ONE (1) of the following describes the procedure for emergency access to High Radiation Areas?

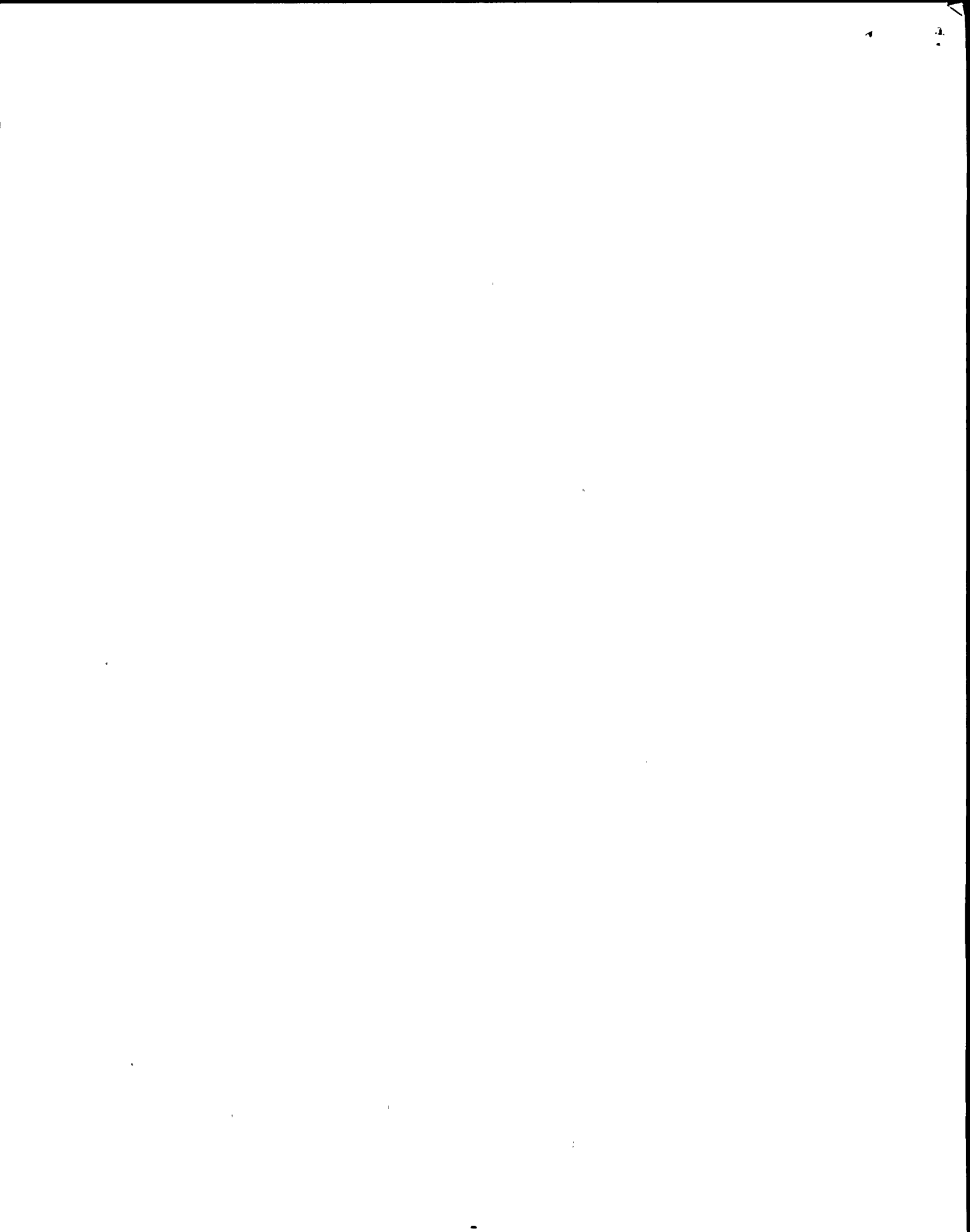
- a. Obtain permission from the SSS and use the key in the "break to enter" key box provided.
- b. Contact Security, who will send a guard to unlock the door.
- c. Obtain permission from Radiation Protection and use the key in the "break to enter" key box provided.
- d. Contact Radiation Protection, who will send a technician to unlock the door.

QUESTION: 060 (1.00)

WHICH ONE (1) of the following statements DEFINES a radiation area?

- a. An area where an individual can be exposed to dose rates exceeding 5 mrem/hr or receive up to 40 mrem total exposure in any eight (8) hour period.
- b. An area where an individual can be exposed to dose rates exceeding 100 mrem/hr or receive up to 3 REM total exposure in any five (5) consecutive days.
- c. An area where an individual can be exposed to dose rates exceeding 5 mrem/hr or receive up to 100 mrem in any five (5) consecutive days.
- d. An area where an individual can be exposed to dose rates exceeding 10 mrem/hr or receive up to 80 mrem in any eight (8) hour period.

(***** END OF EXAMINATION *****)



ANSWER: 001 (1.00)

d.

REFERENCE:

1. 01-LOT-1-002-302-01 EO 2.7

K/A: 292008K104 [3.3/3.4]

292008K104 ..(KA's)

ANSWER: 002 (1.00)

b

REFERENCE:

01-LOT-1-002-302-01, EO 6.6, 6.7

K/A: 292002K114 [2.6/2.9]

292002K114 ..(KA's)

ANSWER: 003 (1.00)

c.

REFERENCE:

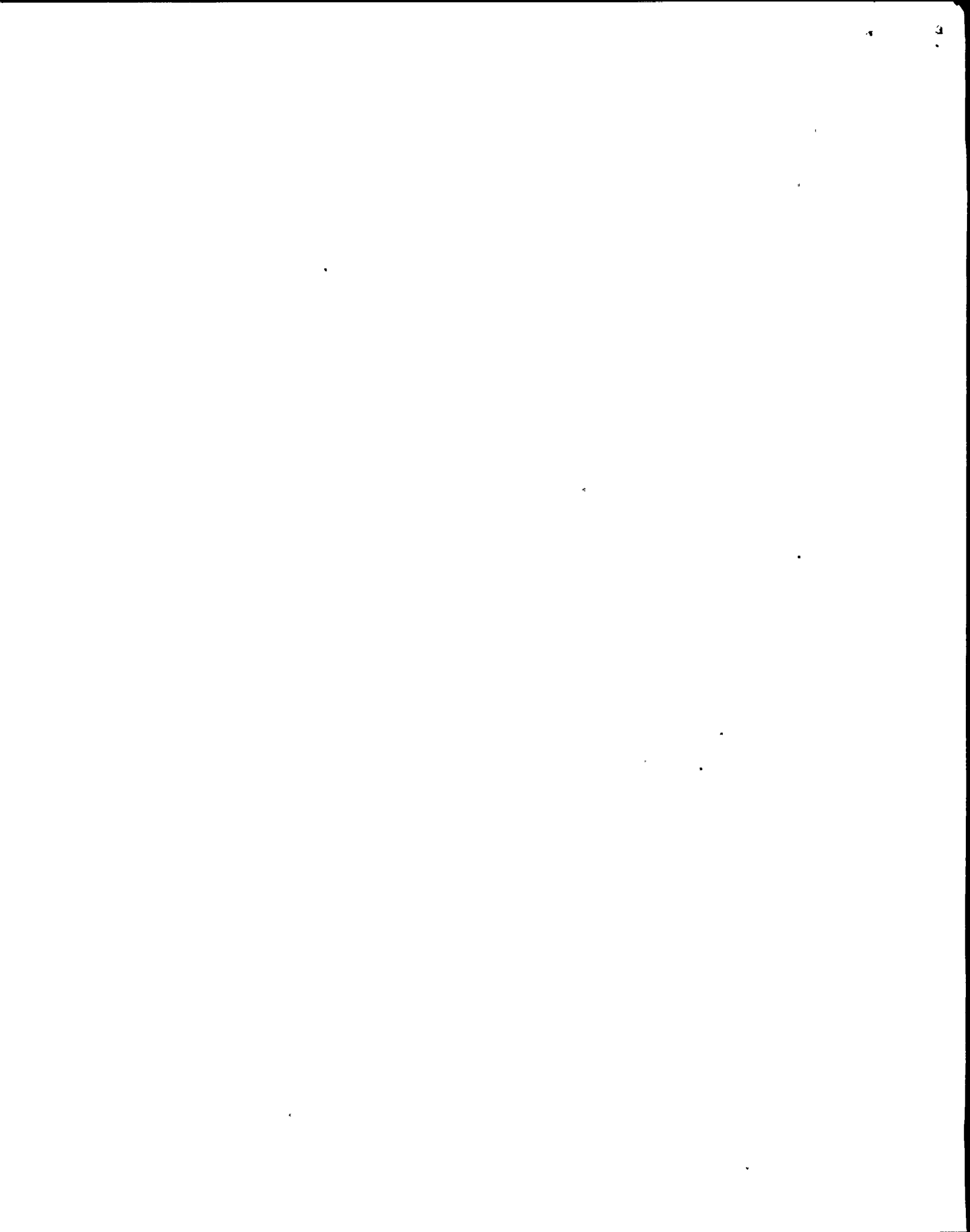
1. 02-LOT-001-205-2-00 p. 40 EO 8

K/A: 203000K401 [4.2*/4.2]

203000K401 ..(KA's)

ANSWER: 004 (1.00)

c.



ANSWER: 001 (1.00)

d.

REFERENCE:

1. 01-LOT-1-002-302-01 EO 2.7

K/A: 292008K104 [3.3/3.4]

292008K104 ..(KA's)

ANSWER: 002 (1.00)

b

REFERENCE:

01-LOT-1-002-302-01, EO 6.6, 6.7

K/A: 292002K114 [2.6/2.9]

292002K114 ..(KA's)

ANSWER: 003 (1.00)

c.

REFERENCE:

1. 02-LOT-001-205-2-00 p. 40 EO 8

K/A: 203000K401 [4.2*/4.2]

203000K401 ..(KA's)

ANSWER: 004 (1.00)

c.

REFERENCE:

1. NRC GFE Exam bank, p 26.

K/A: 291005K101 [2.6/2.6]

291005K101 ..(KA's)

ANSWER: 005 (1.00)

d. *or b D*

REFERENCE:

1. 01-LOT-1-002-302-01 EO 2.3

K/A: 292002k108 [2.7/2.8]

292002K108 ..(KA's)

ANSWER: 006 (1.00)

b.

REFERENCE:

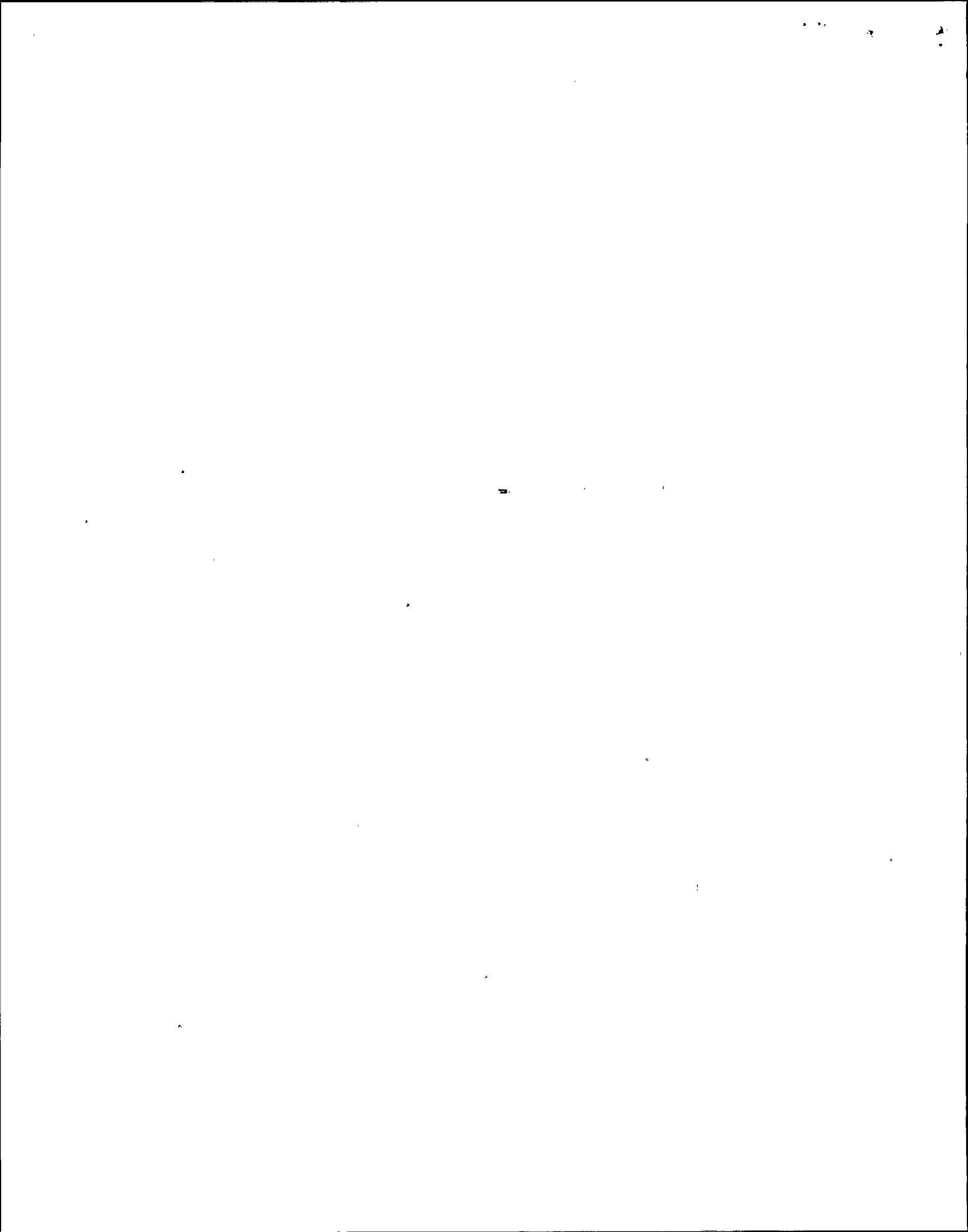
1. 01-LOT-1-002-302-01, EO 1.2, 2.3
2. NRC GFE Exam bank

K/A: 292001K104 [3.2/3.2]

292001K104 ..(KA's)

ANSWER: 007 (1.00)

d.



REFERENCE:

1. 01-LOT-002-302-02 EO 2.4
2. NRC EQB Exam Bank, B565

K/A: 292003K111 [2.4/2.4]

292003K111 ..(KA's)

ANSWER: 008 (1.00)

a.

REFERENCE:

1. N2-OP-33
2. 02-LOT-001-206-2-00, Rev 6, EO 5 b&c, p. 47

K/A: 209002A402 [3.6/3.6]

209002A402 ..(KA's)

ANSWER: 009 (1.00)

a.

