U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-237/OL-95-02(DRS)

Docket Nos. 50-237; 50-249

License Nos. DPR-19; DPR-25

Licensee: Commonwealth Edison Company Opus West III 1400 Opus Place - Suite 300 Downers Grove, IL 60515

Facility Name: Dresden Nuclear Power Station, Units 2 and 3

Examination Administered At: Morris, IL

Examination Conducted: Week of July 31, 1995

Examiners: D. Prawdzik, LITCO S. Willoughby, LITCO

Chief Examiner:

ui R. Mortig D. McNeil

Date

Approved By:

mBurd T. M. Burdick, Chief

Operator Licensing Section

Examination Summary

<u>Examinations were administered during the week of July 31, 1995 (Report No. 50-237/OL-95-O2)(DRS)</u>: Written and operating examinations were given to three (3) individuals applying for Reactor Operator (RO) licenses and to four (4) individuals applying for Senior Reactor Operator (SRO) licenses. None of the individuals applying for SRO licenses were previously licensed at Dresden Units 2 and 3.

Initial Licensed Operator Examination Results:

One RO license candidate failed the written section of the examination. One SRO license candidate failed the written SRO exam. One SRO candidate failed the written and dynamic simulator portions of the examination. All other individuals taking the examinations (RO and SRO) passed all portions of their respective examinations and will be issued operator licenses.

The following is a summary of the strengths and weaknesses noted during the performance of this examination.

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STRENGTHS/WEAKNESSES:

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Strengths:

- RO use of and compliance with operating procedures during the Job Performance Measures (JPMs) and the dynamic simulator examinations. (See section 3.b.1, 3.c.1)
- Attentiveness to control room panels during the dynamic simulator scenarios. (See section 3.c.1)

Weaknesses:

 Operator performance on the written portion of the license examination. (See section 3, Training Program Observations)

REPORT_DETAILS

1. <u>Examiners</u>

*D. McNeil, Chief Examiner, NRC, Region III *D. Prawdzik, LITCO *S. Willoughby, LITCO

2. <u>Persons Contacted</u>

<u>Facility</u>

*M. Heffley, Station Manager
*T. O'Connor, Operations Manager
*R. Weidner, Training Supervisor
*P. Holland, Regulatory Assurance Supervisor
*J. Kluch, Operations Training Supervisor
*D. Wallick, Superintendent, Work Control
*R. Reisner, Operations Training Instructor
*P. Sitts, Operations Training Instructor
*D. Dransfeldt, Operations Training Instructor

U. S. Nuclear Regulatory Commission (NRC)

M. Leach, Senior Resident Inspector, Dresden *A. Stone, Resident Inspector, Dresden

*Denotes those present at the exit meeting on August 4, 1995.

3. <u>Training Program Observations</u>

The candidates submitted for examination this year did not perform as well as candidates examined in previous years. During the 1991, 1992 and 1993 license examinations, the candidates appeared to be strong, well prepared candidates. The 1994 candidates were weak on the written examination, but well prepared for the Job Performance Measures (JPMs) and dynamic simulator scenario portions of the examination. The 1995 candidates were weaker than the 1994 candidates in all examination areas. This trend indicates a significant decline in the license candidate training process.

Although three candidates failed the written examination, this was not the only place where lack of preparation was identified. All examiners involved in the examination this year indicated that there was no area of substantial strength noted during the examination except those of attentiveness to control room panels and the use of procedures by the reactor operators. Candidate diagnostic skills and event response had declined.

An example of the decline in diagnostic skills is indicated by the following: during one of the dynamic scenarios, a loss of offsite power occurred. Two emergency diesel generators (EDGs) started. The Unit 2 EDG started and energized its respective bus. The U2/3 EDG started but

its output breaker failed to close. The immediate response by operators was to trip the 2/3 EDG. At no time during the remainder of the scenario was a diagnostic performed to determine the status of the tripped EDG. During another scenario, operators were required to prevent and inhibit injection into the reactor vessel during an emergency depressurization. Reactor Pressure Vessel (RPV) water level began to rise indicating an injection source. The only pumps running at the time that could inject into the vessel were the condensate pumps and the residual heat removal pumps. RPV water level reached +191" before the operators were able to determine and isolate the injection source.

Event response has also been affected. During one scenario the recirc pumps began an uncontrolled runback (inserted malfunction). Instead of immediately locking the scoop tubes and reporting his action, the RO at the panel requested permission from the SRO to lock the scoop tubes. The SRO denied the RO permission to lock the scoop tubes. This was followed a few seconds later by the RO locking the scoop tube, contrary to the direction given by the SRO. In another instance, an SRO candidate performing the duties of the CO5 operator was directed to initiate Standby Liquid Control (SLC) when hard card use was allowed. Although SLC was ultimately initiated, the candidate failed to follow the procedure given on the hardcard and delayed the initiation of SLC because of the sequence he used.

The addition of CRTs to simulate the back panels in the Dresden simulator was noted as an improvement in the Dresden training program. With the addition of the CRTs, operators went to the back panel area for certain readings instead of to the instructor's console. This method provides a better challenge to operators to find, read, interpret and apply the information available on control room back panels when in the simulator.

The training staff appeared to be knowledgeable and were courteous throughout the examination process. They maintained a professional attitude through out the examination process.

The following information is provided for evaluation via your SAT based training program. No response is required.

a. <u>Written Examination</u>

The initial license examination given was a standard 100 question examination as prescribed by NUREG 1021, Revision 7. The facility indicated they had no formal comments on the written examination. One question was deleted from the examination when it was determined there was no correct answer provided for the question.

Candidate performance on the written examination was weak based on the high failure rate and low scores of those candidates that passed the examination. The two SROs that failed the written examination also had difficulty locating the correct answers to open reference questions asked in the JPM and Administrative sections of the examination, confirming the weak performance in the knowledge area for those two candidates.

1. <u>Strengths</u>:

No strengths were noted in this area.

2. <u>Weaknesses</u>:

Analysis of the missed written exam questions revealed weakness in the following areas: (weakness is noted if a majority of candidates missed a given question)

- Entry requirements into a very high radiation area.
- Mechanical Vacuum Pump operating limitations
- Setting Secondary Containment
- Starting prerequisites for the U-2 EDG
- Relationship between Containment isolation signals and reactor protection signals
- Relationship between torus and drywell pressure during accident conditions
- Electromatic Relief vacuum breaker operation
- Cooldown rate calculations
- Isolations that can be defeated per DEOP 400-2

b. <u>Job Performance Measures (JPMs)</u>

The performance of all seven candidates was judged to be satisfactory in this area. Several individual weaknesses were noted during the hands-on portion of the JPM examination, such as using out of service equipment as if it were operable and improperly conducting control rod coupling checks. As previously noted, both SRO candidates that failed the written examination had difficulty using reference materials to determine answers to the open reference questions associated with the JPMs and the administrative section of the examination. The remaining five candidates did well answering JPM questions.

1. <u>Strengths</u>:

ROs were familiar with many of the procedures and were able to promptly retrieve and execute the correct procedure in nearly all instances. They did not have to refer to master index lists and understood all steps of the procedures that needed to be executed.

2. <u>Weaknesses</u>:

Operators were slow to involve management when problems were encountered. For example, operators were directed to parallel an Emergency Diesel Generator (EDG) to its respective bus as a JPM. A malfunction was inserted to prevent the EDG breaker from closing. Few of the operators informed supervisors when the breaker initially failed to close. The operators would attempt a second and sometimes a third closure of the EDG breaker before informing the Unit Supervisor (SRO) of the breaker failure.

c. <u>Simulator Scenarios</u>

Dynamic Scenarios - six of seven operators were graded as satisfactory in the dynamic simulator scenarios. Four scenarios were used during the two days of dynamic simulator scenarios.

1. <u>Strengths</u>:

ROs consistently retrieved and executed the correct procedures for the conditions they were given. Operators were familiar with and went to the correct panel locations to find the indications they needed or operate systems required to be in service.

Operators consistently monitored the control room panels and were careful to designate someone in the simulator at all times to have responsibility for panel monitoring. Few malfunctions got past the initiation phase before they were detected by the operator responsible for panel monitoring at the time.

The crews consistently used three-way, closed-loop communications. Operators corrected communications errors when they occurred.

The trainers assigned to assist the examination team during dynamic simulator examinations were well prepared and contributed to the success of the examination by providing realistic, timely cues when required by the scenarios.