REFERENCE:

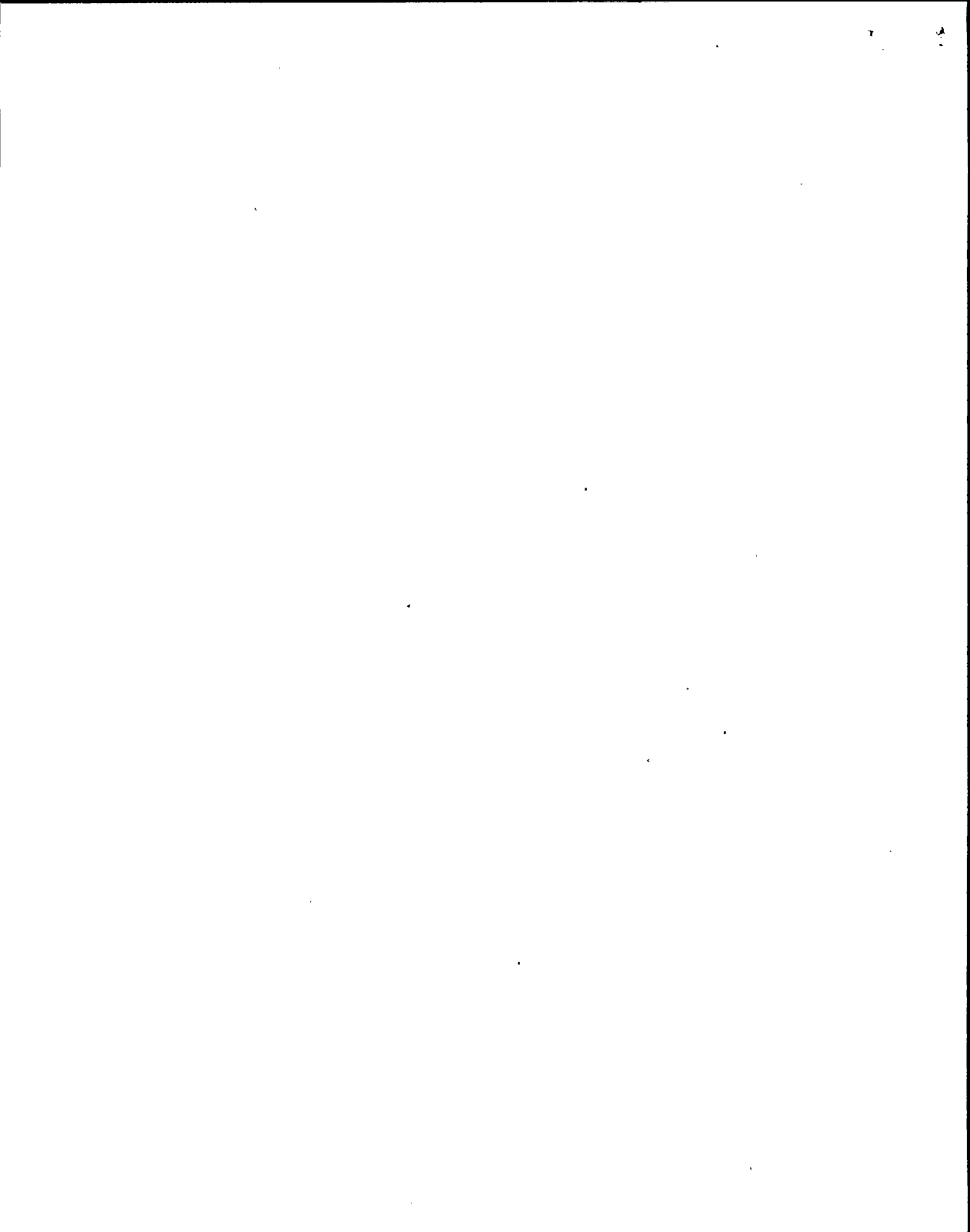
1. Nine Mile Point 2 Procedure N2-FHP-3, Refueling Manual Section 6.1.6
2. Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-216-2-01, Reactor Vessel Instrumentation Section II.B.4 Learning Objective EO 3.0.b

K/A: 216000K122 [3.6/3.8]

216000K122 ..(KA's)

ANSWER: 010 (1.00)

b.



REFERENCE:

1. Nine Mile Point Unit 2 Technical Specification 3.9.11.1
205000G011 [3.1/3.9]

205000G011 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

1. N2-OLT-2, March '87
2. 02-LOT-001-234-2-00 EO 4.0 d

K/A: 234000K502 [3.1/3.7]

234000K502 ..(KA's)

ANSWER: 012 (1.00)

c.

REFERENCE:

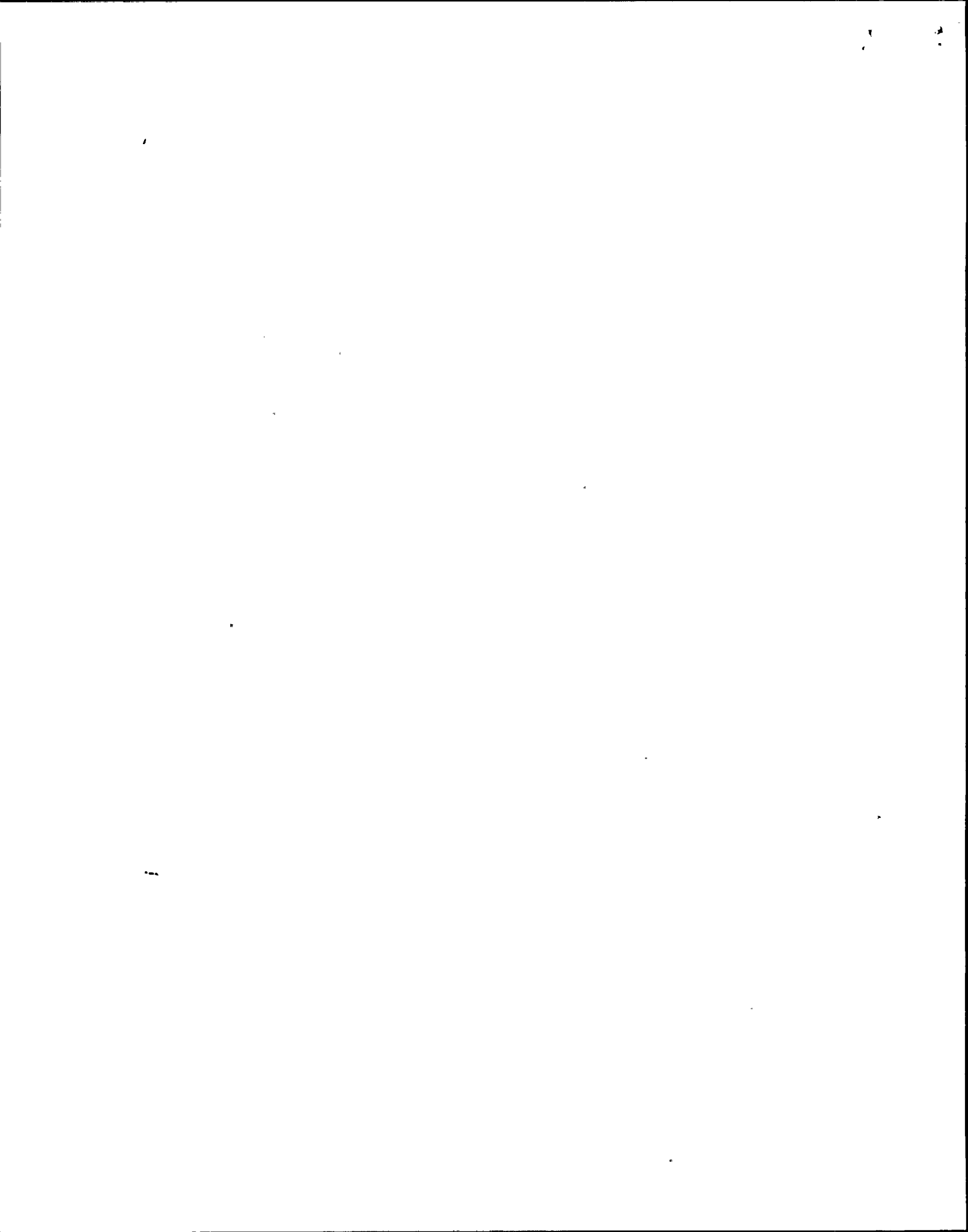
1. Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-212-2-00 Page 11
Learning Objective EO 3.0.c

K/A: 212000A202 [3.7/3.9]

212000A202 ..(KA's)

ANSWER: 013 (1.00)

d.



REFERENCE:

1. Nine Mile Point Unit 2 Technical Specification 3.1.1

K/A: 234000G005 [3.0/4.1]

234000G005 ..(KA's)

ANSWER: 014 (1.00)

b.

REFERENCE:

1. T.S. 1.7

K/A: 234000G011 [2.8/3.9*]

234000G011 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

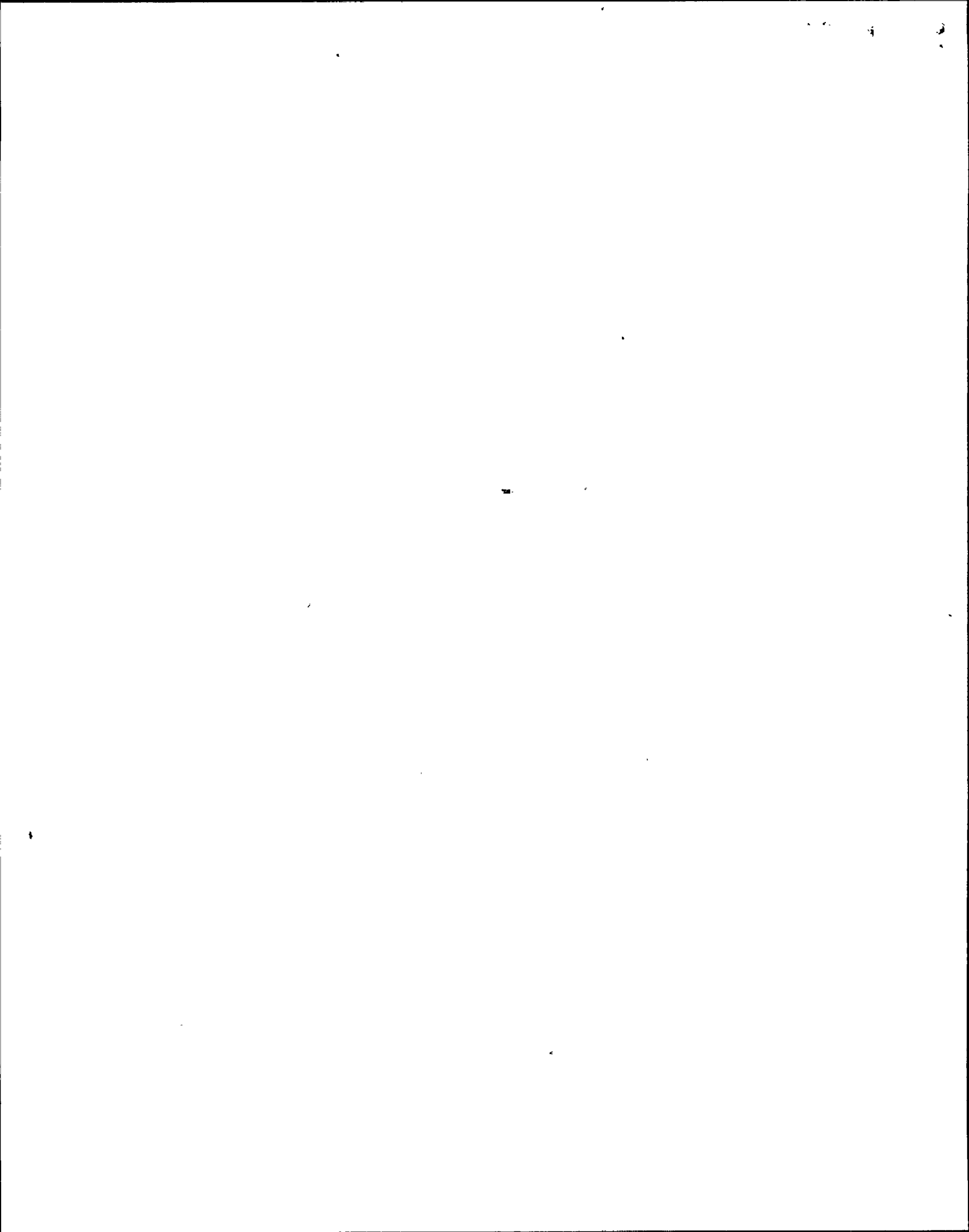
1. 02-LOT-001-261-2-001, August 92, EO 5.0
2. Nine Mile Point Unit 2 HVR Lesson Plan, Rev 6, p. 8 of 22
3. 02-LOT-001-223-2-04, May 91, EO 3.0

K/A: 261000A211 [3.2/3.3]

261000A211 ..(KA's)

ANSWER: 016 (1.00)

a.



REFERENCE:

1. 02-LOT-001-205-2-00, Rev 6, p.26, EO 5.0.c

K/A: 234000K403 [3.4/4.2]

234000K403 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

1. 02-LOT-001-101-2-01, EO 3.0.s

K/A: 290002K403 [3.2/3.3]

290002K403 ..(KA's)

ANSWER: 018 (1.00)

c.

REFERENCE:

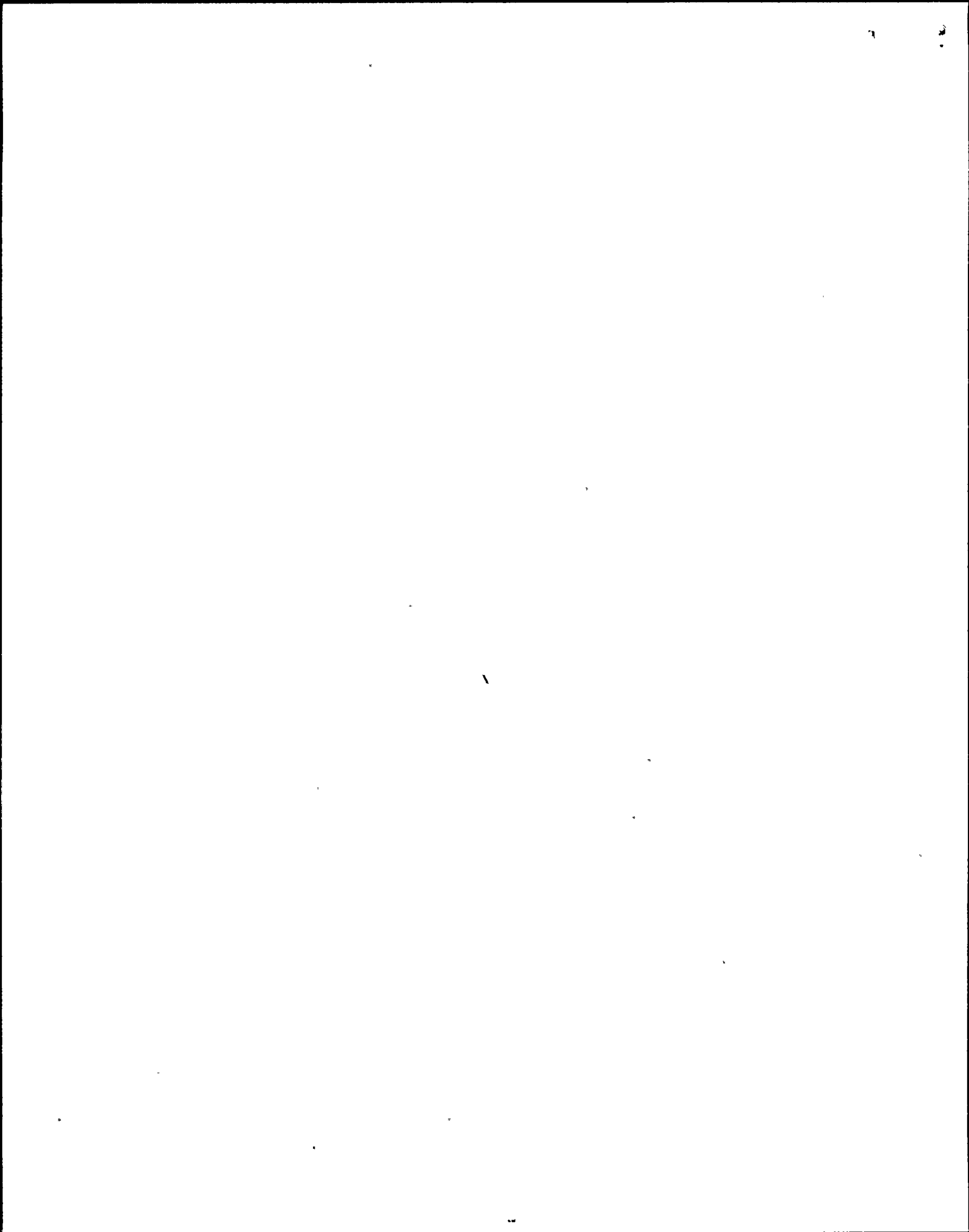
1. 02-LOT-001-101-2-01, EO 10.0.b

K/A: 202001K401 [3.9/3.9]

202001K401 ..(KA's)

ANSWER: 019 (1.00)

a.