2. Weaknesses:

Diagnostic skills and event response. Comments for these two items can be found in Section 3, Training Program Comments.

5. <u>Operations, Security, Rad Protection, Other</u>

a. <u>Strengths</u>:

Training, Operations, and Security were all professional in their dealings with the examination team. The examination team was able to process through the gate house and into the plant without delay. The examination team was able to obtain all the materials needed for efficient administration of the examination.

The training department was willing to attempt to transmit examination development material (operating procedures, etc.) to the Chief Examiner via the Internet through e-mail. This process was successfully completed, eliminating the need to make an additional copy of reference material.

b. <u>Weaknesses</u>:

No significant weaknesses were noted in this area.

6. <u>Simulator Observations</u>:

Several simulator problems were identified. See enclosure 3 for details of the deficiencies noted.

7. <u>Exit Meeting</u>

- a. An exit meeting with the Dresden Nuclear Station management was held at the Dresden training offices on August 4, 1995. Those attending the meetings are listed in Section 2 of this report. The following items were discussed during the exit meeting:
 - Strengths and weaknesses noted in Section 3 of this report.
 - The high number of written examination failures.

Enclosure 2

SIMULATION FACILITY REPORT

Facility Licensee:	Dresden Station	
Facility Docket No.	50-237, 50-249	
Operating Tests Adm	inistered on: <u>08/01-04/1995</u>	

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

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

<u>DESCRIPTION</u>

ITEM

Main Generator While attempting to excite and parallel the main generator to the grid, the voltage regulator did not respond as described in DGP 01-01.

MSIV Closure Power supply changes have been made in the plant that apparently have not been made in the simulator. On a loss of ac power to the Main Steam Line Radiation Monitors, the Main Steam Isolation Valves should shut. The simulator's electrical distribution model installed as of the date of the examination did not accurately reflect the changes made in the plant.

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Examinations and Answer Keys (RO/SRO)

ES-401

U. S. NUCLEAR REGULATORY COMMISSION SITE-SPECIFIC WRITTEN EXAMINATION

APPLICANT INFORMATION							
Name: MASTER EXAMINATION	Region: III						
Date: July 31, 1995	Facility/Unit: DRESDEN STATION						
License Level: RO	Reactor Type: GE						

INSTRUCTIONS

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 percent. Examination papers will be picked up 4 hours after the examination starts.

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

Applicant's Signature

RESI	JLTS
Examination Value	<u> </u>
Applicant's Score	Points
Applicant's Grade	Percent

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

M	IULTI	PLE	CHOI	CE			023	a	b	С	d	
001	a	b	с	d			024	a	b	С	d	
002	a	b	с	d			025	a	b	с	d	<u>.</u>
003	· a	b	с	d			026	a	b	C	d	
004	a	b	с	d			027	a	b	с	ď	
005	a	b	с	d			028	a	b	с	d	
006	a	b	c	d			029	a	b	с	d	
007	[.] a	b	с	ď	<u> </u>		030	a	b	с	d	
008	a	b	С	d			031	a	b	с	d	
009	a	b	с	d			032	a	b	С	d	
010	a	b	с	d			033	a	b	С	d	
011	a	b	С	d			034	a	b	С	d	
012	a	b	С	d			035	a	b	С	d	
013	a	b	С	ď			036	a	b	С	d	
014	a	b	с	d			037	a	b	С	d	
015	a	b	С	d			038	a	b	с	d	
016	a	b	с	d			039	a	b	с	d	
017	a	b	с	d			040	a	b	с	d	
018	a	b	с	d .	<u> </u>		041	a	b	с	d	
019	a	b	с	d			042	a	b	с	d	·
020	a	b	с	d			043	a	b	с	d	
021	a	b	с	d	·		044	a	b	с	d	
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ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

Ν	ULTI	PLE	CHOI	CE			068	a	b	С	d	
046	a	b	С	d			069	a	b	с	d	<u> </u>
047	a	b	С	ď	<u> </u>		070	a	b	с	d	
048	a	b	С	d			071	a	b	С	d	
049	a	b	с	d			072	a	b	с	d	
050	a	b	С	d			073	a	b	С	d	
051	a	b	с	d			074	a	b	с	d	
052	a	b	с	d			075	a	b	с	d	
053	a	b	с	d .			076	a	b	С	d	
054	a	b	с	ď			077	a	b	С	d	
055	a	b	С	d			078	a	b	с	d	
056	a	b	С	d	<u> </u>		079	a	b	с	d	<u></u>
057	a	b	С	d			080	a	b	С	d	
058	a	b	с	d			081	a	b	с	d	
059	a	b	С	d			082	a	b	с	d	
060	a	b	с	d			083	a	b	с	d	
061	a	b	с	d			084	a	b	с	d	
062	a	Ь	Ċ	d			085	a	b .	с	d	
063	a	b	С	d			086	a	b	С	d	
064	a	b	с	d			087	a	b	С	d	
065	a	b	с	d	<u> </u>		880	a	Ь	с	d	<u> </u>
066	a	b	с	d	<u> </u>		089	a	b	С	d	
067	a	b	C	d		•	090	a	b	Ċ	d	

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

091	a	b	С	d	<u> </u>
092	a	b	с	d	
093	a	b	с	d	
094	a	b	с	d	
095	a	b	с	d	<u> </u>
096	a	b	с	d.	
097	a	b	с	d	
098	a	b	С	d	
099	a	b	с	d	
100	а	h	C	d	

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

Policies and Guidelines for Taking NRC Written Examinations

1. Cheating on the examination will result in a denial of your application and could result in more severe penalties. After you complete the examination, sign the statement on the cover 2. sheet indicating that the work is your own and you have not received or given assistance in completing the examination. 3. To pass the examination, you must achieve a grade of 80 percent or greater. The point value for each question is indicated in parentheses after the 4. question number. 5. There is a time limit of 4 hours for completing the examination. 6. Use only black ink or dark pencil to ensure legible copies. 7. Print your name in the blank provided on the examination cover sheet and the answer sheet. 8. Mark your answers on the answer sheet provided and do not leave any question blank. 9. If the intent of a question is unclear, ask questions of the examiner only. 10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating. 11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet. 12. After you have turned in your examination, leave the examination area as defined by the examiner.

QUESTION: 001 (1.00)

The following conditions exist:

- -- An automatic TIP trace is in progress.
- -- A spurious Group II isolation signal is received.

Select the required operator response for the TIP system.

- a. Place the Manual Control Switch to "REV".
- b. Place the Manual Valve Control Switch to "Closed".
- c. Verify the In-Shield light is illuminated and the Ball Valve is closed after 5 minutes.
- d. Verify that the Ball Valve is open and that the Shear Valve has closed after 5 minutes.

QUESTION: 002 (1.00)

During automatic Isolation Condenser system operation, which of the following is the preferred order of makeup water supply to the shell side of the Isolation Condenser?

- a. IC Makeup System, Clean Demin Water, Fire Main, Condensate Transfer System
- b. IC Makeup System, Clean Demin Water, Condensate Transfer System Fire Main
- c. Clean Demin Water, IC Makeup System, Condensate Transfer System Fire Main
- d. Clean Demin Water, IC Makeup System, Fire Main, Condensate Transfer System

QUESTION: 003 (1.00)

If Bus 24-1 becomes deenergized and is NOT reenergized, which of the following describes the response of MCC 28-7 and MCC 29-7?

- a. Both MCCs remain energized without losing power.
- b. MCC 29-7 will de-energize and MCC 28-7 will remain energized.
- c. MCC 28-7 will de-energize and MCC 29-7 will remain energized.
- d. Both MCCs lose power and re-energize after a 20 second time delay.

QUESTION: 004 (1.00)

Select the MINIMUM water level allowed ABOVE irradiated fuel in the Unit 2 or Unit 3 Spent Fuel Pool.

- a. 21 feet
- b. 23 feet
- c. 25 feet
 - d. 33 feet

QUESTION: 005 (1.00)

Which of the following is the full core display indication of a drifting control rod?

- a. Red light
- b. Blue light
- c. White Light
- d. Amber light

QUESTION: 006 (1.00)

Which of the following reactor vessel internal components is located inside the shroud above the top fuel guide?

- a. Feedwater sparger
- b. Core Spray sparger
- c. Break Detection Low Pressure tap
- d. Standby Liquid Control discharge nozzle

QUESTION: 007 (1.00)

Which of the following describes how operation of the Backup Scram Solenoid Valves result in a reactor scram? When actuated, the Backup Scram Solenoid Valves:

- a. relieve hydraulic control unit drive pressure to the exhaust header.
- b. isolate and vent the air supply to the Scram Dump Valves allowing them to open and vent the scram valves.
- c. isolate and vent the air supply to the hydraulic control units and scram discharge volume vent and drain valves.
- d. relieve the withdraw side of the control rod to the exhaust header allowing reactor pressure to scram the rod.

QUESTION: 008 (1.00)

The following conditions exist:

- A valid reactor low water level signal started the Standby Gas Treatment System.
- -- SBGT Train "A" is in PRIMARY and SBGT Train "B" is in STANDBY.

Which of the following will initiate SBGT Train "B"?

a. Loss of power to Train A heater.

b. High radiation inside the drywell, 100 R/hr.

c. Refueling floor radiation level of 100 mr/hr.

d. Any subsequent initiation signal other than low water level.

QUESTION: 009 (1.00)

The following conditions exist:

- -- The Unit 2 is operating at 80% power.
- -- The Standby Gas Treatment System (SBGT) is in the normal standby lineup.
- -- A valid system initiation signal on Unit 2 High Drywell pressure is received.

SBGT will AUTOMATICALLY begin to process air from the reactor building ventilation system and:

a. the ACAD system.

b. NO other systems.

- c. the HPCI gland exhauster.
- d. the drywell/torus atmosphere.

QUESTION: 010 (1.00)

With the reactor at 100% power, which of the following will cause a PCIS isolation WITHOUT resulting in a reactor scram?

- a. High drywell radiation
- b. Main steam line high flow
- c. Low main steam line pressure
- d. Main steam high high radiation

QUESTION: 011 (1.00)

Which of the following Emergency Diesel engine/generator trips is bypassed during an Auto start condition?

- a. Overspeed
- b. Reverse power
- c. Fail to start
- d. Gen high differential current

QUESTION: 012 (1.00)

Which of the following will automatically trip the Condenser Mechanical Vacuum Pump?

- a. Mode switch in RUN.
- b. Offgas HIGH radiation.
- c. Main steam line HIGH HIGH radiation.
- d. Turbine building exhaust HIGH radiation.

QUESTION: 013 (1.00)

If BOTH recirculation pump seals on one pump fail, the MAXIMUM expected leak rate to the drywell will be limited to approximately:

- a. 60 gpm by the breakdown bushing.
- d. 0.75 gpm by the breakdown bushing.
- b. 0.9 gpm by the orifice in the leakoff line.
- c. 3.0 gpm by the orifice in the leakoff line.

QUESTION: 014 (1.00)

The "Shorting Links" to the neutron monitoring protective logic:

- a. are installed during refueling outages to short out the bypass for the SRM high-high scram.
- b. are removed during refueling outages to allow the SRM high- high scram to be functional.
- c. short out non-coincident logic requiring a 1 of 2 twice logic for the SRM high-high to cause a scram.
- d. allow all the SRM inputs to be bypassed during a refueling outage allowing the dunking chamber to feed the SRM circuitry.

QUESTION: 015 (1.00)

Which of the following rod motion controls will bypass the "settle" function of the HCU directional control valve 305-120?

- a. Notch In
- b. Emergency In
- c. Continuous In
- d. Rod Out Notch Override

Select the MINIMUM condition for which the Rod Worth Minimizer will automatically enforce adherence to the correct control rod operating sequence during power reduction?

(Assume: it is NOT manually bypassed and the rod blocks are NOT enabled to 100% power.)

- a. Average APRM power below 20%.
- b. Steam flow below 20% OR feed flow below 10%.
- c. Steam flow below 20% AND feed flow below 10%.
- d. Feed flow below 10% AND average APRM power below 20%.

QUESTION: 017 (1.00)

During a normal control rod insertion, what prevents drive water from recirculating back into the cooling water header?

- a. The system cooling water header pressure is greater than drive water pressure.
- b. The cooling water supply header to the hydraulic control unit includes a check valve.
- c. The control rod drive stabilizing valve closes on an "Insert" signal thus isolating the cooling water header.
- d. The cooling water header isolation valve (104) to the hydraulic control unit closes when "Insert" is selected.

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QUESTION: 018 (1.00)

Which of the following describes the response of a control rod if the ball check valve in the drive mechanism will NOT properly seat?

The control rod will:

- a. scram faster than normal
- b. scram slower than normal
- c. insert faster than normal
- d. withdraw faster than normal

QUESTION: 019 (1.00)

A strip chart must be removed for test data analysis. Select the MINIMUM information that is required to be recorded on the chart.

- a. Date/time chart removed, name of person removing chart section.
- b. Reason for chart removal, date/time chart removed, name of person removing chart section.
- c. Reason for chart removal, alternate methods used to record chart parameter, name of person removing chart section.
- d. Date/time chart removed and replaced, name of person removing chart section, alternate methods used to record chart parameter.

QUESTION: 020 (1.00)

Which of the following constitutes the MINIMUM requirements for a full set of electrical protective clothing?

- a. Rubber gloves, helmet with attachable face shield or spark guard, graylite coat
- b. Rubber gloves, rubber shoes, helmet with attachable face shield or spark guard, graylite coat
- c. Leather gauntlets, rubber gloves, helmet with attachable face shield or spark guard, graylite coat
- d. Leather gauntlets, rubber gloves, safety glasses or goggles, helmet with attachable face shield or spark guard, graylite coat

QUESTION: 021 (1.00)

Entry is required into the Unit 2 Steam Jet Air Ejector Rooms. In preparation for this entry, hydrogen addition is tripped from full injection conditions. Radiation levels would be expected to return to normal non-injection values in approximately:

- a. 5 minutes.
- b. 10 minutes.
- c. 20 minutes.
- d. 40 minutes.

QUESTION: 022 (1.00)

Deviation from Technical Specifications is allowed under certain circumstances. Assuming that he/she is available, permission for such deviations must be obtained from the:

- a. Shift Manager
- b. Station Manager
- c. Unit Supervisor
- d. Field Supervisor

QUESTION: 023 (1.00)

When Daily Orders, Operating Orders and approved procedures provide conflicting information, which of the following applies? Daily Orders:

- a. take precedence over Operating Orders, but NOT approved procedures.
- b. never take precedence over Operating Orders or approved procedures.
- c. take precedence over Operating Orders, but only during the time frame that the Daily Orders are valid.
- d. and Operating Orders take precedence over approved procedures, but only for the time frame that the Orders are valid.

QUESTION: 024 (1.00)

In addition to the Unit Aux NSO turnover sheet, which of the following must the Unit Aux NSO review prior to assuming the shift?

- a. Unit Aux NSO log for previous 24 hours, DATR log, current daily orders
- b. Unit Aux NSO log for previous 24 hours, DATR log, LCO status board or log
- c. Unit Aux NSO log for previous four days, DATR log, LCO status board or log
- d. Unit Aux NSO log for previous 24 hours, Unit 2 & 3 NSO logs, LCO status board or log

QUESTION: 025 (1.00)

A discrepancy is noted while performing an independent verification. The person performing the verification should:

- a. immediately correct the discrepancy.
- b. immediately notify the Shift Supervisor.
- c. mark the lineup sheet to reflect the actual condition and continue with the lineup.
- d. request the Center Desk NSO provide another individual to verify that a discrepancy does exist.

QUESTION: 026 (1.00)

Which of the following operational checks verifies proper operation of the "one-rod-out" interlock prior to performing refueling operations?

- a. Any rod is fully withdrawn to position 48 at which time a rod block is initiated.
- b. Selecting any rod that is NOT fully inserted initiates a rod block.
- c. With any rod fully withdrawn to position 48, a second rod can NOT be withdrawn.
- d. With any rod withdrawn greater than position 02, a second rod initiates a rod block if withdrawn past position 02.

QUESTION: 027 (1.00)

If core submergence cannot be assured, "Adequate Core Cooling" can be maintained by initiating:

- a. core spray
- b. alternate SLC
- c. steam cooling
- d. head spray

QUESTION: 028 (1.00)

Which of the following require entry into DEOP 300-02?

- a. Off site release rate above the Alert level.
- b. Any area radiation level above maximum normal.
- c. Off site release rate above any isolation setpoint.
- d. Turbine building area temperature above maximum normal.

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QUESTION: 029 (1.00)

Which of the following DEOPs can be entered directly without first entering DEOP 100?