REFERENCE:

02-LOT-001-234-2-00, Rev 8. p. 25, E0 5.0.d

K/A: 205000K403 [3.8/3.8]

205000K403 ..(KA's)

ANSWER: 020 (1.00)

c

REFERENCE:

1. Technical Specification 3/4.9.2

K/A: 215004G005 [3.2/3.9]

215004G005 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

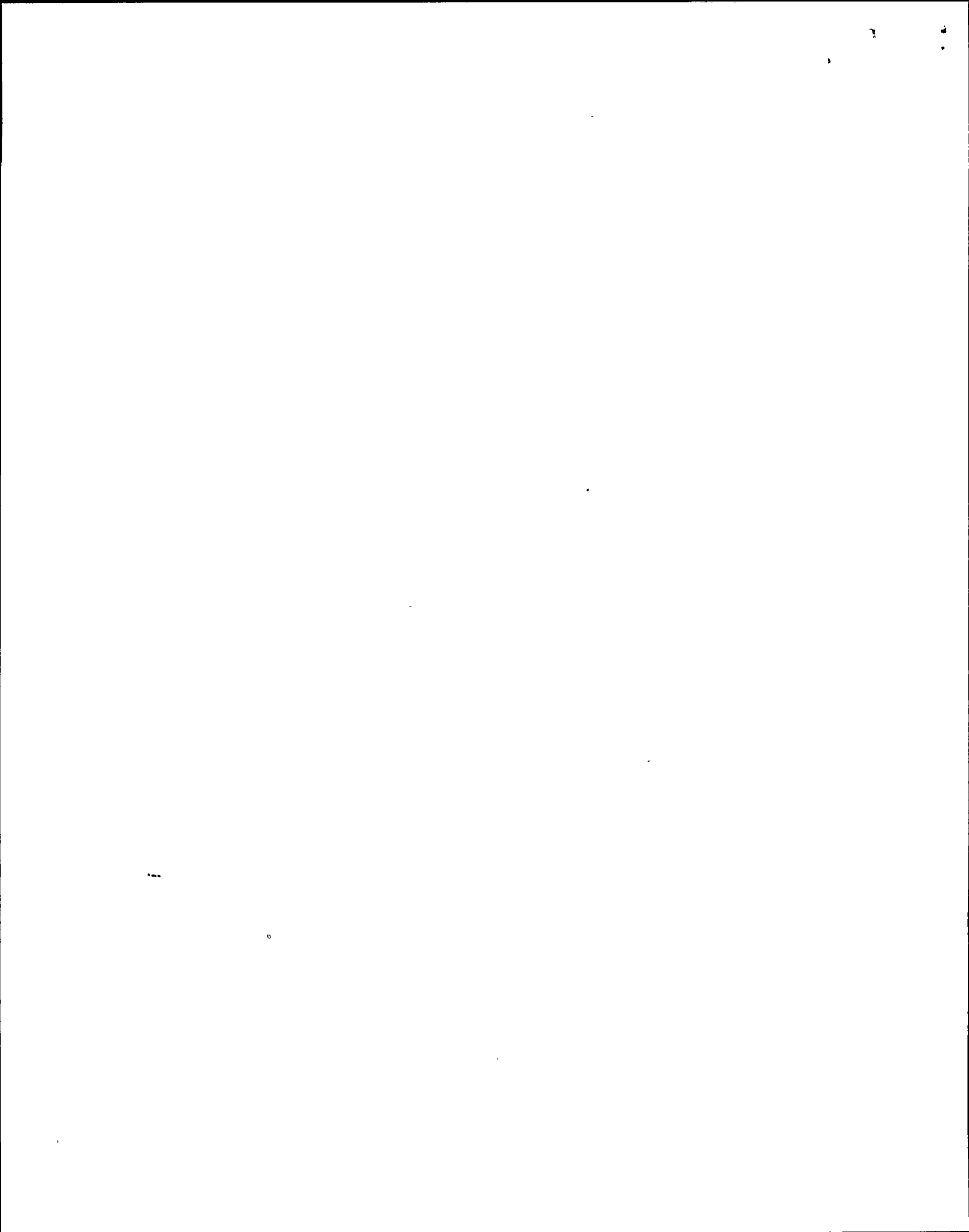
1. 02-LOT-233-2-00, Rev 7, p.26, E0-3.0.b

K/A: 233000G007 [3.2/3.3]

233000G007 ..(KA's)

ANSWER: 022 (1.00)

d.



REFERENCE:

1. T. S. Bases 3/4.4.4

K/A: 290002G006 [2.8*/3.8]

290002G006 ..(KA's)

ANSWER: 023 (1.00)

a.

REFERENCE:

1. T. S. 3/4.9.4 BASES

K/A: 295023G004 [2.7*/3.8]

295023G004 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

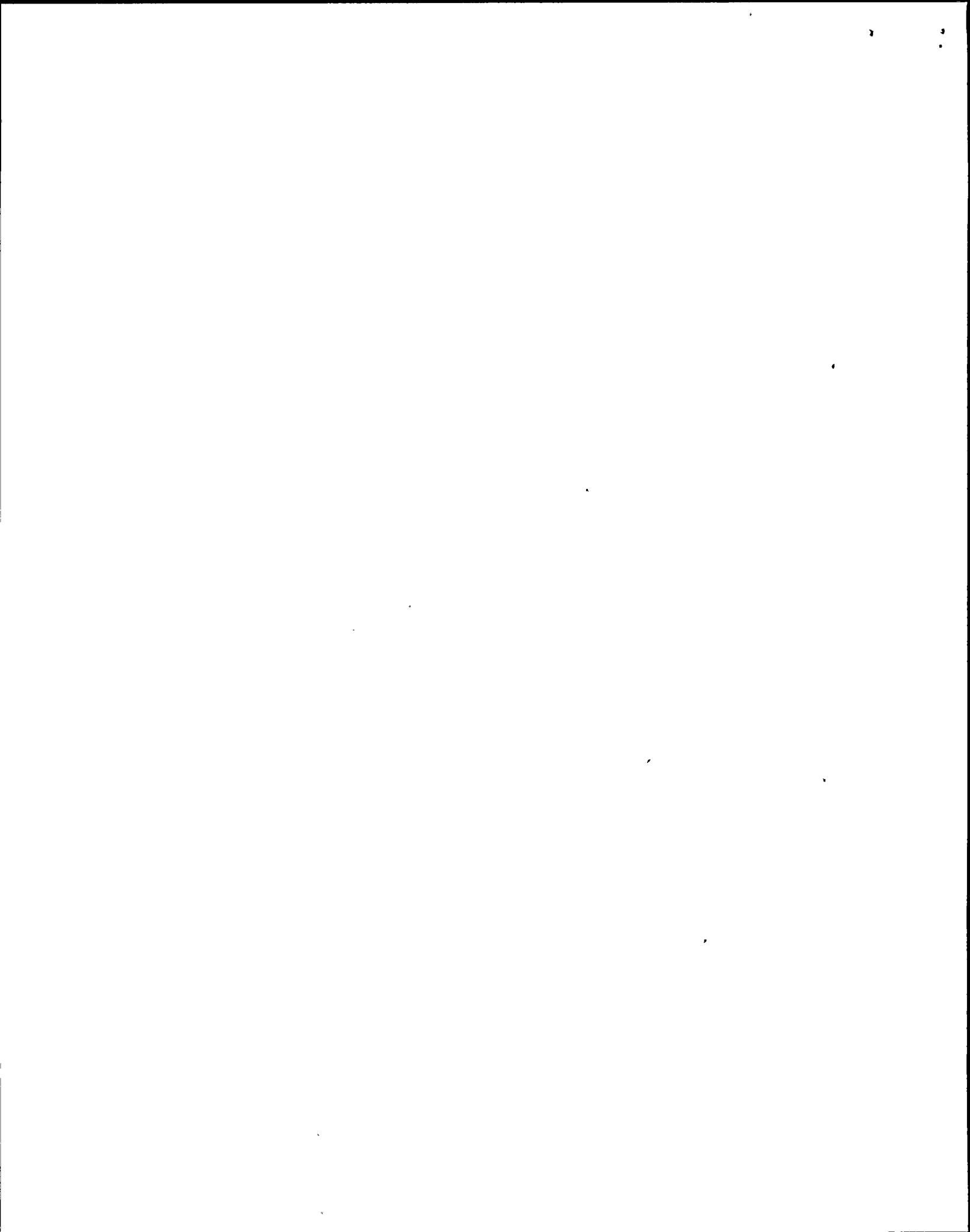
1. 02-LOT-001-101-2-01 EO 3.0.1,m,t, p.23

K/A: 290002G004 [3.2/3.3]

290002G004 ..(KA's)

ANSWER: 025 (1.00)

b.



REFERENCE:

1. N2-OP-52, Rev. 3 Precautions & Limitations 11.0

K/A: 290001K401 [3.5/3.8]

290001K401 ..(KA's)

ANSWER: 026 (1.00)

d.

REFERENCE:

1. 02-LOT-001-234-2-00, Rev 8, EO 4.0, p.53

K/A: 234000K401 [3.3/4.1]

234000K401 ..(KA's)

ANSWER: 027 (1.00)

a.

REFERENCE:

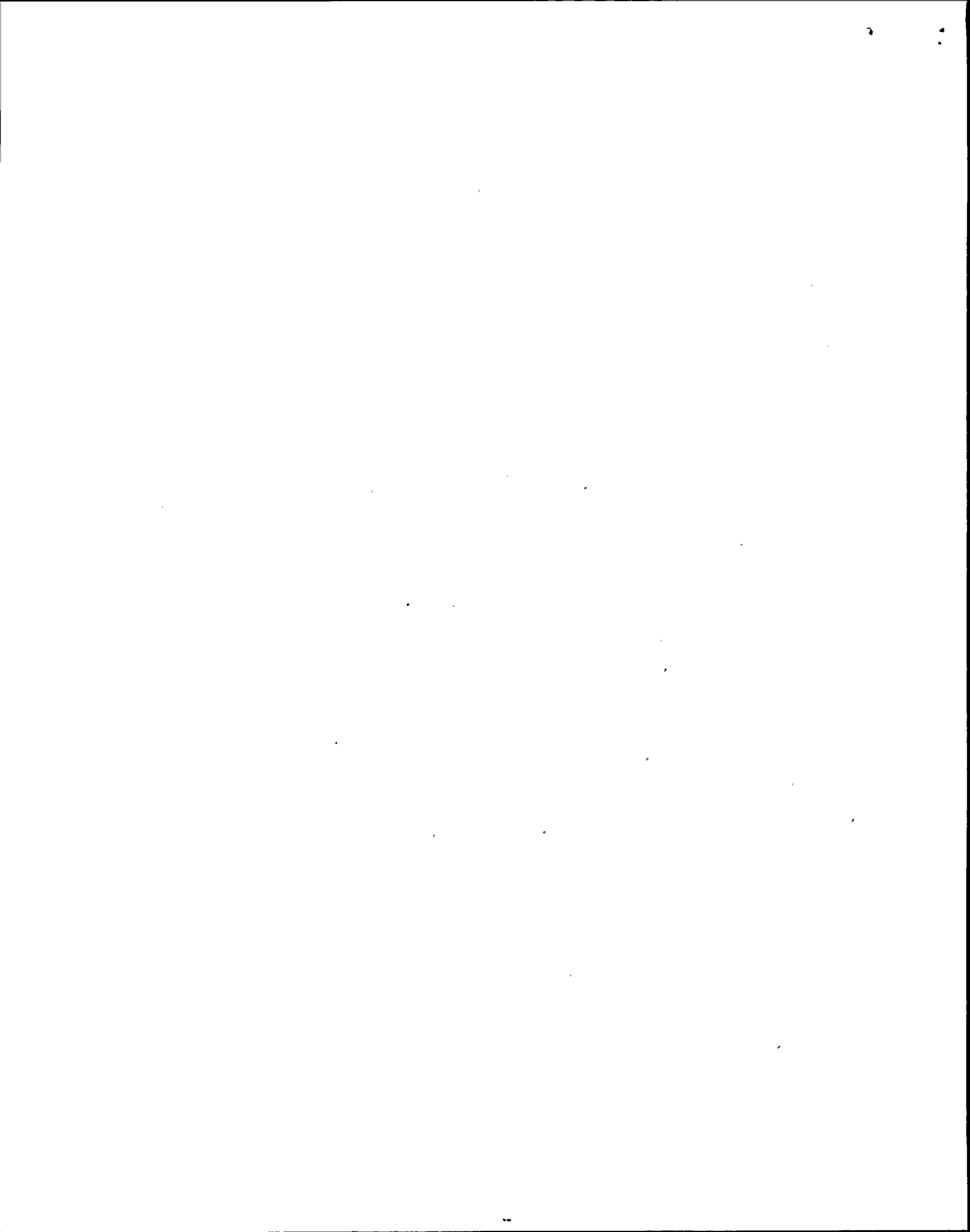
1. Facility Exam Bank, Written Exam # 1, Questions #32,33

K/A: 234000K601 [2.7/3.2]

234000K601 ..(KA's)

ANSWER: 028 (1.00)

a.



REFERENCE:

1. N2-OP-31 pg. 69

K/A: 295021A202 [3.4/3.4]

295021A202 ..(KA's)

ANSWER: 029 (1.00)

d.

REFERENCE:

1. Nine Mile Point Unit 2 Lesson Plan 02-LOT-233-2-00 Page 15
Learning Objective EO 8

K/A: 233000G001 [3.0/3.4]

233000G001 ..(KA's)

ANSWER: 030 (1.00)

a.