- a. 300-2
- b. 400-3
- c. 400-4
- d. 400-5

QUESTION: 030 (1.00)

The following conditions exist:

- -- A refueling outage is beginning.
- -- Shutdown cooling is in operation.
- -- A fuel cask is being moved in the reactor building.

Which of the following is applicable?

- a. The Unit 2/3 Diesel Generator must be operable.
- b. Both circuits of the Standby Gas Treatment System must be operable.
- c. Secondary containment integrity is ONLY necessary if the fuel cask contains spent fuel.
- d. Reactor water temperature must be maintained below 200°F with the reactor vented.

QUESTION: 031 (1.00)

If torus level is decreasing and cannot be recovered, HPCI should be secured when below 12 feet because:

- a. HPCI suction line will become uncovered.
- b. a system leak in HPCI could be lowering level.
- c. HPCI exhaust will begin to pressurize the Torus.
- d. to maintain NPSH, HPCI speed will be less than 2000 rpm.

QUESTION: 032 (1.00)

The following conditions exist:

- -- Initial reactor power was 100%
- -- An ATWS from a CRD hydraulic lock is in progress.
- -- The MSIVs spuriously closed and efforts to open them are in progress.
- -- ADS valves are being cycled to control reactor pressure.
- -- Torus temperature is 114°F.
- -- Drywell pressure is 3.5 psig.
- -- All other systems are operating as expected

Until the reactor is shutdown or the MSIVs are reopened, the water level should be maintained between:

- a. +8 and +48 inches
- **b.** -143 and +48 inches
- c. -143 and a level to which it was lowered.
- d. -173 and a level to which it was lowered.

QUESTION: 033 (1.00)

The following conditions exists:

- The 2A LPCI pump is out of service for repairs to the motor.
 During the day shift the OOS card on the control room control switch was removed as part of a temporary lift to allow running the motor uncoupled.
- -- Testing is continuing into the next shift.

Which of the following is the required action?

- a. A test card is the ONLY card required to be hung.
- b. Both a test card and a caution card must be hung.
- c. A caution card is the ONLY card required to be hung.
- d. The temporary lift must be rehung since testing can never extend to the next shift.

QUESTION: 034 (1.00)

Approval for entry into a VERY HIGH RADIATION AREA must be obtained from:

- a. Shift Manager
- b. Station Manager
- c. Radiation Protection Manager
- d. On-shift Radiation Protection Supervision

QUESTION: 035 (1.00)

You have been assigned to escort a group of people. How many persons can you escort into the plant?

- a. NO more than 5 at any one time.
- b. NO more than 10 at any one time.
- c. 5 in the Vital Areas, and up to 10 in the Protected Areas.
- d. 10 in the Vital Areas, and no more than 15 in the Protected Areas.

QUESTION: 036 (1.00)

Select the MINIMUM Emergency Plan classification which requires plant assembly and accountability?

- a. Unusual Event
- b. Alert
- c. Site Emergency
- d. General Emergency

QUESTION: 037 (1.00)

When verifying the position of a locked open valve the operator should attempt to move the valve in the:

- a. OPEN direction moving the valve ONLY as far as the locking device will permit.
- b. SHUT direction moving the valve ONLY as far as the locking device will permit.
- c. OPEN direction ONLY enough to verify valve movement. Remove the locking device as required.
- d. SHUT direction ONLY enough to verify valve movement. Remove the locking device as required.

QUESTION: 038 (1.00)

An ATWS has occurred and the following conditions exist:

 Reactor power	– 20% on APRMs
 Reactor water level	– 20 inches
 Drywell pressure	- 1.1 psig
 All scram valves	– open
 SDV vent and drain valves	– closed
 Mode switch	- in SHUTDOWN
 SDV water level	– high scram signal in

Which of the following describes resetting of the scram to allow draining of the Scram Discharge Volume under these conditions?

- a. Wait 10 seconds after the mode switch is placed SHUTDOWN, reset the scram.
- b. Place the CRD Discharge Volume Bypass switch in "BYPASS", reset the scram.
- c. Place the mode switch in STARTUP and the discharge volume high water level bypass keylock switch in "BYPASS", reset the scram.
- d. The RPS scram jumpers MUST be installed, reset the scram.

QUESTION: 039 (1.00)

A startup is in progress and the following conditions exist:

Reactor power - 2% on APRMs ___ Reactor water level - 30 inches __ Reactor pressure - 550 psig ------Condenser vacuum - 20 inches --Mode switch - in STARTUP ___ MSIVs - open ___

Which of the following describes the effect if RPS bus "A" is deenergized?

- a. All MSIVs will close.
- b. A full scram will occur.
- c. MSIVs "A" and "C" will close.
- d. ONLY channel "A" half scram will occur.

QUESTION: 040 (1.00)

Which of the following are DC powered AND must energize to operate?

- a. Scram dump valves.
- b. Backup scram valves.
- c. Scram pilot solenoid valves.
- d. SDV vent and drain pilot valves.

QUESTION: 041 (1.00)

Which of the following describes the change in Alternate Rod Insertion (ARI) system operation when the system is manually initiated instead of automatically initiated?

- a. The recirculation pumps DO NOT automatically trip.
- b. The recirculation pumps trip WITHOUT a time delay.
- c. Only one ARI pushbutton must be armed and depressed.
- d. One of the automatic initiation signals must be present.

QUESTION: 042 (1.00) Question deleted - no correct answer

A Unit 2 shutdown is in progress and the following conditions exist:

<u>~</u>	Reactor power	-	13% and decreasing
`	Reactor water level	-	30 inches
	Reactor pressure	-	1020 psig
	Mode switch	-	in RUN
	APRMs/IRMs_bypassed	-	None

Both divisions of the 48/24 VDC power system become deenergized. Which of the following states the effect on the Unit 2?

- a. The mode switch must be placed in STARTUP to prevent a scram.
- b. A reactor scram occurs if the mode switch is moved to STARTUP.
- c. Reactor power decrease must be stopped until IRMs and SRMs are available.
- d. After the mode switch is in STARTUP, a reactor scram will occur when APRM power decreases below 3%.

QUESTION: 043 (1.00)

A control rod is being fully withdrawn to position 48. Which of the following is indication of an UNCOUPLED control rod?

- a. Red position 48 lights illuminate.
- b. Rod position indication goes blank.
- c. Green position 48 lights turn amber.
- d. Amber position 48 lights turn green.

QUESTION: 044 (1.00)

When the APRM Channel 2 meter function switch is placed in the "COUNT" position, which of the following is the MINIMUM indication for the APRM to be still operable?

- a. 45%
- b. 50%
- c. 55%
- d. 60%

QUESTION: 045 (1.00)

Assuming the EHC pressure regulator is working properly, which of the following would be an indication of an open or leaking safety/relief valve?

- a. Total steam flow increase.
- b. Indicated steam line flow increase.
- c. Tailpipe temperature stable at 310 deg F.
- d. Increased differential pressure across the reactor core.

QUESTION: 046 (1.00)

The following conditions exist:

- ___
- The reactor is at 100% power. RPS MG SET "A" is inoperable for maintenance. ---
- RPS Bus "B" has been shifted to alternate power. ----

Subsequently, both EPAs for RPS MG SET "B" become inoperable, but RPS bus "A" remains energized from the MG Set. For the existing plant conditions, which of the following is an acceptable action?

- a. Shift RPS bus "A" to its alternate power supply.
- b. Trip main steam line rad monitors A & C and continue operation.
- c. Within 72 hours restore at least one RPS MG Set B EPA to operable service.
- d. Restore one EPA for RPS MG Set B to service within 30 minutes or remove the MG set from service.

QUESTION: 047 (1.00)

Which of the following are indications of a jet pump failure? A reactor power:

- INCREASE with indicated core flow INCREASE. a.
- b. DECREASE with indicated core flow INCREASE.
- c. INCREASE with indicated core flow DECREASE.
- d. DECREASE with indicated core flow DECREASE.

QUESTION: 048 (1.00)

Failure of recirculation pump seal #1 will be indicated by:

- a. #1 seal cavity low pressure alarm.
- b. #2 seal cavity low pressure alarm.
- c. #1 seal cavity pressure near reactor pressure.
- d. #2 seal cavity pressure near reactor pressure.
- QUESTION: 049 (1.00)

The following conditions exist:

- -- A HPCI initiation signal is present.
- -- The HPCI system is injecting to the RPV.
- -- No other trip or isolation signal is present.

Which of the following will result in a HPCI system isolation and then an AUTOMATIC reset of the isolation circuitry?

- a. Low reactor pressure.
- b. High HPCI steam line flow.
- c. High HPCI area temperature.
- d. Low booster pump suction pressure.

QUESTION: 050 (1.00)

With the reactor recirculation pump flow mismatch circuit in effect, which of the following will AUTOMATICALLY cause a reactor recirculation pump to trip?

- a. Total feed flow decrease below 20% for 15 seconds.
- b. The low speed pump's discharge valve NOT full open.
- c. Total steam flow decrease below 20% for 15 seconds.
- d. The high speed pump's discharge valve NOT full open.

QUESTION: 051 (1.00)

During a normal Recirculation Pump start sequence, when is the scoop tube positioned to the 28% position by the individual pump speed controller? The scoop tube will be positioned to the 28% position:

- a. as soon as speed exceeds 45%.
- b. after the Field Breaker has closed.
- c. as soon as the Drive Motor Breaker is closed.
- d. when the Recirc loop flow limiter is NOT in effect.

QUESTION: 052 (1.00)

The temperature requirements (steam dome to bottom head drain temperature and recirc loop temperatures) for starting a recirculation pump have been verified. Select the MAXIMUM time allowed to start the pump before the temperature requirements must be verified again.

a.	5 min.
b.	10 min.
c.	15 min.
d .	30 min.

QUESTION: 053 (1.00)

Select the condition that does NOT require Jet pump operability checks to be performed.

- a. After starting recirc pumps at rated temperature and pressure.
- b. Daily when both recirculation pumps are operating in cold shutdown.
- c. During plant heatup, within 24 hours of placing the mode switch in STARTUP.
- d. When operating with a single recirculation pump at less than maximum flow.
QUESTION: 054 (1.00)

Which of the following will prevent HPCI discharge to the CST through the test line return valve 2301-15?

- a. HPCI minimum flow valve open.
- b. CST level is less than 10,000 gals.
- c. Either HPCI torus suction valve open.
- d. Reactor vessel level is below 8 inches.

QUESTION: 055 (1.00)

When an automatic Isolation Condenser system initiation signal is present, the outboard condensate return valve (1301-3):

- a. can be throttled if necessary.
- b. cannot be placed in PULL TO LOCK.
- c. is interlocked fully open or fully closed.
- d. is procedurally prohibited from being throttled.

QUESTION: 056 (1.00)

Operation of the Condenser Mechanical Vacuum Pump is prohibited with the mode switch in RUN because:

- a. it precludes a possible hydrogen explosion.
- b. there is NO provision for monitoring the discharge.
- c. a greater vacuum is required for turbine operation.
- d. it cannot remove sufficient gases when greater than 15% power.

QUESTION: 057 (1.00)

The following conditions exist:

- -- A loss of all off-site power has occurred.
- -- Unit 2 and Unit 3 diese generators have started and are supplying their emergency buses.
- -- The 2/3 diesel generator is running unloaded

Which of the following will result if the "Close" mechanical pushbutton on the Diesel 2/3 output breaker to bus 33-1 is depressed in order to power bus 33-1?

The Diesel 2/3 output breaker to bus 33-1 will:

- a. close and remain closed.
- b. not close due to interlock.
- c. close and then immediately trip open.
- d. close and Diesel 2/3 output breaker to bus 23-1 will trip open.

QUESTION: 058 (1.00)

DC control power is lost to a 4160 Volt Motor Operated Air Circuit Breaker for an ECCS pump. Which of the following manual operations may be performed at the breaker without use of any breaker tools?

The breaker may be:

- a. only closed (if open).
- b. only tripped open (if closed).
- c. closed (if open) then tripped and closed again.
- d. tripped open (if closed), closed and tripped open again.

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QUESTION: 059 (1.00)

Which of the following Primary containment Isolation Systems require loss of both the AC and DC power supplies to its components in order to cause a full group isolation?

- a. Group 1 only
- b. Group 4 only
- c. Groups 1 and 4
- d. Groups 4 and 5

QUESTION: 060 (1.00)

With the reactor at 100% power, the MAXIMUM number of MSIVs that may be closed without resulting in a full reactor scram is:

a. O Siel SRO exam question 28 for clarification
b. 1 given to all conditiates.
c. 2
d. 3

QUESTION: 061 (1.00)

Assuming that there is fuel in the reactor vessel, which of the following requires secondary containment to be established?

- a. Both trains of SBGTS become inoperable.
- b. New fuel is to be moved into the fuel pool.
- c. A control rod blade will be replaced with a new one.
- d. All source range detectors are discovered to be inoperable.

QUESTION: 062 (1.00)

Which of the following will bypass ALL rod blocks caused by SRM "A"?

- a. All IRMs on range 8.
- b. Reactor mode switch in REFUEL.
- c. SRM "A" detector fully withdrawn.
- d. SRM "A" function switch NOT in operate.

QUESTION: 063 (1.00)

The following conditions exist:

The mode switch is in RUN.
IRM "11" becomes INOP due to High Voltage low.

Which of the following will subsequently cause a half scram?

- a. APRM channel 1 downscale signal.
- b. APRM channel 1 placed in BYPASS.
- c. Placing IRM "11 in BYPASS with APRM channel 1 downscale.
- d. Placing IRM "11 in BYPASS with APRM channel 1 in BYPASS.

QUESTION: 064 (1.00)

The following conditions exist:

- -- A valid Automatic Depressurization System (ADS) initiation signal has been received.
- -- ADS Logic Channel "A" FAILS TO actuate due to loss of 2A-1
- -- ADS Logic Channel "B" actuates (energizes).

SELECT the EXPECTED response from the Safety Relief Valves (SRVs).

- a. No SRVs open
- b. The Target rock valve and two ERVs open
- c. Only four ERVs open
- d. All SRVs open

QUESTION: 065 (1.00)

The following conditions exist:

- -- ADS automatically actuated from a leak inside containment.
- -- Reactor water level is steady at -65 inches.
- -- All LPCI and CS pumps are running.
- -- 120 second timer is timed out.
- -- All ADS valves are open.
- -- Drywell pressure reached 3 psig and is now 1.5 psig.
- -- Reactor pressure is 400 psig.

If the timer reset button is depressed and then released, which of the following describes the result on the Automatic Depressurization System? The SRVs will:

- a. remain open.
- b. close and remain closed.
- c. close and then reopen after 120 seconds.
- d. close and then reopen after 8.5 minutes.

QUESTION: 066 (1.00)

What effect does losing power to 125 VDC Bus 2B-1 have on the Unit 2 Diesel Generator? The Unit 2 Diesel Generator:

- a. can NOT be started either automatically or manually.
- b. will NOT automatically start but can be manually started from the Control Room.
- c. will automatically start but all output breaker protective trips are inoperable.
- d. will NOT automatically start, or start from the Control Room, but can be manually started locally.

QUESTION: 067 (1.00)

Which of the following describes why operators are cautioned NOT to open Reactor Water Cleanup valves, Blowdown to the Condenser (1201-11) and the Blowdown to Rad Waste (1201-12), at the same time?

- a. Condenser vacuum will be reduced.
- b. The cleanup pumps may trip on low suction pressure.
- c. It will vacuum drag radwaste to the condensate system.
- d. The heat exchangers cannot remove sufficient heat to prevent system isolation.

QUESTION: 068 (1.00)

If the reactor is shutdown, which of the following require that reactor water level be maintained at or above 48 inches?

- a. Anytime no reactor recirculation pumps are running.
- b. One recirc pump running with one SDC loop less than full flow.
- c. One recirc pump running with less than two SDC cooling loops at full flow.
- d. Anytime no reactor recirculation pumps are running with less than two SDC cooling loops at less than full flow.

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QUESTION: 069 (1.00)

The following conditions exist:

- -- Unit 2 is operating at 100% power.
- -- RBM channel 8 has been declared inoperable.
- -- NO limiting control rod pattern exists.

Which of the following applies?

- a. Reactor power must be reduced to less than 30%.
- b. RBM channel 8 may be bypassed indefinitely if RBM channel 7 remains operable.
- c. Power operation may continue for a maximum of 24 hours without both operable RBM channels.
- d. If RBM 8 channel is placed in a tripped condition, power operation may continue for 24 hours.

QUESTION: 070 (1.00)

The following conditions exist:

- -- The reactor has been scrammed .
- -- There is a coolant leak into the drywell.
- -- Main turbine bypass valves have been opened in accordance with DEOP 100, RPV/P.

Conditions degrade and require immediate Emergency RPV Depressurization per DEOP 400-2. Select the required action.