REFERENCE:

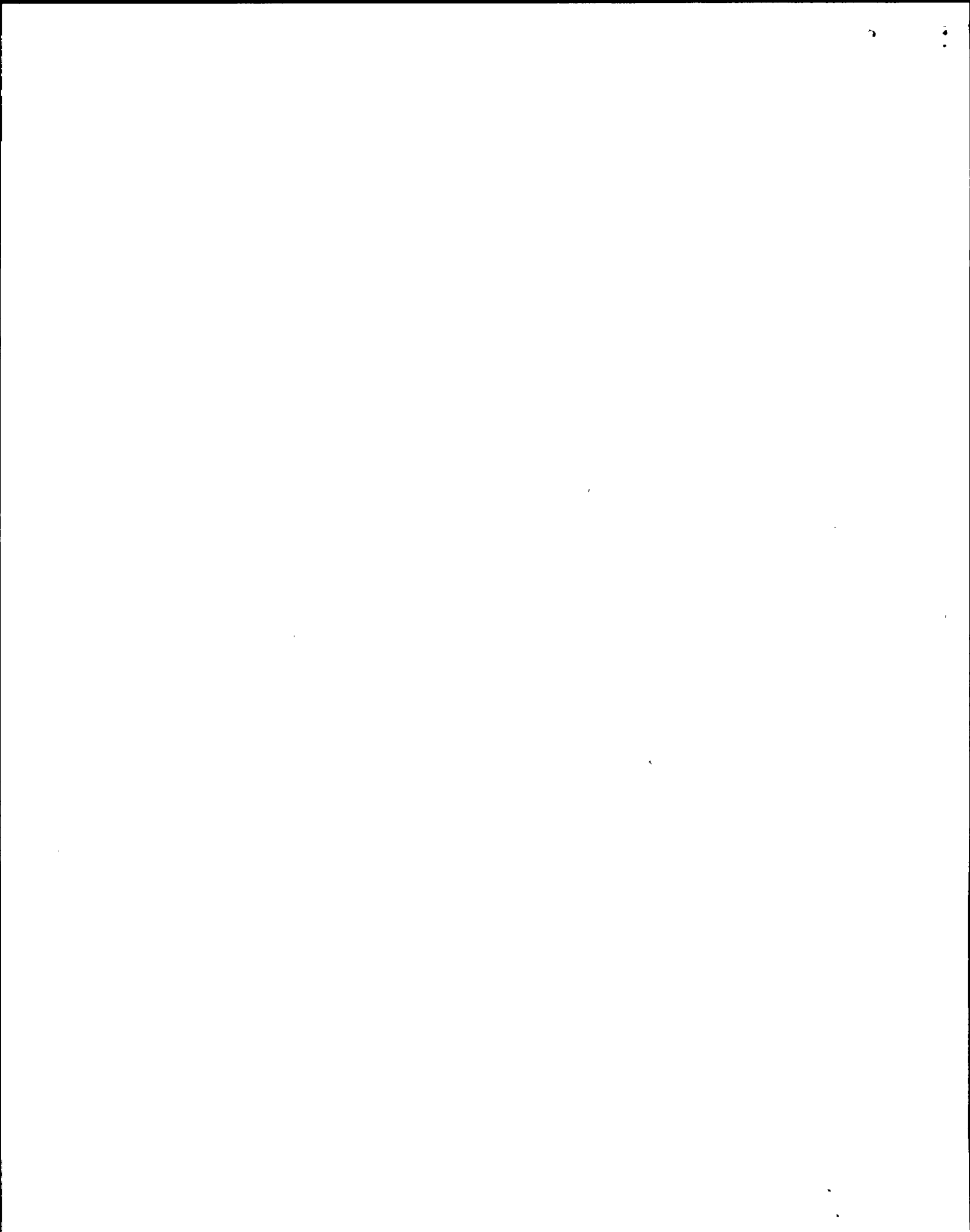
1. N2-FHP-3 , Limitation 4.2.1

K/A: 290002K307 [3.1/3.1]

290002K307 ..(KA's)

ANSWER: 031 (1.00)

c.



REFERENCE:

1. N2-FHP-13.2, Rev 2, Precautions & Limitations, 6.9

K/A: 295033G011 [4.0/4.5]

295033G011 ..(KA's)

ANSWER: 032 (1.00)

b.

REFERENCE:

1. N2-FHP-13.2, Rev 02, 8.1.6

K/A: 234000G001 [3.4/3.8]

234000G001 ..(KA's)

ANSWER: 033 (1.00)

a.

REFERENCE:

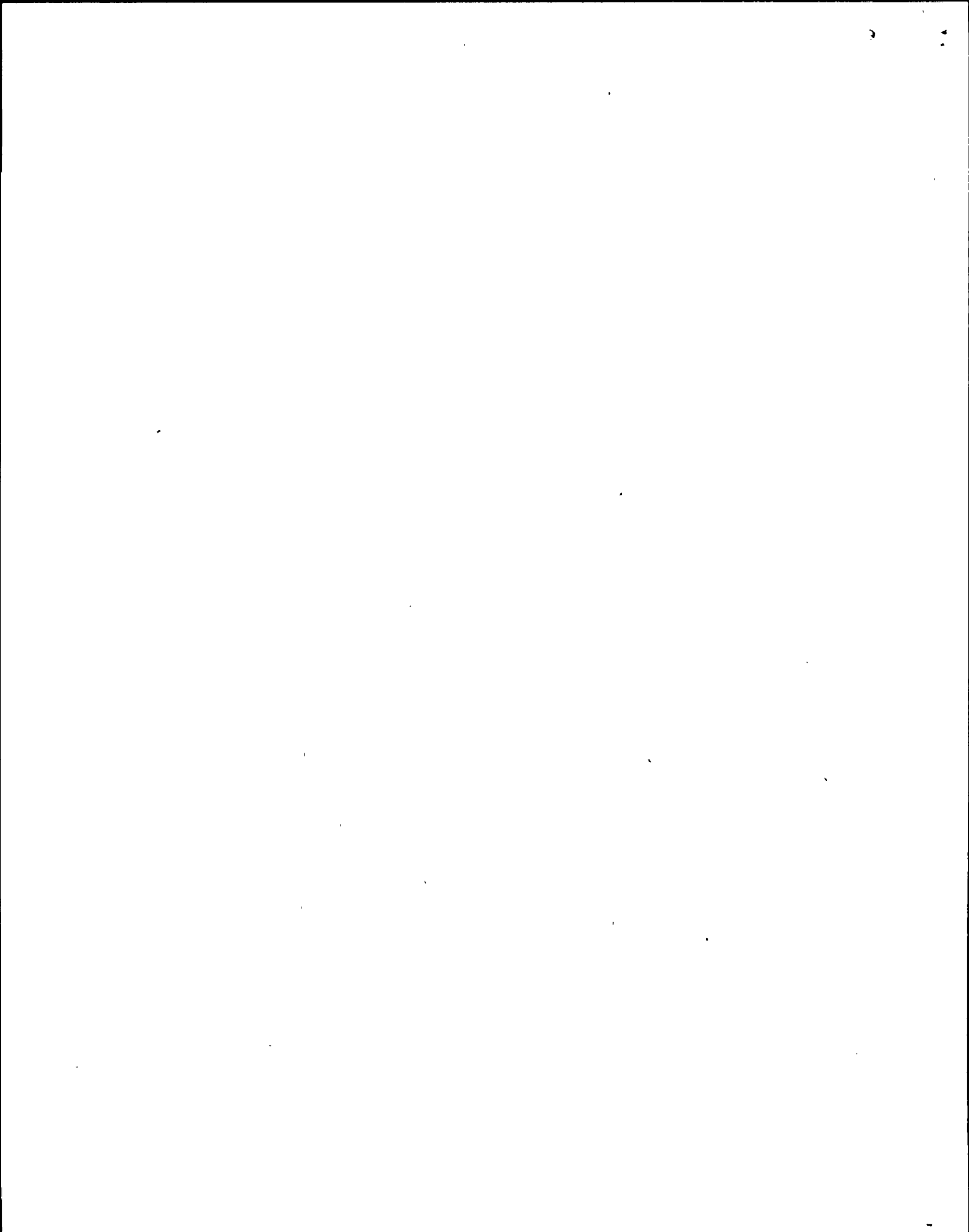
1. Nine Mile Point Unit 2 HVR Lesson Plan, Rev 6, p. 7 of 22

K/A: 290001K101 [3.3/3.5]

290001K101 ..(KA's)

ANSWER: 034 (1.00)

b.



REFERENCE:

1. NIP-SNM-01, Rev 00, 4.2, p. 7

K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 035 (1.00)

a.

REFERENCE:

1. N2-OP-39, Rev 3, p. 43, 'Caution'

K/A: 201003K402 [3.8/3.9]

201003K402 ..(KA's)

ANSWER: 036 (1.00)

b.

REFERENCE:

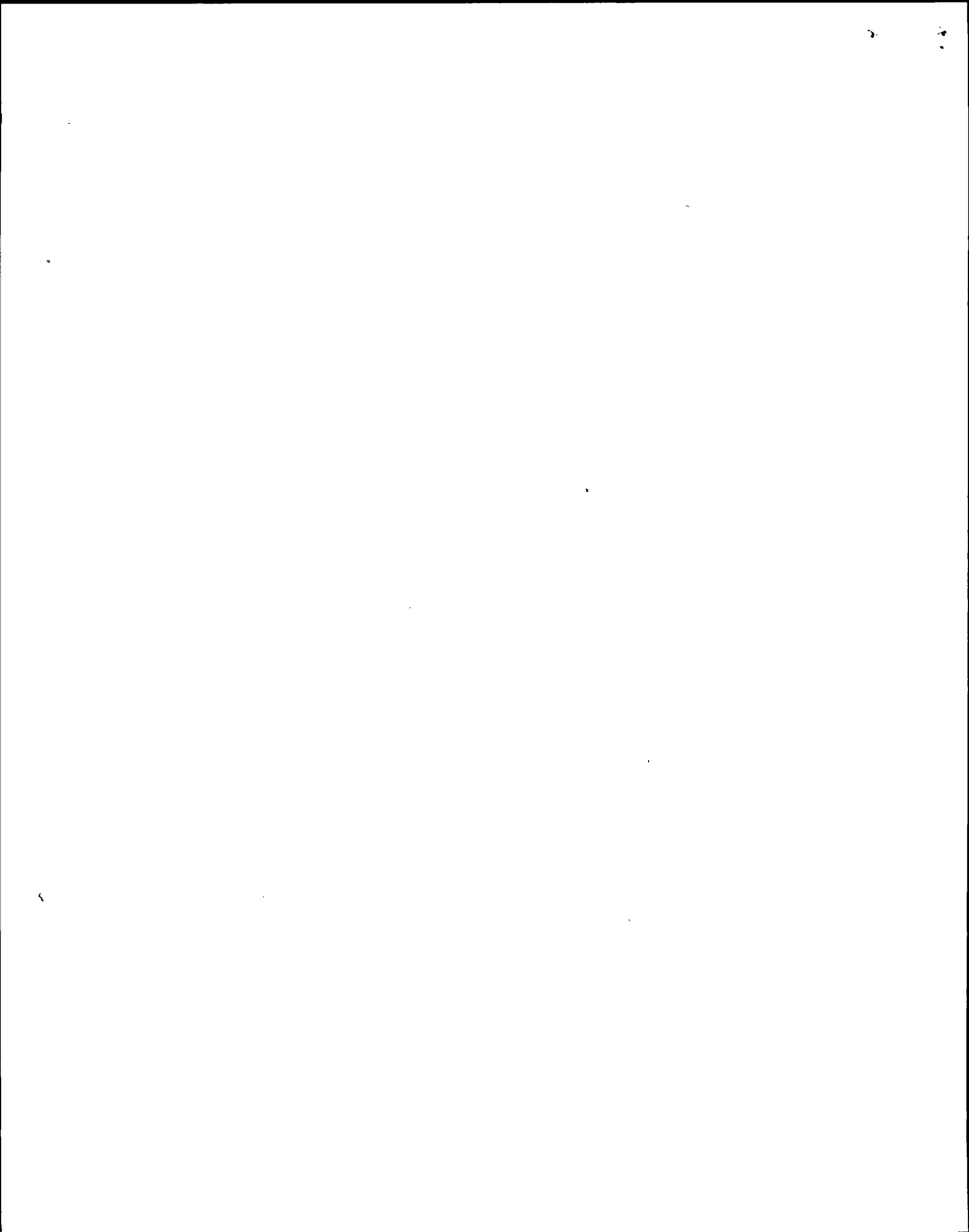
1. 02-LOT-001-233-2-00, Rev 7, p. 28

K/A: 233000A302 [2/6/2.6]

233000A302 ..(KA's)

ANSWER: 037 (1.00)

a.



REFERENCE:

1. N2-OP-39, p.15

K/A: 234000A302 [3.1/3.7]

234000A302 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

1. 02-LOT-001-101-2-02, EO 7.0, p. 17

K/A: 234000K505 [3.0/3.7]

234000K505 ..(KA's)

ANSWER: 039 (1.00)

d. *na Df*

REFERENCE:

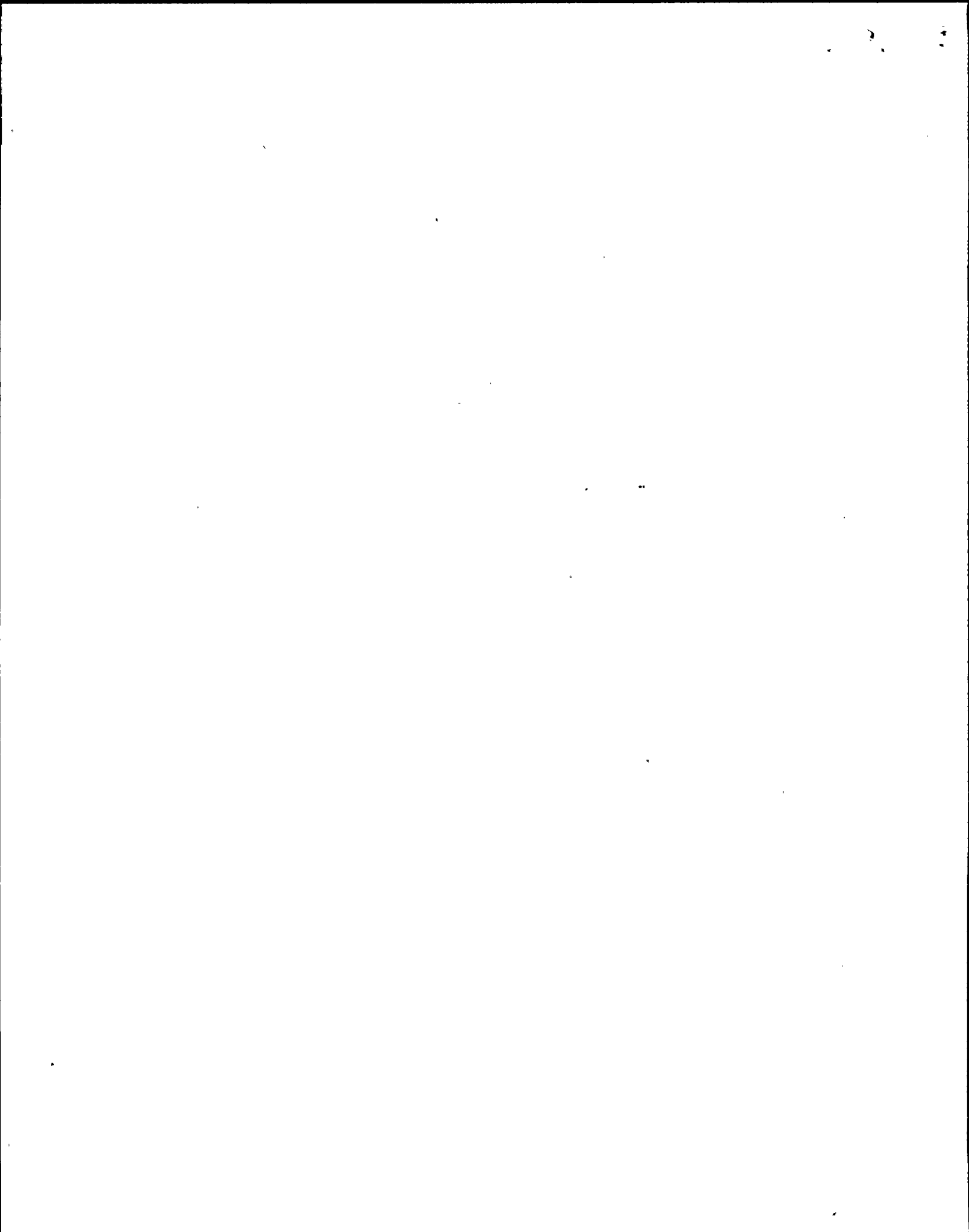
N2-OP-31 pg.34

K/A: 205000G014 [3.6/3.3]

205000G014 ..(KA's)

ANSWER: 040 (1.00)

d.



REFERENCE:

1. T.S. 3.9.1, 02-LOT-001-234-2-00, EO 8

K/A: 234000G011 [2.8/3.9]

234000G011 ..(KA's)

ANSWER: 041 (1.00)

c.