- a. Close the bypass valves and open 5 ADS valves.
- b. Open 5 ADS valves then close the bypass valves.
- c. Open 5 ADS valves and leave the bypass valves open.
- d. Continue depressurization using only the bypass valves.

QUESTION: 071 (1.00)

The following conditions exist:

-- A Loss of all Site AC power has occurred..

- -- No emergency diesels started.
- -- All control rods are fully inserted.
- -- Reactor level is -135 inches and decreasing.
- -- HPCI is injecting.

The earliest that ADS valves may be opened for emergency depressurization is:

- a. immediately.
- b. at -143 inches.
- c. when level reaches -185 inches.
- d. when any other injection source is operating.

QUESTION: 072 (1.00)

The following conditions exist:

- -- The reactor is at full power.
- -- Testing is in progress which adds heat to the torus.
- -- The torus bulk temperature is increasing.

The required action is to stop testing before exceeding:

- a. 95°F, enter DEOP 200-1 at 95°F, scram at 105°F.
- b. 95°F, enter DEOP 200-1 at 105°F, scram at 110°F.
- c. 105°F, enter DEOP 200-1 at 95°F, scram at 110°F.
- d. 105°F, enter DEOP 200-1 at 105°F, scram at 110°F.

QUESTION: 073 (1.00)

Intentional rod motion to SHORTEN reactor period is NOT permitted if:

- a. power is on IRM range 8.
- b. the existing period is negative.
- c. the existing period is 100 seconds or less.
- d. the SRMs indicate power has increased by 3 doubling times.

QUESTION: 074 (1.00)

During plant startup the following plant conditions are noted to occur over a 3 minute period.

 Reactor pressure	- decreased to 800 psig, now stable.
 Reactor Water Level	- +20 inches trending to normal.
 Reactor power	- decreased 5%, now stable at 50%
 Generator output	- decreased to 350 Mwe from 400 Mwe.
 Reactor Protection Sys	 No actuations have occurred.

Which of the following is required?

a. Scram the reactor.

b. Trip the main turbine.

c. Perform a reactor shutdown.

d. Increase power with recirculation flow.

QUESTION: 075 (1.00)

Which of the following will satisfy the condition "The reactor is Shutdown" as stated in the RPV/P leg of DEOP 400-5?

- a. The SBLC tank level has decreased by 27%.
- b. All control rods at position 02 except one at position 48.
- c. Neutron monitors indicate below midscale of IRM range 7 and steady negative 80 second period.
- d. A QNE has determined that all shutdown margin requirements will be met with the existing rod pattern.

QUESTION: 076 (1.00)

The scram discharge volume vent and drain valves DID NOT close when a scram occurred. Which of the following would be the adverse consequence?

- a. There will be a primary leak to the reactor building.
- b. The CRD discharge path has insufficient back pressure.
- c. The timer allowing scram reset after 10 seconds will NOT initiate.
- d. The reactor pressure will be necessary to complete rod insertion.

QUESTION: 077 (1.00)

The following conditions exist:

- -- A reactor startup is in progress.
- -- The mode switch is in STARTUP.
- -- The main turbine is tripped.
- -- A valid Group I isolation has occurred.
- -- The reactor did NOT scram
- -- No ATWS condition exists.

Select the only signal that could have generated the Group I isolation?

- a. Low reactor water level
- b. Low main steam line pressure
- c. High steam tunnel temperature
- d. High main steam line radiation

QUESTION: 078 (1.00)

With RAPIDLY rising and uncontrolled reactor water level above 48 inches, which of the following is required?

- a. Inhibit ADS.
- b. Shut all MSIVs.
- c. Scram the reactor.
- d. Isolate the IC system.

QUESTION: 079 (1.00)

The following conditions exist:

- -- The reactor is critical with the mode switch in STARTUP.
- -- The running Control Rod Drive (CRD) pump has tripped and cannot be immediately restarted.
- -- The other CRD pump is out of service for maintenance.
- -- The accumulator trouble alarm for the rod being moved has just been received.

A reactor scram is required:

- a. immediately.
- b. if reactor pressure is below 600 psig.
- c. if a valid control rod drift alarm is received.
- d. only if an adjacent accumulator trouble alarm occurs.

QUESTION: 080 (1.00)

With the reactor operating at the 102% Flow Control Line (FCL) the following occurs:

- -- One reactor recirculation pump trips.
- -- The operating reactor recirculation pump speed is 55%.
- -- No unstable neutron instrumentation is observed.
- -- The unit is determined to be in the PROHIBITED region of the Power-Flow Map (fig 1 of DOS 0500-18).

Which of the following is the required method for exiting this region?

- a. Manually scram the reactor.
- b. Start the tripped reactor recirculation pump.
- c. Insert CRAM arrays until power is reduced to 37%.
- d. Increase flow in the operating recirculation loop.

QUESTION: 081 (1.00)

During normal operations, intentional entry into the PROHIBITED region of the Power-Flow Map is:

- a. never permitted.
- b. permitted if both recirculation pumps are operating.
- c. permitted if Reactor Core instability is not indicated.
- d. permitted when authorized by a Qualified Nuclear Engineer.

QUESTION: 082 (1.00)

Which of following conditions will ALWAYS require entry into DEOP 300-1?

- a. SBGT system automatically started.
- b. Reactor building floor drain sump overflowing.
- c. Reactor building equipment drain sump HI alarm.
- d. Reactor building to atmosphere d/p at 0.5 inches of water.

QUESTION: 083 (1.00)

Drywell pressure indication is NOT operable. Which of the following would be positive indication that drywell pressure is at or above 2.00 psig?

- a. Torus pressure is 1.7 psig.
- b. Torus pressure is 2.7 psig.
- c. All 5 ADS safety relief valves open.
- d. The torus to drywell vacuum breakers and torus vacuum reliefs are open.

QUESTION: 084 (1.00)

IF an Electromatic Relief Valve vacuum breaker has failed in the open position during ERV operation, which of the following will result?

- a. An increase in drywell to torus differential pressure.
- b. Direct pressurization of the torus air space each time the ERV is opened.
- c. Steam bypassing the T-quenchers with a direct discharge path into the torus.
- d. Torus water being drawn up into the ERV discharge line after the ERV is closed.

QUESTION: 085 (1.00)

A loss of instrument air to which of the following will NEVER cause an automatic protective system scram?

- a. CRD flow control valves.
- b. Feedwater regulating valves.
- c. Main Steam Isolation Valves.
- d. Feedwater heating cascade and emergency drain valves.

QUESTION: 086 (1.00)

The following conditions exist:

	Α	loss	of	a]]	AC	power	occurred	at	6:45	am.
--	---	------	----	-----	----	-------	----------	----	------	-----

- -- Reactor pressure was initially 1030 psig.
- -- The IC system was manually initiated at 7:00 am.

The following RPV pressures have been recorded.

TIME		RPV	Pressure
7:00	am	798	psig
7:15	am	610	psig

Assuming a constant rate of temperature reduction, when must the cooldown be secured in order to prevent exceeding the Technical Specification for cooldown without use of the step reduction limit?

Note: Answer rounded to nearest minute.

- a. 07:20 am
- b. 07:35 am
- c. 07:50 am
- d. 08:05 am

QUESTION: 087 (1.00)

Without operator action, if the Turbine Stop Valve closure scram fails to actuate, core protection is provided by the:

- a. load reject scram.
- b. MSIV closure scram.
- c. condenser low vacuum scram.
- d. reactor pressure and neutron flux scrams.

QUESTION: 088 (1.00)

Unit 2 is in cold shutdown and vented via the main steam line drains. All shutdown cooling and recirculation flow is lost. Select the MAXIMUM vessel level allowed without losing this vent path.

- a. 48 inches
- b. 109 inches
- c. 140 inches
- d. 185 inches

QUESTION: 089 (1.00)

As drywell temperature increases, which of the following level indications will increase when actual water level remains the same?

- a. Fuel zone
- b. Wide range
- c. Medium range
- d. Narrow range

QUESTION: 090 (1.00)

If a LPCI signal has been automatically initiated, placing the Containment Spray /Torus Cooling Permissive Keylock switch (316A/B) in "MANUAL", will permit drywell spray:

- a. if drywell pressure is above 1 psig and RPV level is above-191 inches.
- b. if drywell pressure is below 1 psig and RPV level is above-191 inches.
- c. if drywell pressure is above 1 psig and RPV level is below-191 inches.
- d. anytime the 2/3 Core Coverage Override Keylock Switch (317A/B) is in "Manual OVERRIDE".