REFERENCE:

1. N200P-61B, Rev 5, Precautions & Limitations, 11.0

K/A: 261000G010 [3.1/3.3]

261000G010 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

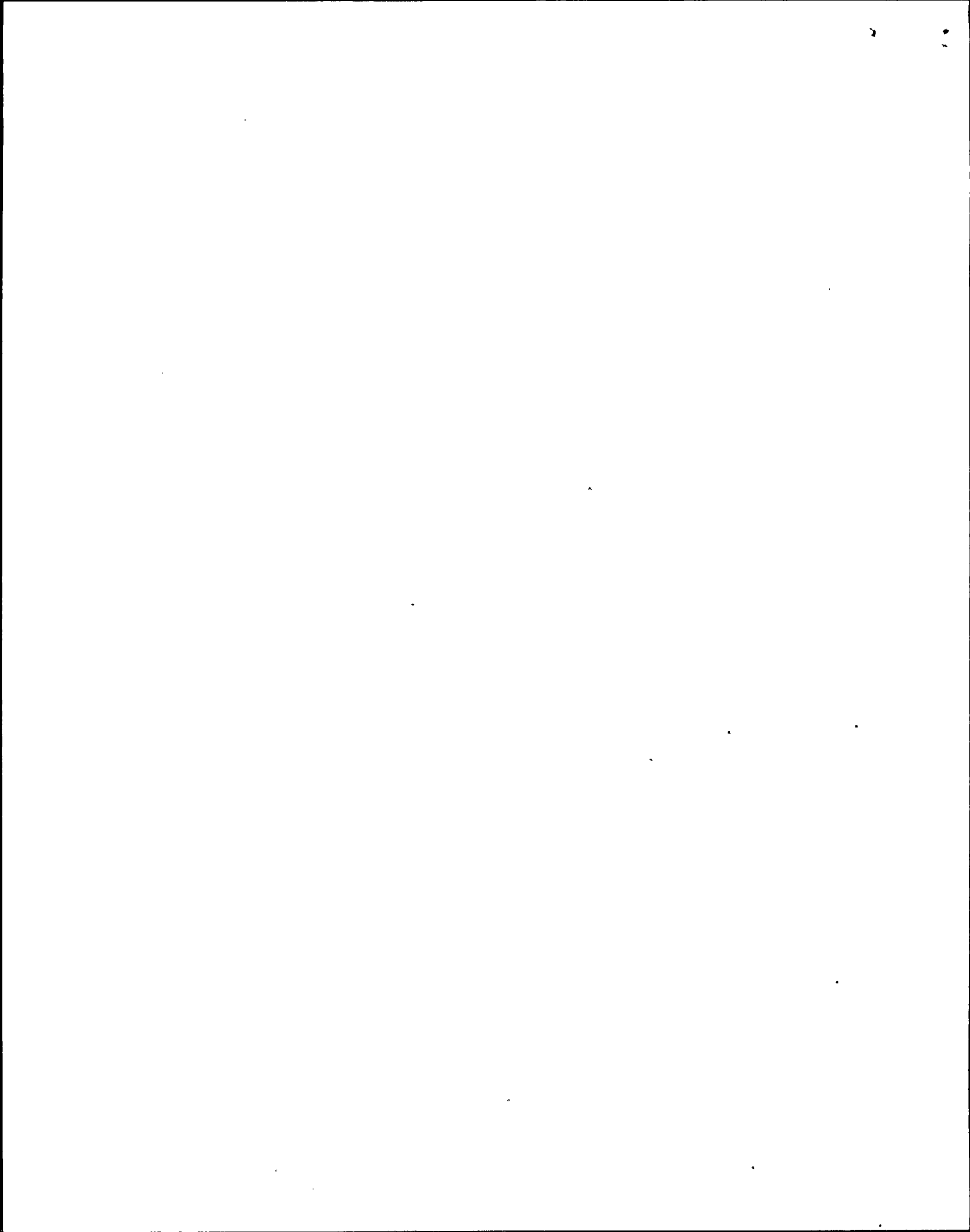
1. GAP-OPS-01, Rev 01, p. 19

K/A: 294001A110 [3.6/4.2*]

294001A110 ..(KA's)

ANSWER: 043 (1.00)

b.



REFERENCE:

1. N2-FHP-3, Rev 02, Precautions & Limitations, 4.2.3, p. 7

K/A: 290001G010 [3.3/3.4]

290001G010 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

1. N2-FHP-12, Rev 02, Precautions & Limitations, 5.8 and 5.12, p. 4 & 5

K/A: 234000G010 [2.9/3.5]

234000G010 ..(KA's)

ANSWER: 045 (1.00)

a.

REFERENCE:

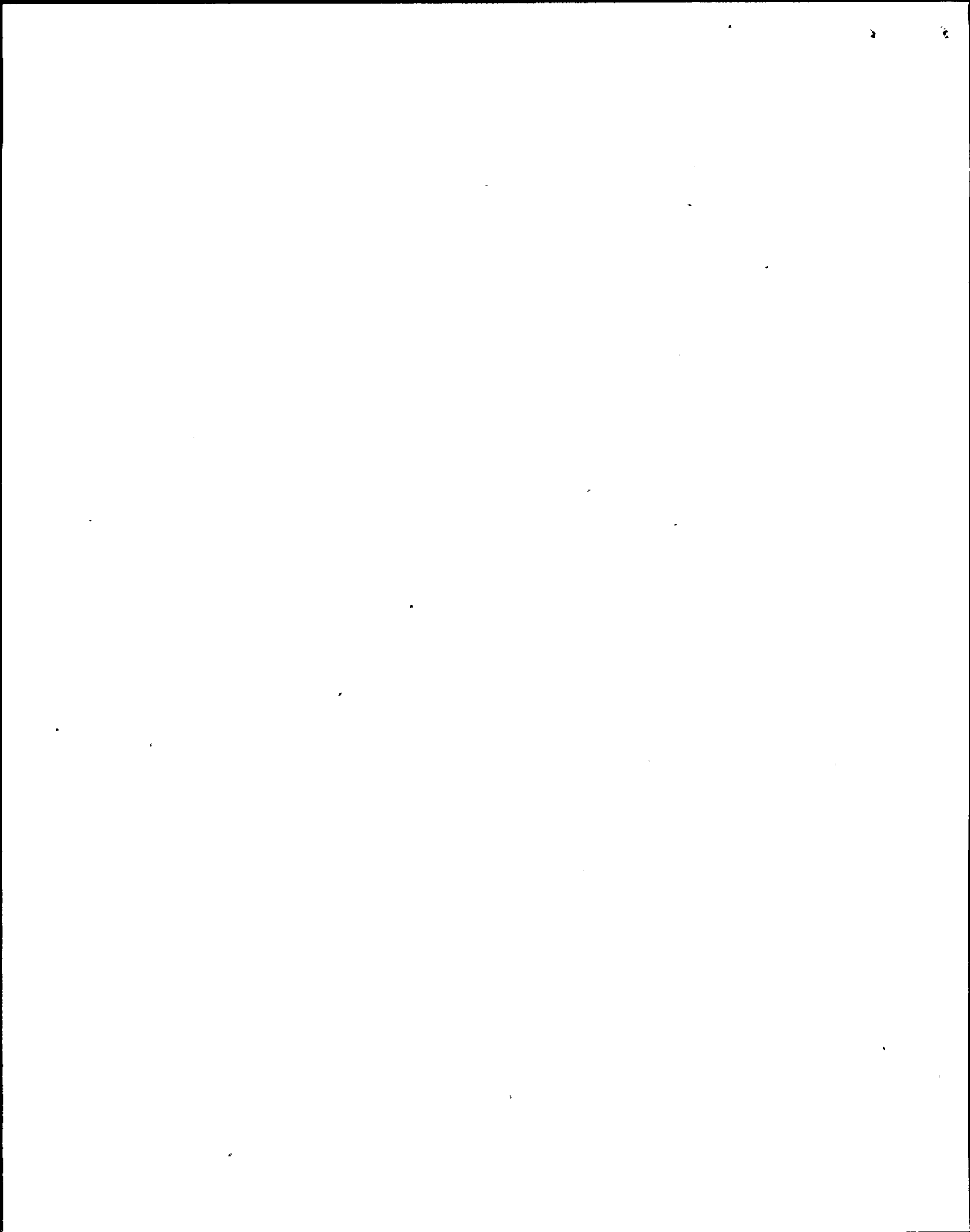
1. N2-FHP-3, Rev 02, 7.1.1

K/A: 295023K201 [3.3/3.7]

295023K201 ..(KA's)

ANSWER: 046 (1.00)

c.



REFERENCE:

1. 10CFR50.54, x and y

K/A: 295023G001 [3.3/4.2]

295023G001 ..(KA's)

ANSWER: 047 (1.00)

a.

REFERENCE:

1. NIP-PRO-01, Rev 01, 3.4.2, p. 5

K/A: 294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 048 (1.00)

a.

REFERENCE:

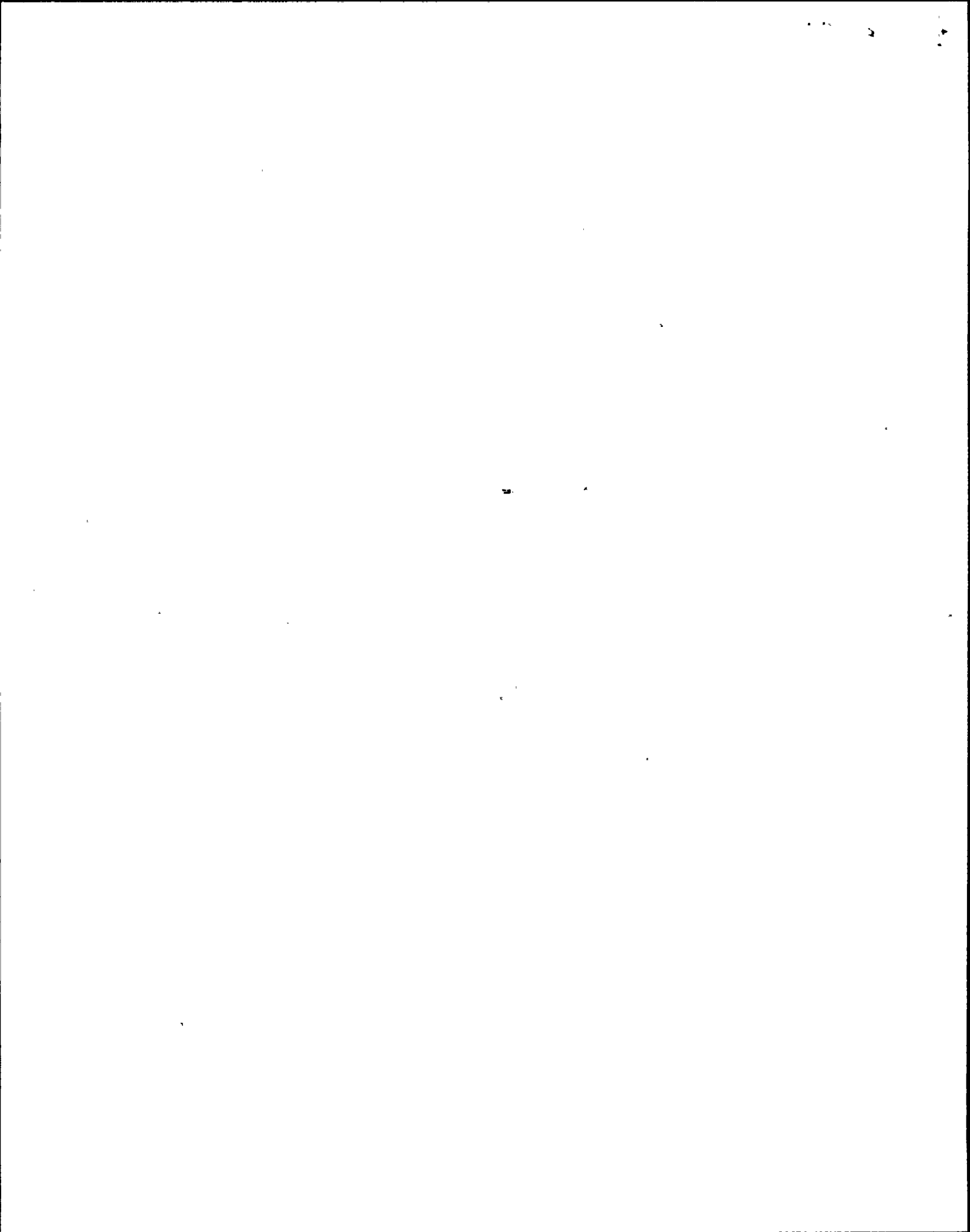
1. GAP-DES-03, Rev 00, 3.5.3, p. 7

K/A: 294001A113 [4.5*/4.3*]

294001A113 ..(KA's)

ANSWER: 049 (1.00)

d.



REFERENCE:

GAP-OPS-02, Rev 00, 4.1 and 4.12, p. 28 and 30

K/A: 294001K102 [3.9/4.5*]

294001K102 ..(KA's)

ANSWER: 050 (1.00)

d.

REFERENCE:

1. N2-OP-84, Rev 02, Precautions & Limitations, 8.0, 18.0, p. 5 & 6

K/A: 295023A103 [3.3/3.6]

295023A103 ..(KA's)

ANSWER: 051 (1.00)

a.

REFERENCE:

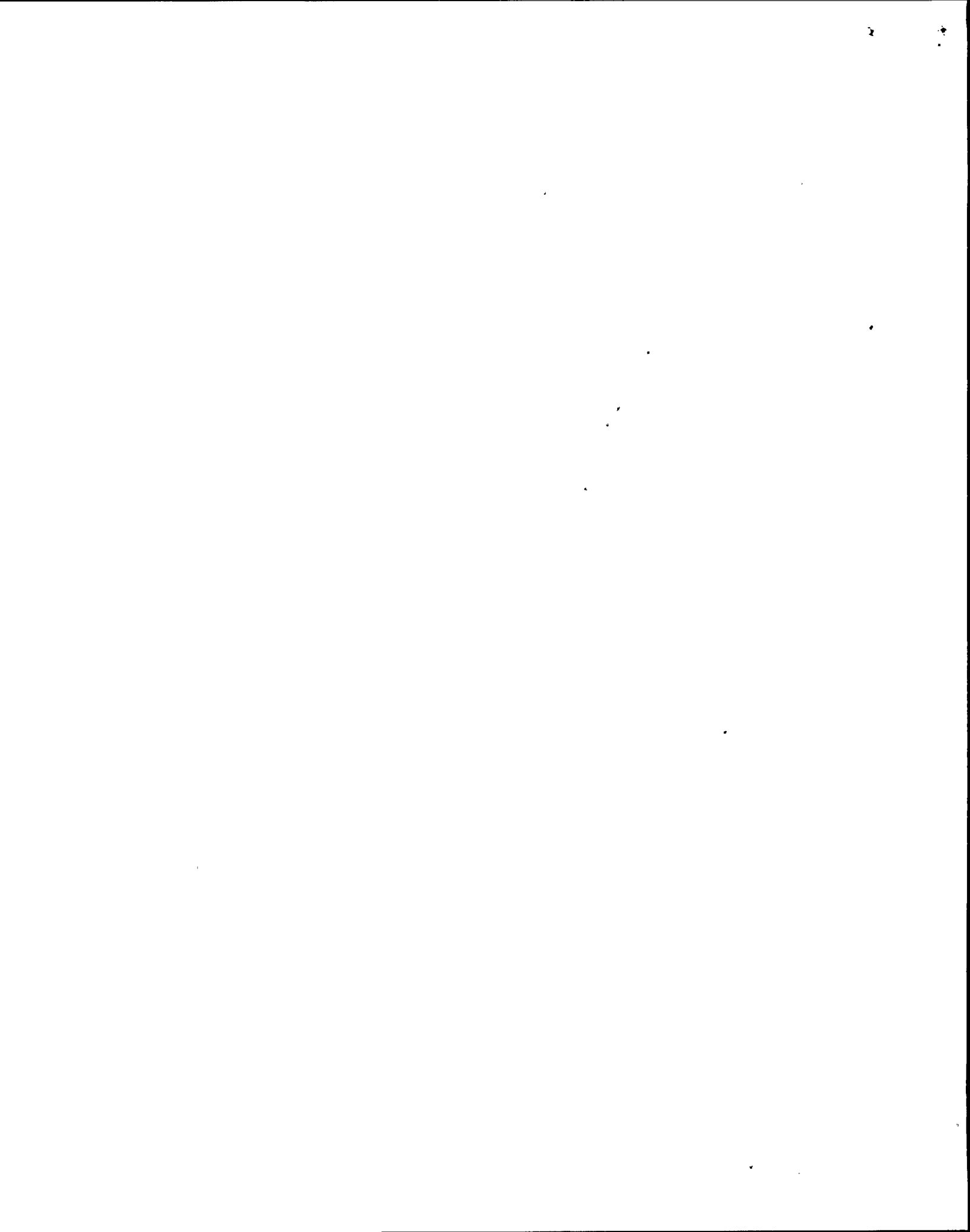
1. GAP-FFD-02 Rev 00, 3.2.1, p. 2

K/A: 294001A110 [3.6/4.2]

294001A110 ..(KA's)

ANSWER: 052 (1.00)

d.