QUESTION: 091 (1.00)

If reactor water level is at -200 inches, which of the following is the MINIMUM action necessary in order to clear the interlock and open the torus cooling or spray valves, MO-19/20?

- a. Only place the 2/3 Core Coverage Override Keylock Switch (317A/B) in "Manual OVERRIDE"
- b. Only place the Containment Spray /Torus Cooling Permissive Keylock switch (316A/B) in "MANUAL"
- c. Place Keylock Switch (317A/B) in "Manual OVERRIDE" and Keylock switch (316A/B) in "MANUAL"
- d. Close the LPCI cross tie valve (MO-32) and place the 2/3 Core Coverage Override Keylock Switch (317A/B) in "Manual OVERRIDE"

QUESTION: 092 (1.00)

The following conditions exist:

- -- A relief valve spuriously opened and stuck open.
- -- A reactor scram was initiated.
- -- MSIVs isolated due to a level transient.
- -- RPV level is recovering to normal.
- -- The Isolation Condenser is operable.
- -- Torus cooling is in service.
- -- Torus bulk temperature is increasing.

Which of the following is the initial required action as torus temperature increases?

- a. Initiate Torus Sprays.
- b. Emergency depressurize if torus bulk temp exceeds 120°F.
- c. Cooldown at normal rates if torus bulk temp reaches 120°F.
- d. Open the ERVs as necessary to maintain pressure below the Heat Capacity Temperature Limit, (fig 200-1-E).

QUESTION: 093 (1.00)

When DEOP 400-2, permits defeating isolation interlocks in order to rapidly depressurize without ADS valves, which of the following Group I isolation signals may be bypassed?

- a. All Group I isolation signals.
- b. Only the low RPV water level at -59 inches.
- c. Only low RPV water level at -59 inches and low main steam line pressure.
- d. All Group I isolation signals except main steam line high radiation.

QUESTION: 094 (1.00)

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During execution of "Reactor Scram", DGP 02-03, if:

- a. any control rods are NOT inserted to or beyond position O2, the operator must exit DGP 02-03 and enter DEOP 100.
- b. any control rods are NOT inserted to or beyond position 02, the operator must exit DGP 02-03 and enter DEOP 400-5.
- c. more than one control rod is withdrawn beyond position 02, the operator must exit DGP 02-03 and enter DEOP 400-5.
- d. any control rods are NOT inserted to or beyond position 02, the operator must enter DEOP 400-5 concurrently with DGP 02-03.

QUESTION: 095 (1.00)

The following conditions exist:

The reactor is shutdown
 RWCU is not operable
 Both recirculation pumps are inoperable
 Two SDC pumps are operating at full flow
 RPV water level is +55 inches
 RPV water temperature is 200°F and increasing at 1.0°F/min.

SDC pump flow is lost and cannot be immediately regained. Which of the following operator actions is necessary?

- a. Increase RBCCW flow.
- b. Initiate the IC system.
- c. Establish primary containment.
- d. Raise water level to 140 inches.

QUESTION: 096 (1.00)

The following conditions exist:

- -- The plant has experienced a transient and the MSIVs received an isolation signal.
- -- Neither MSIV in the "A" line closed, all others closed.
- -- The reactor successfully scrammed.
- -- RPV level is stable at 20 inches, reactor pressure is 900 psig and slowly decreasing.
- -- There is an unisolable steam leak in the turbine building.
- -- Various turbine building ARMs indicate increasing levels.
- -- A SITE EMERGENCY has been declared based upon barrier loss.
- -- Radiation surveys are in progress.

At this time, which of the following must be entered?

- a. DGP 02-03 only
- b. DGP 02-03 and DEOP 100 and DEOP 200-1
- c. DGP 02-03 and DEOP 100 and DEOP 400-2
- d. DGP 02-03 and DEOP 200-1 and DEOP 300-1

QUESTION: 097 (1.00)

A primary leak of unknown origin has occurred in the reactor building. The Clean Up System Area ARM and the Vessel Instrument Rack Area ARM are both at full scale. The required action is to Scram, enter DEOP 100 and:

- a. enter DEOP 400-2 and Emergency Depressurize.
- b. if reactor building area temperatures confirm MAX safe conditions, enter DEOP 400-2.
- c. if local surveys determine actual radiation levels to be at 2500 mr/hr, then enter DEOP 400-2.
- d. enter DEOP 300-2 while a local survey determines actual radiation levels, enter DEOP 400-2 as radiation surveys dictate.

QUESTION: 098 (1.00)

The following conditions exist:

- -- A small steam leak has occurred in the drywell.
- -- Drywell pressure is at 3 psig and steady.
- -- RPV level is +15 inches and steady.
- -- RPV pressure is 500 psig and dropping slowly.
- -- All systems are functioning as designed.

Which of the following would be UNEXPECTED for the conditions given?

- a. Drywell coolers operating.
- b. Emergency diesel generators operating.
- c. Core Spray suction valves interlocked open.
- d. Both Core Spray pumps running on minimum flow.

QUESTION: 099 (1.00)

During a scram from 100% power, which of the following describes the response of a withdrawn control rod if the accumulator piston for its hydraulic control unit does NOT move?

NOTE: Assume the accumulator is mechanically bound up.

The control rod will:

a. NOT insert.

b. insert at slower than normal speed.

c. insert after the CRD flow control valve opens.

d. insert only if CRD charging pressure is greater than 400 psig.

QUESTION: 100 (1.00)

During non-emergency conditions, which of the following RPS trip signals is NEVER bypassed?

- a. IRM High Flux
- b. APRM High Flux (15%)
- c. Reactor low water level
- d. Mode Switch in SHUTDOWN

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

ANSWER: 001 (1.00)

c.

REFERENCE:

Fac bnk 21501S0111 215L-S1 obj 5

ANSWER: 002 (1.00)

a.

REFERENCE:

207L-S1 IC system section three, pg 1, obj 2.e

ANSWER: 003 (1.00)

d.

REFERENCE:

Fac bnk 26201S0111 Obj. 262L-S1-05.f DOA 6600-01

ANSWER: 004 (1.00)

a.

REFERENCE:

Fac bnk 23300S0011 233L-S1 obj 7

ANSWER: 005 (1.00)

a.

REFERENCE:

DAN 902-5 A3, B1 201L-S1 RPIS ATT A, control room indications, obj 2.a ANSWER: 006 (1.00)

b.

REFERENCE:

2231-S4 RPV and Internals, Fig #6, obj 3.d

ANSWER: 007 (1.00)

c.

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REFERENCE:
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201L-S1, CRDH, pg 19A, obj 3.d.7

ANSWER: 008 (1.00)

a.

REFERENCE:

261L-S1, SBGT pg 8, obj 5.b

ANSWER: 009 (1.00)

c.

REFERENCE:

261L-S1 SBGT sys, pg 3&4, obj 2.a,b,c,d

ANSWER: 010 (1.00)

a.

REFERENCE:

223L-S1 PCIS pgs 6 and 9 obj 5.a and 5.b

ANSWER: 011 (1.00)

b.

REFERENCE:

264L-S1, EDGs; pgs 13 thru 19

ANSWER: 012 (1.00)

с.

REFERENCE:

271L-S1 Offgas, pg 31, obj

ANSWER: 013 (1.00)

a.

REFERENCE:

202L-S1 Recirc, fig 3, obj 6.f

ANSWER: 014 (1.00)

b.

REFERENCE:

215L-S4 SRM Attachment B pg 4, sect B, obj 5 DGP 03-04, pg 11, 4.b.2.

ANSWER: 015 (1.00)

b.

REFERENCE:

201L-S2 RMC, pg 26A & 27, obj 201L-S2-02.a.3

ANSWER: 016 (1.00)

b.

REFERENCE:

201L-S6 RWM, pg 30A, obj 5.a, 5.b

ANSWER: 017 (1.00)

b.

REFERENCE:

201L-S1, CRDH, Fig #2, obj 2.a thru 2.h

ANSWER: 018 (1.00)

d.

REFERENCE:

201L-S3 CRD, pg 19A 5.b.note, obj 3.e and 5.f

ANSWER: 019 (1.00)

b.

REFERENCE:

DAP 07-5, section E.3, page 7 of 23

ANSWER: 020 (1.00)

с.

REFERENCE:

DAP 03-06, section E.1, page 2 of 5

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ANSWER: 021 (1.00)
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c.