REFERENCE:

1. EPIP-EPP-15, Rev 00, 6.2 p.5

K/A: 294001A116 [2.9*/4.7*]

294001A116 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

1. 1. EPIP-EPP-15, Rev 00, 10.2, Fig. 1, p.21

K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 054 (1.00)

a.

REFERENCE:

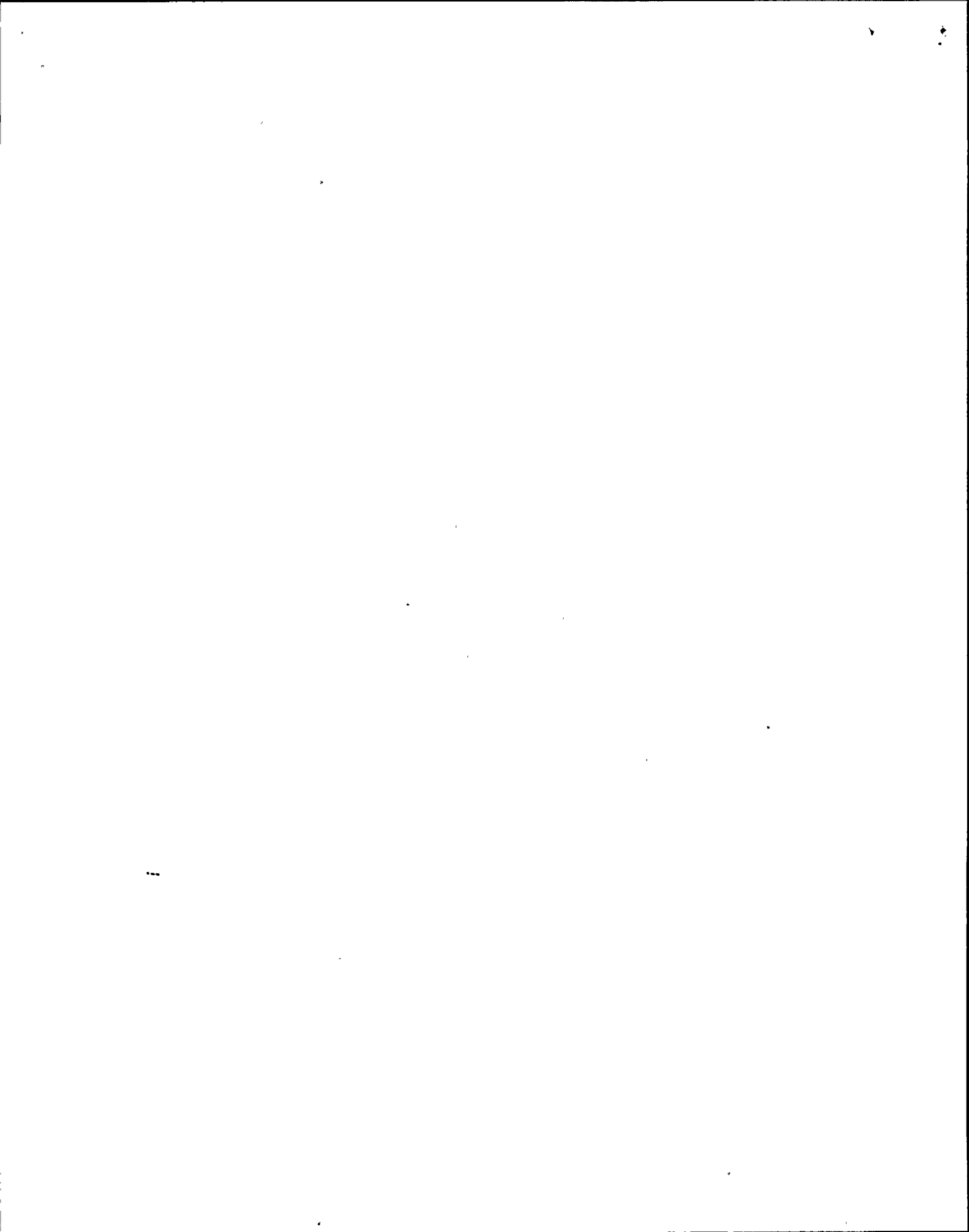
1. 01-LOT-002-310-01, Rev 1, EO 1.3, 2.4

K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 055 (1.00)

~~b.~~ *DB* C



REFERENCE:

1. EPIP-EPP-21, Rev 00, 8.1.d, p. 5

K/A: 294001K105 [3.2/3.5]

294001K105 ..(KA's)

ANSWER: 056 (1.00)

a.

REFERENCE:

1. Intro. to Nuc. Eng., Lamarsh, 2nd Ed. Eq'n. 2.23, p. 22
2. NRC LSRO exam given at Limerick plant, 92/01/13.

K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 057 (1.00)

b.

REFERENCE:

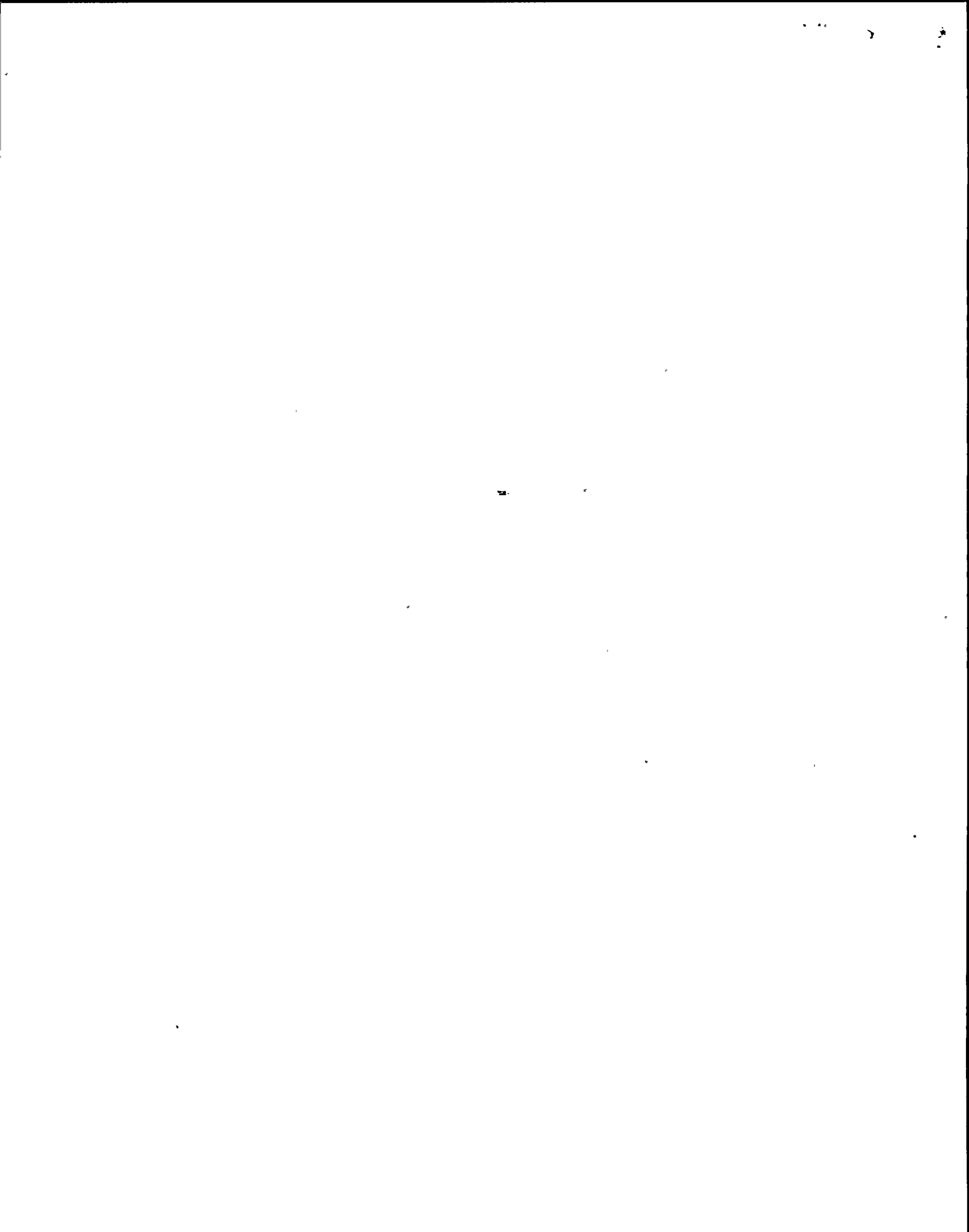
1. GAP-RPP-08, Rev 01, 3.2, 3.3, 3.4, p. 2 & 3

K/A: 294001K104 [3.3/3.6]

294001K104 ..(KA's)

ANSWER: 058 (1.00)

d.



REFERENCE:

1. GAP-RPP-08, Rev 01, 4.3, p. 4

K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 059 (1.00)

a.

REFERENCE:

1. GAP-RPP-08, Rev 01, 3.5, p. 3

K/A: 294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

1. 10 CFR 20, para. 20.202 "Radiation Areas"

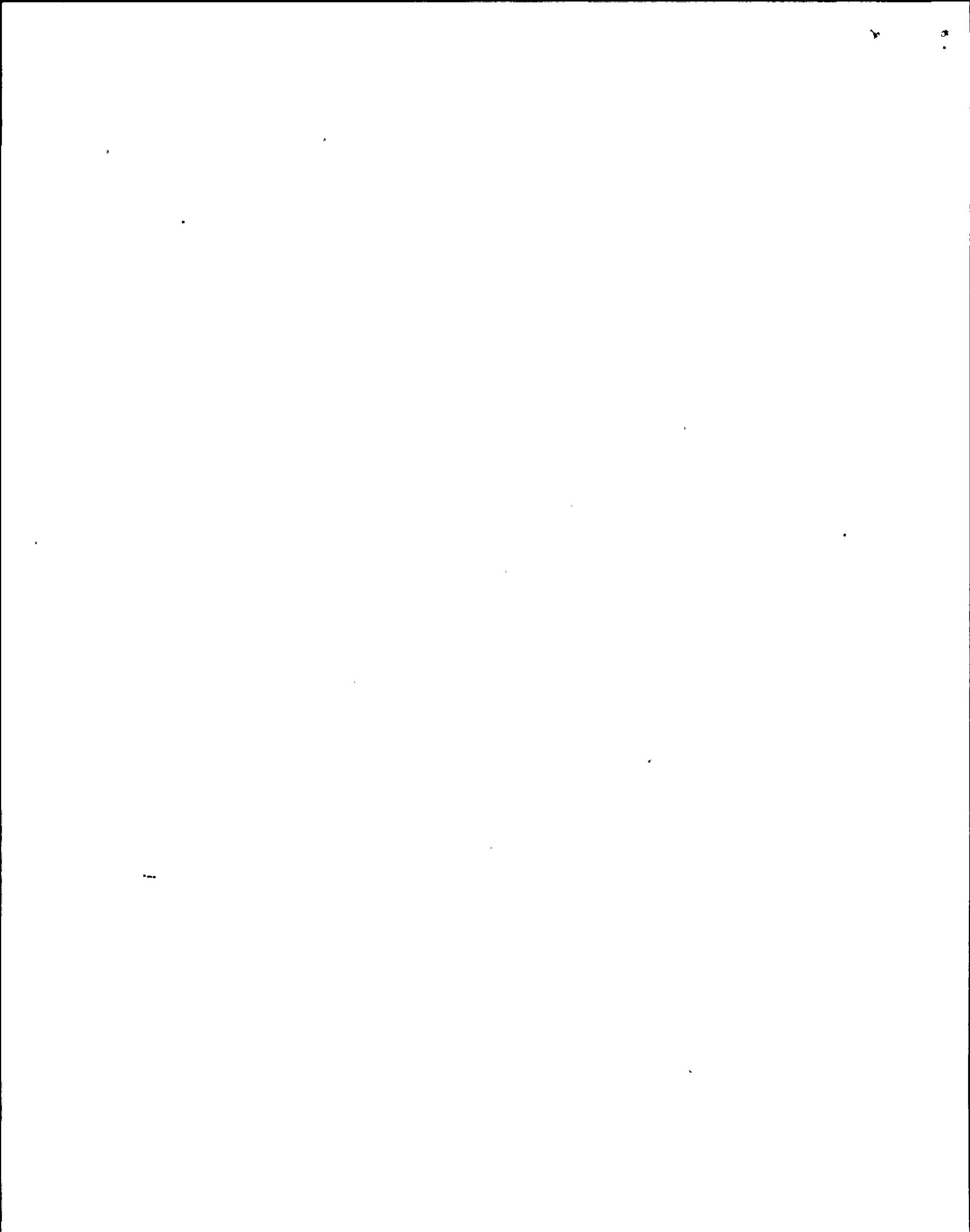
K/A: 294001K103 [3.3/3.8]

294001K103 ..(KA's)

(***** END OF EXAMINATION *****)

A N S W E R K E Y

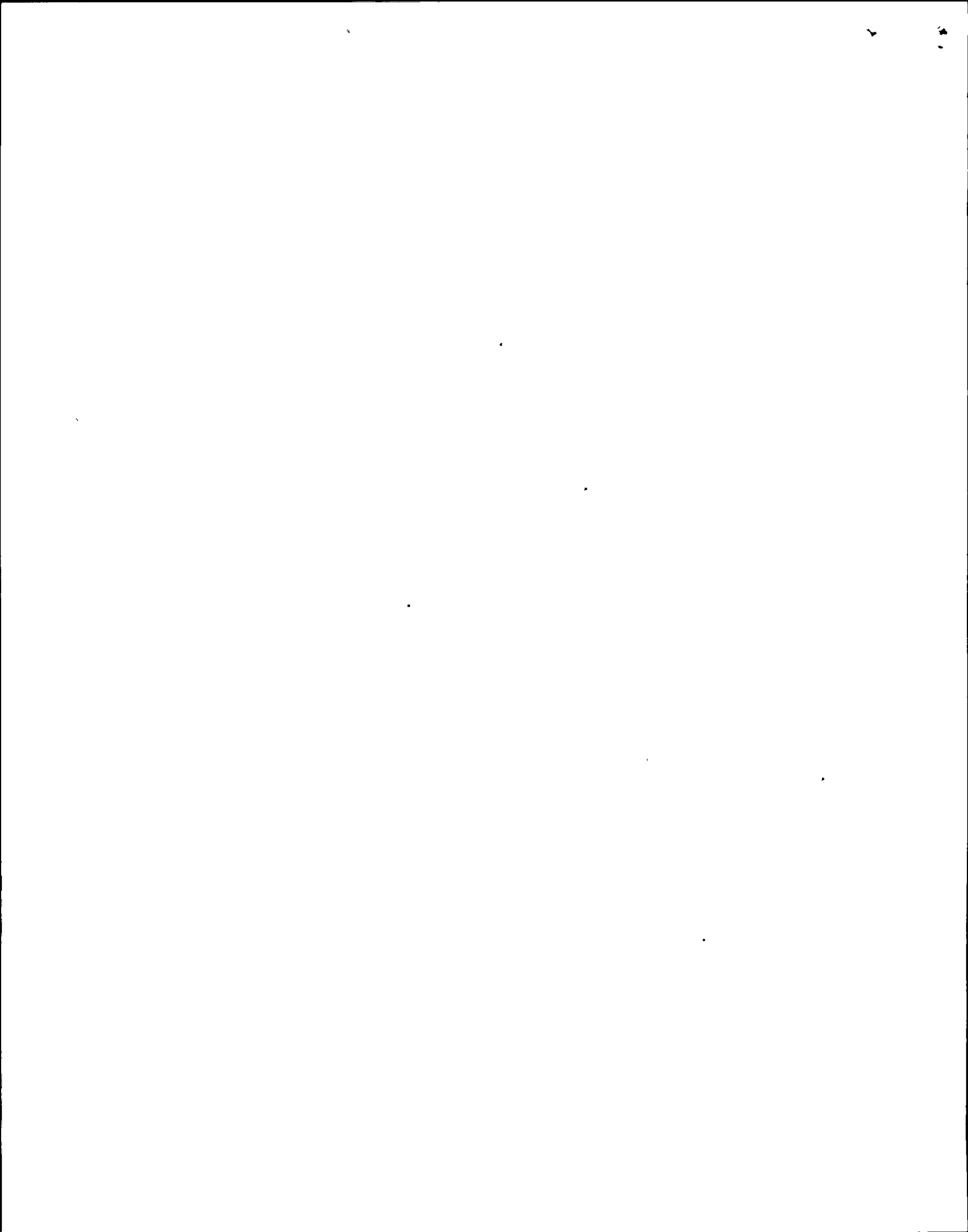
MULTIPLE CHOICE			
001	d	023	a
002	b	024	a
003	c	025	b
004	c	026	d
005	d or b <i>DA</i>	027	a
006	b	028	a
007	d	029	d
008	a	030	a
009	a	031	c
010	b	032	b
011	b	033	a
012	c	034	b
013	d	035	a
014	b	036	b
015	c	037	a
016	a	038	c
017	b	039	d or a <i>DA</i>
018	c	040	d
019	a	041	c
020	c	042	d
021	d	043	b
022	d	044	b
		045	a



A N S W E R K E Y

- 046 c
- 047 a
- 048 a
- 049 d
- 050 d
- 051 a
- 052 d
- 053 c
- 054 a
- 055 ~~b~~ ^{Pa} C
- 056 a
- 057 b
- 058 d
- 059 a
- 060 c

(***** END OF EXAMINATION *****)



MaY 19, 1993

Mr. Thomas T. Martin
Regional Administrator
ATTN: Mr. Don Florek
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Martin:

This letter is to provide you with the attached comments regarding the LSRO Written examination given at Nine Mile Point Unit 2 on May 12, 1993.

Also attached are the security agreements from the LSRO examination and the Requalification Simulator Retake examination given the week of May 10, 1993.

Please contact Mr. Rick Slade at (315) 349-1300 if you have any questions or concerns.

Sincerely,



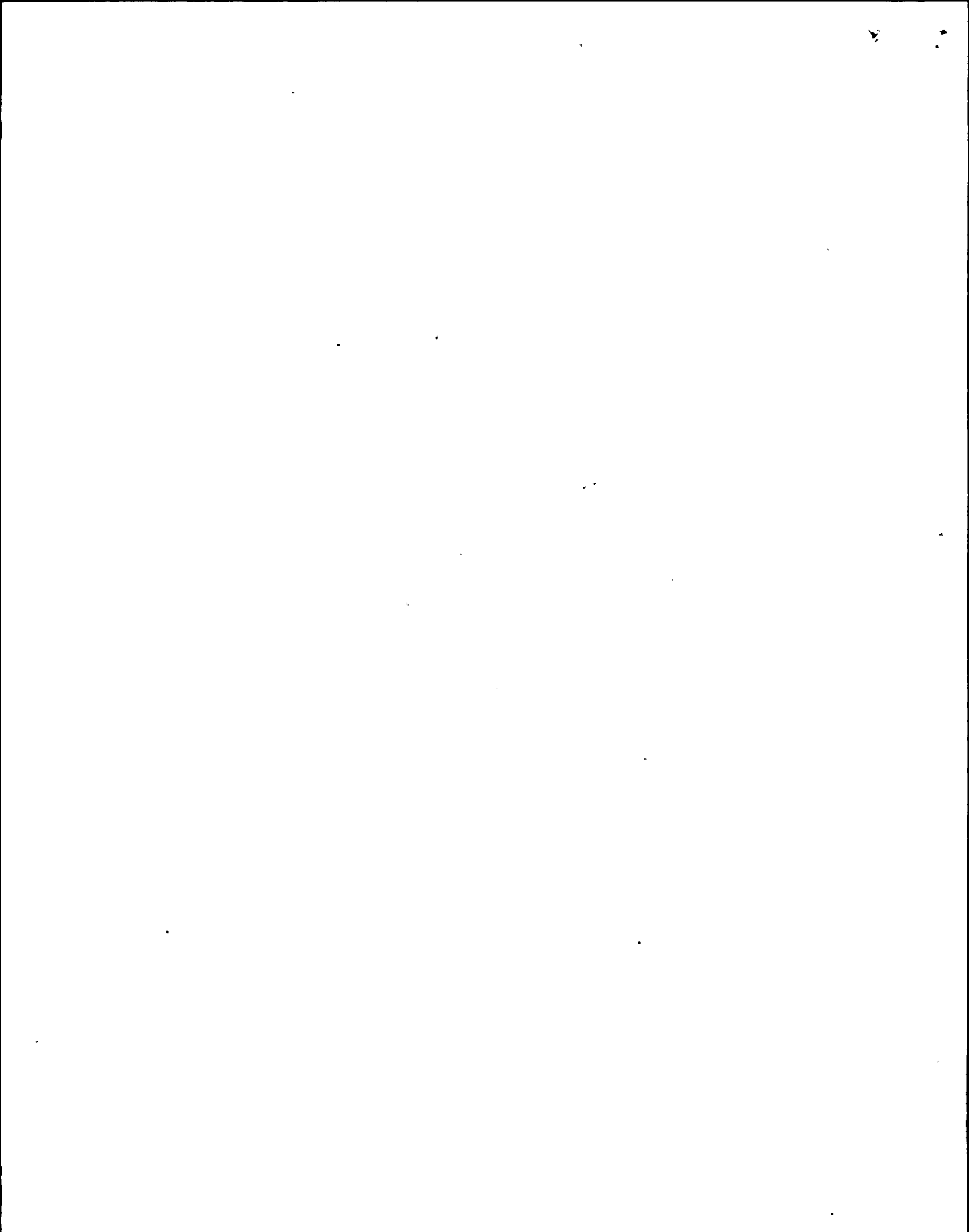
Robert G. Smith
Manager Training

RGS/RKS/crr

Attachments

03:13 02 AM '93

1 10:00 10:00 AM '93



**NINE MILE POINT UNIT 2
FACILITY COMMENTS AND RECOMMENDATIONS
FOR LSRO WRITTEN EXAMINATION 5/12/93**

Question 005 - For WHICH ONE of the following will K-effective remain unchanged?

- a. installing a fuel element during refueling
- b. operating at 100% power for six months
- c. cooling down from operating temperature to cold shutdown
- d. installing a neutron source in a new core

Answer: d

Reference:

01-LOT-1-002-302-01 EO 2.3
K/A: 292002K108 (2.7/2.8)

Comment 005:

We agree with answer "d" and additionally would like to point out that answer "b" would also provide a correct response to the question as written.

"Operating at 100% power for six months" would require that K-effective remains unchanged during that period in order to maintain power at the constant 100% level. (See Attachment #1).

Recommendation 005:

We recommend that both answers "b" and "d" be accepted as correct for this question.

Reference:

01-LOT-1-002-302-01, E.O. 2.3
GENERAL ELECTRIC CORP., BWR ACADEMIC SERIES REACTOR THEORY, Chapter 1, page 1-33.
SEE ATTACHMENT 1

CRITICALITY

The concept of K_{eff} is useful in determining the point at which the fission chain reaction would be self-sustaining, and in describing the trend of neutron population. The associated operational terms are defined as follows:

Critical. Critical is the point at which the fission chain reaction is self-sustaining, and the neutron population is constant.

When criticality has been reached, number of neutrons produced from thermal fission in the current generation is equal to number produced from thermal fission in the preceding generation. Thus, $K_{eff} = 1$.

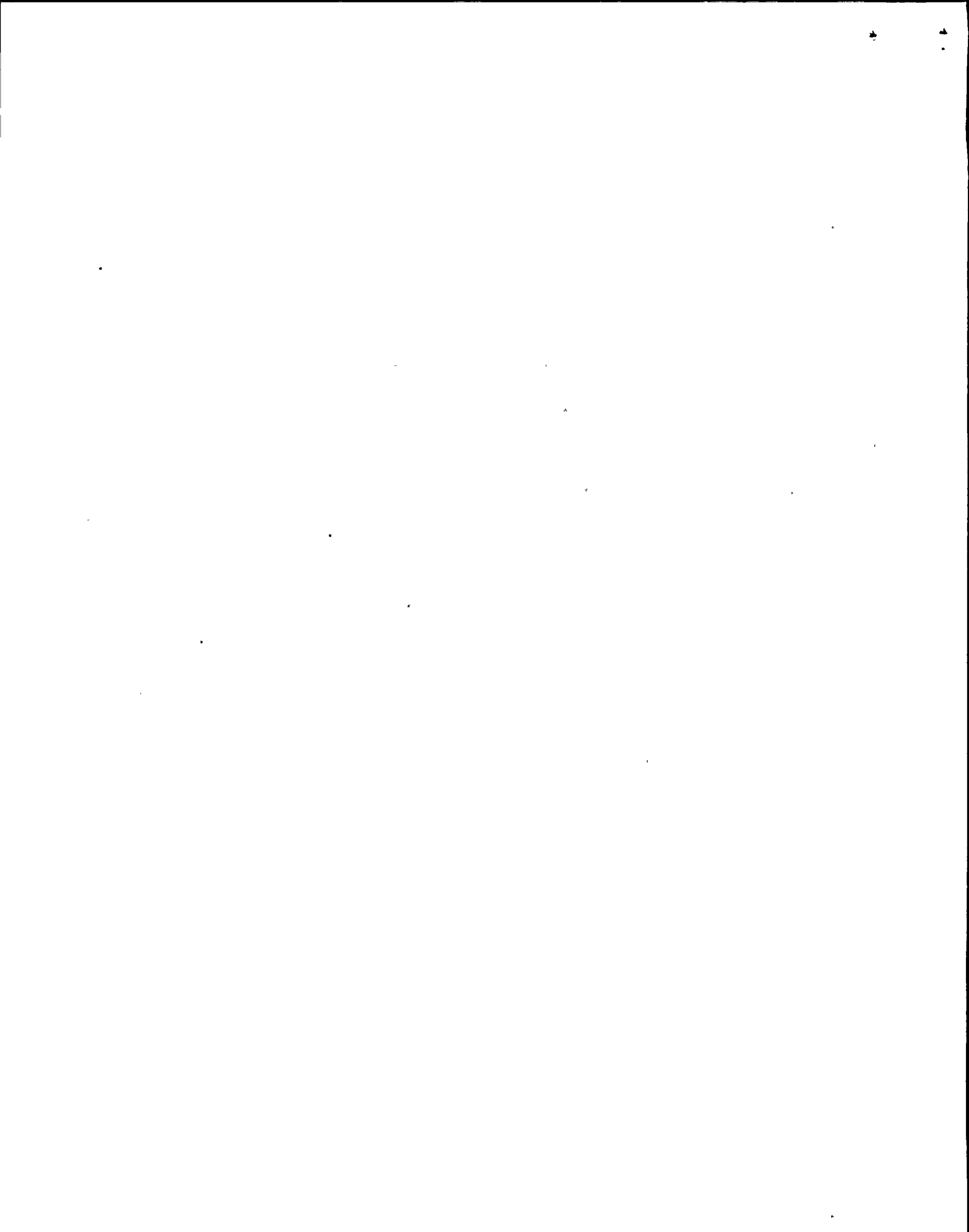
When $K_{eff} = 1$, the reactor is said to be critical. Number of neutrons added by fast and thermal fission is equal to number lost through leakage and nonfission absorption by resonance absorbers, fuel and nonfuel materials.

Recall for a moment the six-factor formula.

$$K_{eff} = \epsilon L_f p L_{th} f \eta \quad (\text{Equation 1-1})$$

No term gives an exact number for the point of criticality. In fact, each factor was only a probability for a neutron to continue through that related step in the neutron life cycle. Therefore, when $K_{eff} = 1$, and the reactor is critical, any neutron population could exist in the reactor. Since neutron population is directly related to power, it can be taken one step further to say that the reactor could be critical at any power level!

Remember, as long as a sufficient number of the initial neutrons in a generation can complete the neutron life cycle and produce the same initial number of neutrons for the next generation, K_{eff} is equal to 1, and the reactor is critical.



**NINE MILE POINT UNIT 2
FACILITY COMMENTS AND RECOMMENDATIONS
FOR LSRO WRITTEN EXAMINATION 5/12/93**

Question 039- Plant conditions are as follows:

*RHS "B" is in SDC

*Cooldown rate is approaching 100 deg. per hour.

*RHS Service water outlet temperature for the "b" Heat Exchanger is approaching its upper limit.

Which one of the following is your immediate action?

- a. Throttle open RHS Heat Exchanger 1B Inlet Bypass Valve 2RHS*MOV8B
- b. Throttle injection valve 2RHS*MOV40B if Recirculation Pump B is operating.
- c. Throttle shut RHS Heat Exchanger 1B Inlet Bypass valve 2RHS*MOV8B
- d. Throttle injection valve 2RHS*MOV40B if Recirculation Pump A is operating.

Answer: d

Reference:

N2-OP31 pg 34
K/A: 205000G014



Comment 039:

We concur that answer "d" could be considered to be the correct answer but submit that answer "a" is the preferred method. In accordance with OP-31 page 53 and 54 (see attachment #2), depending upon plant conditions, it is "permissible" to throttle 2 RHS*MOV 40B, but you are directed in sections 10.40 and 10.41 to use MOV*8B to "establish, maintain or control cooldown rate". The intent of the "NOTE" on page 53 is to provide operators with an alternate method of reducing the Service Water Outlet Temperature in the event that you already have 2 RHS*MOV 8B full open. Both of these activities would result in reduced Service Water Outlet Temperatures and throttling of MOV*8B also results in a reduced cooldown rate.

Recommendation 039:

We recommend that both answers "a" and "d" be accepted as correct.

Reference:

N2-OP-31, page 53, section 10.39.41 "NOTES" and page 54 section 10.40 and 10.41. SEE ATTACHMENT 2.

F. NORMAL OPERATION

(Cont)

- 10.39.36 Monitor Reactor water level for any indication of level drop. If level drops while performing Step 10.39.37 below THEN close 2RHS*MOV29, Pump 1B SDC Suction Vlv.
- 10.39.37 Open 2RHS*MOV29, Pump 1B SDC Suction Vlv.
- 10.39.38 Notify Radiation Protection to place 2SWP*RE238 on line.
 - Initiate N2-OSP-LOG-0001 to record RHS Heat Exchanger SWP Outlet temp and verify it is less than 130°F (record this temp once per hour).
- 10.39.39 Verify 2SWP*RE238 on line.
- 10.39.40 Open 2SWP*MOV908, Service Water Inlet to RHR-HX 1B.
- 10.39.41 Establish Service Water System flow while maintaining less than 7400 gpm Service Water flow by throttling open 2SWP*MOV338, Service Water Outlet to RHR-HX 1B as required.

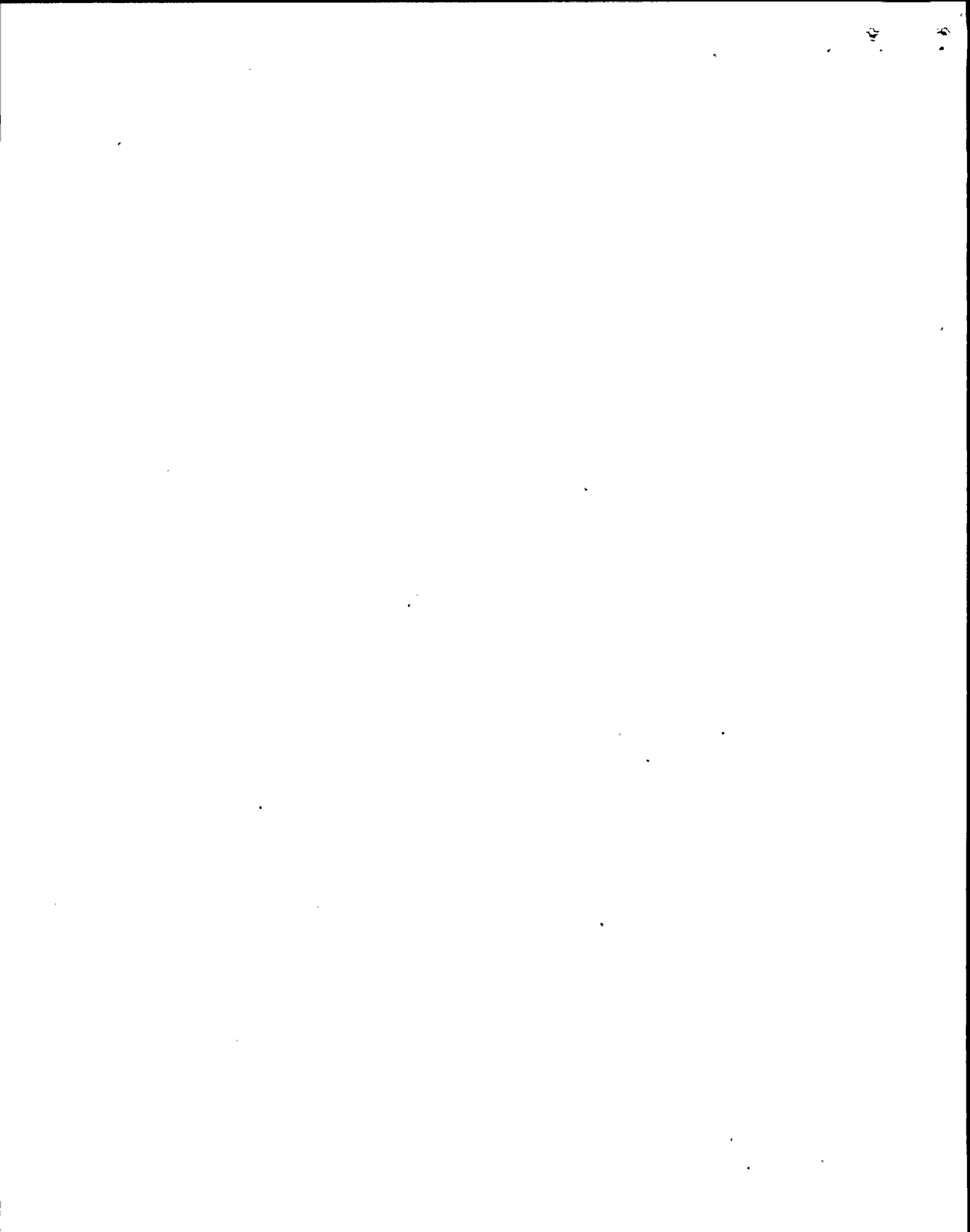
25539

- NOTES:
- 1. RHR Pump temperature should be $\leq 100^\circ$ F of Reactor water temperature prior to starting pump.
 - 2. To maintain $\leq 100^\circ$ F/Hr cool down rate and $\leq 130^\circ$ F RHR Service Water outlet temperature it is permissible to throttle 2RHS*MOV40B, SDC B Return. The Reactor Recirculation pump in the opposite loop must be running for RHR flows less than 7450 gpm but RHR flow shall be greater than 1500 gpm when RHR pump minimum flow protection is unavailable.

CAUTIONS

- 1. System flow of 1500 gpm must be established within 15 seconds after RHR pump start to avoid possible pump damage.
- 2. IF B RHR SDC Loop fails to operate THEN return A RHR SDC Loop to service.
- 3. IF both RHR SDC Loops fail THEN refer to Section H.10.0 of this procedure.

- 10.39.42 Start RHR*P1B, Residual Heat Removal Pump 1B.
- 10.39.43 EITHER establish B RHR System flow ≥ 1500 gpm within 15 seconds after RHR pump start by throttling open 2RHS*MOV40B, SDC B Return OR trip B RHR Pump.
- 10.39.44 Establish approximately 7450 gpm RHR flow by throttling open 2RHS*MOV40B, SDC B Return.



F. NORMAL OPERATION (Cont)

10.39.45 WHEN SDC is operating THEN verify closed Main Turbine Bypass Valves.

CAUTION

Reactor cool down rate shall be maintained less than 100° F/Hr.

10.40 Adjust cool down rate by throttling the following valves as required:

10.40.1 2RHS*MOV88, Heat Exchanger Inlet Bypass Vlv

10.40.2 2RHS*MOV104, Rx Head Spray

CAUTION

Less than 130° F RHR Service Water outlet temperature indication shall be maintained on point 5 of E12-R601 Recorder.

10.41 Throttle the following valves as necessary to establish or maintain cool down rate:

10.41.1 2RHS*MOV88, Heat Exchanger Inlet Bypass Vlv

10.41.2 2SWP*MOV33B, RHR-HX Service Water Outlet Valve

10.42 To comply with Technical Specifications perform applicable sections of N2-OSP-RCS-001, RCS PRESSURE/TEMPERATURE VERIFICATION

10.43 WHEN SDC B has been established THEN notify Radiation Protection to verify secondary containment controls are adequate by performing general access area gamma survey

10.44 Notify Chemistry to perform N2-CSP-5V as necessary

10.45 Verify open 2RHS*MOV12A, Heat Exchanger IA Outlet

10.46 Notify Radwaste post SDC flush will be commencing on SDC Loop A

10.47 Notify Radiation Protection to verify radiological controls are adequate in drain path access areas by performing general access area gamma survey

10.48 Clear Markup on 2RHS*MOV4A, RHS*PIA Minimum Flow Vlv

10.49 Place in ON breaker 20C, RHR Pump IA Minimum Flow at 2ENS*MCC103C

NINE MILE POINT UNIT 2
FACILITY COMMENTS AND RECOMMENDATIONS
FOR LSRO WRITTEN EXAMINATION 5/12/93

Question 055- The Refuel Floor ARM alarms. You are dressed in double protective clothing. The situation requires urgent evacuation of the refuel floor. WHICH ONE (1) of the following actions is required by procedure prior to proceeding to the access control area?

- a. Proceed directly without removing protective clothing at the step-off pad.
- b. Remove only shoe covers at the step-off pad.
- c. Remove one set of protective clothing at the step-off pad.
- d. Remove both sets of protective clothing at the step-off pad.

Answer: b

Reference: EPIP-EPP-21, Rev. 00, 8.1.d, p.5
K/A:294001K105 (3.2/3.5)

Comment:

Answer "b" does not reflect the verbiage or intent of EPIP-EPP-21 section 8.1.d which states "Personnel in protective clothing should remove the outermost set at the job site if they are wearing a double set. If they are wearing only one set they should wear this pair to the nearest step-off pad/access control station outside the effected area, where they should monitor and change into a clean set of clothing. In all cases, shoe covers should be removed at the step-off pad prior to leaving the area.

NOTE: When local evacuation is not urgent, personnel working in protective clothing should change into personal clothing in the normal manner when leaving the work area."



Recommendation:

We recommend that the key be changed to reflect the correct response which is answer "c".

Reference:

EPIP-EPP-21, page 5, section 8.1.d
SEE ATTACHMENT 3.

ATTACHMENT 3

6.0 LIMITATIONS AND ACTIONS

- 6.1 This procedure EPIP-EPP-21 requires actions in response to radiation emergencies at the site. These actions include appropriate notifications and/or specific actions to correct problems.
- 6.2 Specific personnel actions are contained in Sections 8.0, 9.0, 10.0, 11.0, and in the Figures of this procedure. These Sections should be reviewed to obtain information on the specific personnel actions.
- 6.3 As per Security and Safeguards Contingency Plan and Implementing Procedures, Security personnel may be instructed to remain at their post (e.g. restricting access to the affected area(s)) until specifically notified by the SSS.

7.0 PREREQUISITES

None

8.0 HIGH RADIATION - LOCAL AREA

Conditions

This radiological emergency condition is usually signaled by an ARM (Area Radiation Monitor) alarm, although unusual conditions resulting in a high radiation area could also be discovered by a routine or special radiation survey. This condition is considered an Operational Event and should be treated as such until the alarm is cleared or the event is escalated to a higher level.

NOTE: Redundant radiation monitors that monitor the same system or area should be considered as one alarm condition.

8.1 Personnel in the Area

- a. Leave the area indicated by the verbal announcement, warning any other people in the area to leave.
- b. In an area with a local alarm, leave the general area where the monitor is located as soon as the local alarm sounds. Once the verbal announcement is made, be sure that you are outside the specified area.
- c. Do not enter an area where a local alarm is sounding unless such an entry is approved by the Station Shift Supervisor or a Radiation Protection supervisor.

8.1 (Cont)

- d. Personnel in protective clothing should remove the outermost set at the job site if they are wearing a double set. If they are wearing only one set, they should wear this pair to the nearest step-off pad/access control station outside the affected area, where they should monitor and change into a clean set of clothing. In all cases, shoe covers should be removed at the work area step-off pad prior to leaving the area.

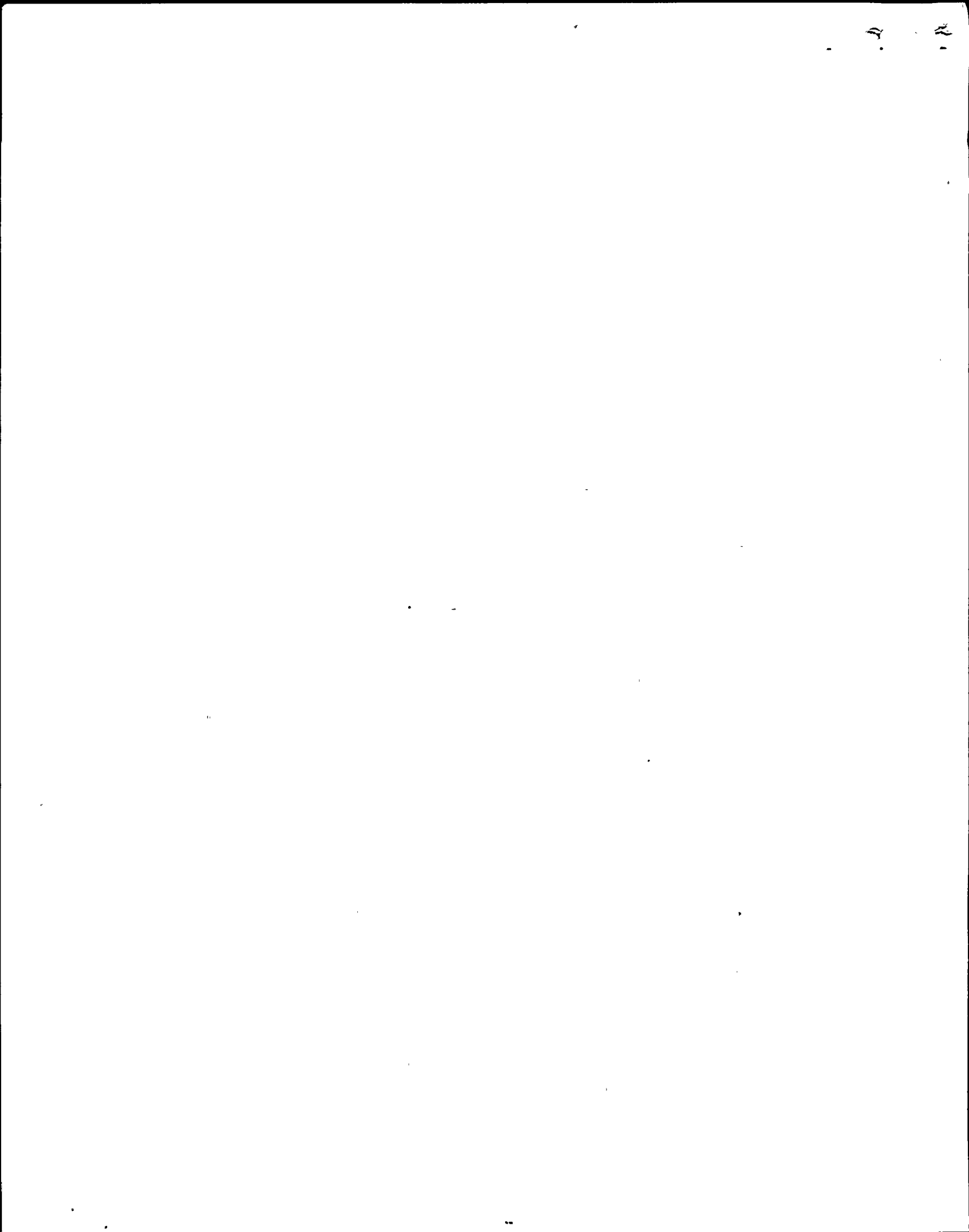
NOTE: When local evacuation is not urgent, personnel working in protective clothing should change into personal clothing in the normal manner when leaving the work area.

8.2 Chief Shift Operator (See CSO Checklist, EPIP-EPP-21, Figure 1)

- a. Identify which ARM has alarmed.
- b. Check for any apparent change in any plant operating parameter which could result in the radiation level. Determine if the reactor is in a safe operating condition.
- c. Unless it is a Transversing In-Core Probe (TIP) alarm, or an alarm due to a pre-planned evolution, sound the station alarm for approximately 10 seconds and make the announcement stated on the CSO Checklist, EPIP-EPP-21, Figure 1, Item #3.
- d. Based on Control Room indications, if a local evacuation is not urgent, instruct personnel via the P.A. system to change into personal clothing in the normal manner when leaving the work area. Repeat alarm and announcement. Use "Alarm Instruct" button, or otherwise ensure that all PA System switches (indoor and outdoor) are in the "on" position.
- e. Notify Station Shift Supervisor of the details of the alarm.
- f. Initiate any "Special or Emergency Operating Procedures" required.
- g. Notify Security Force of this condition and that no action is required by the force in response to this condition.

8.3 Unit Supervisor Radiation Protection (or on-call Chemistry and Radiation Management Department supervisor)

- a. Normal Hours:
 1. Report to Control Room upon hearing alarm and announcement.
 2. Dispatch personnel to perform Radiological survey(s) and investigate the affected area.
 3. Evaluate survey information and provide results to SSS.



ATTACHMENT 3

NRC RESOLUTION OF FACILITY COMMENTS

- Question 5 Accept facility comments. Answer key will be revised to accept both "b" and "d" as correct.
- Question 39 Accept facility comments. Answer key will be revised to accept both "a" and "d" as correct.
- Question 55 Accept facility comments. Answer key will be revised to change the correct answer to "c".

ATTACHMENT 4

SIMULATION FACILITY REPORT

Facility Licensee: Niagara Mohawk Power Corporation (Nine Mile Unit 2)

Facility Docket No: 50-410

Requalification Examination Administered on May 12, 1993

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

During the conduct of the simulator portion of the requalification examinations, no items were observed.