REFERENCE:

DAP 12-8, section G.4, page 4 of 4

ANSWER: 022 (1.00)

a.

REFERENCE:

DAP 09-13, section F.4.b, page 8 of 12, 10 CFR 50.54(x) ANSWER: 023 (1.00)

b.

REFERENCE:

DAP 7-03

ANSWER: 024 (1.00)

b.

REFERENCE:

DAP 07-02, section F.1.f, page 23 of 40

ANSWER: 025 (1.00)

b.

REFERENCE:

DAP 07-27, Section E.7, page 4 of 13

ANSWER: 026 (1.00)

c.

REFERENCE:

New question for R from Fac ques #1 23400S0031 provided at prep week

ANSWER: 027 (1.00)

c.

REFERENCE:

New R question from Fac ques 29502S0601 provided at prep week

ANSWER: 028 (1.00)

a.

REFERENCE:

New R question from Fac ques 29502S0291 provided at prep week ANSWER: 029 (1.00)

a.

REFERENCE:

New R Ques per prep week DEOP entry conditions

ANSWER: 030 (1.00)

b.

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REFERENCE:

New R ques from fac ques 23400S0091 provided during prep week

ANSWER: 031 (1.00)

c.

REFERENCE:

DEOP 200 lp, pg 24, A.3.a. OBJ #5

ANSWER: 032 (1.00)

d.

REFERENCE:

New R ques, from fac ques #29502S0771 provided during prep week

ANSWER: 033 (1.00)

b.

REFERENCE:

DAP 03-05, section E.10.c, page 19 of 58 Admin Procedure Objective 29900LP029

ANSWER: 034 (1.00)

с.

REFERENCE:

DAP 12-04, section E.5, page 4 of 22

ANSWER: 035 (1.00)

a.

REFERENCE:

DAP 13-10, ESCORT DUTIES, section E.5, page 3 of 5

ANSWER: 036 (1.00)

с.

REFERENCE:

EPIP 0400-01, section C.1, page 1 of 10

ANSWER: 037 (1.00)

d.

REFERENCE:

DAP 07-14, section F.1.b, page 6 of 10

ANSWER: 038 (1.00)

d.

REFERENCE:

212LS1 RPS, pg 23 E.5, pg 35 N.3, obj 5

ANSWER: 039 (1.00)

b.

REFERENCE:

212LS1 RPS, pg 26 F.4.g, obj 6.a

ANSWER: 040 (1.00)

b.

REFERENCE:

201L-S1 CRD HYD, pg 15A, 18A, 19A, obj 3.d.7

ANSWER: 041 (1.00)

a.

REFERENCE:

212LS1, RPS/ARI, pg 46, ATWS obj A.3.a

ANSWER: 042 (1.00)

b.

REFERENCE:

215L-S3, IRMs, pg 17 & 18, obj 5.b DOA 6900

ANSWER: 043 (1.00)

b.

REFERENCE:

201L-S2, RMC and RPIS, pg 20A, obj 03.b, 09.e, 11.b

ANSWER: 044 (1.00)

с.

REFERENCE:

215L-S5, APRM pg 6A.E.1 and 18a table, obj 3.c

ANSWER: 045 (1.00)

с.

REFERENCE:

3391-S1 Main Stm Sim Attachment pg 7, obj 4.e. and f Steam Tables Mollier Diagram, TMI Lessons learned Previous exam

ANSWER: 046 (1.00)

d.

REFERENCE:

262L-S2 Low voltage AC, pg 7 and fig 1, obj

ANSWER: 047 (1.00)

b.

REFERENCE:

223L-S4 internals obj 6.a DOA 0201-01, section A

ANSWER: 048 (1.00)

d.

REFERENCE:

202L-S1 Recirc, fig 3, obj 6.d

ANSWER: 049 (1.00)

a.

REFERENCE:

206L-S1 HPCI, pg 17, 18, 19 obj 5.c & 5.c

ANSWER: 050 (1.00)

b.

REFERENCE:

202L-S2, RR flow control, pgs 18 and 19, obj 3.d, 5.c

ANSWER: 051 (1.00)

b.

REFERENCE:

202L-S2 RR flow control, pg 8, para 3, obj 3.d

ANSWER: 052 (1.00)

с.

REFERENCE:

DOP 0202-01, G.9 and G.10, TS 3.6.H.5 202L-S1 RR system obj 7.C

ANSWER: 053 (1.00)

b.

REFERENCE:

DOP0202-01, pg 7, F.14 DOS 0202-02, Jet Pump Operability and Degradation, TS 3.6.g, pgs 6-10,11,12

ANSWER: 054 (1.00)

с.

REFERENCE:

206L-S1 HPCI pg 21A, 4.b. obj 5.j

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REACTOR OPERATOR
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ANSWER: 055 (1.00)

a.

REFERENCE:

207L-S1, IC attachment A, pg 3A, obj 5.a

ANSWER: 056 (1.00)

a.

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REFERENCE:
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DOP 5400-10, pg 3, E.1

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ANSWER: 057 (1.00)
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a.

REFERENCE:

264L-S1, EDGs, pg 21, c.2.b obj --pgs missing

ANSWER: 058 (1.00)

d.

REFERENCE:

2621-S2, ckt breaker control. pg 7A, III.A obj 3.a, 6,a DOP 6500-02, section g.10. obj 3.a.b.c

ANSWER: 059 (1.00)

a.

REFERENCE:

223L-S1 PCIS, pg 13 D.1, pgs 21 and 22, obj 6.a,b,c,

ANSWER: 060 (1.00)

a.

REFERENCE:

223L-S1 PCIS, pg 6, III.A.1.a, obj 5.a

ANSWER: 061 (1.00)

c.

REFERENCE:

TS 3.7.C Note-applies to both because TS allows RO to be the only operator in the control room under some conditions.

ANSWER: 062 (1.00)

a.

REFERENCE:

215L-S4 SRM, pg 18, rod blocks, obj 5.a

ANSWER: 063 (1.00)

a.

REFERENCE:

215L-S3, IRMs, pg 15, 16, 17, obj 5.b 215L-S5, APRM pg 18A ANSWER: 064 (1.00)

d.

REFERENCE:

218L-S1 ADS, pgs 7,14, obj 6.a

ANSWER: 065 (1.00)

с.

REFERENCE:

218L-S1, ADS system, pg 8, b.d, pg 13, 5.B and 5.C obj 2 and 3 CAF - text is not clear, no logic diagrams provided

ANSWER: 066 (1.00)

a.

REFERENCE:

262L-C1 125 DC dist, pg 3 of 4 obj 2.c

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REACTOR OPERATOR
  ANSWER:
           067 (1.00)
 a.
  REFERENCE:
   204L-S1 RWCU pg 11 NOTE, obj 2.c
DOP 1200-1,2,3 various notes
  ANSWER: 068 (1.00)
 d.
  REFERENCE:
   DOP 100-03, pg 4, E.4 OBJ:205T03-03 from 20500S0031
 ANSWER: 069 (1.00)
 b.
 REFERENCE:
   TS 3.2.c.2, pg 3/4.2-2
 ANSWER: 070 (1.00)
 с.
 REFERENCE:
   DEOP 400-2
ANSWER: 071 (1.00)
b.
 REFERENCE:
  295L-S1 DEOP 100 lp , pg 26, d.1 obj #10
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ANSWER: 072 (1.00)

c.

REFERENCE:

DEOP 200-1, and lp 200-1, obj 8 TS 3.7.A.c pg 3/4.7-2

ANSWER: 073 (1.00)

c.

REFERENCE:

DAN 902 (3)-5 E-4 Note #1

ANSWER: 074 (1.00)

a.

REFERENCE:

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DEOP 100 - power > 6% when a scram is required.

ANSWER: 075 (1.00)

d.

REFERENCE:

DEOP 400-5 lp, pg 31, obj #20 DEOP 100 lp pg 8, 2.a, b

ANSWER: 076 (1.00)

a.

REFERENCE:

201L-S1 CRDH fig 7, obj 3.g

ANSWER: 077 (1.00)

с.

REFERENCE:

223L-S1 PCIS pg 6 & 7, obj 5.a

ANSWER: 078 (1.00)

с.

REFERENCE:

DOA 0600-01, pg 7, D. 10

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REACTOR OPERATOR
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ANSWER: 079 (1.00)

a.

REFERENCE:

DOA 0300-01, c.5, oper immed action

ANSWER: 080 (1.00)

a.

REFERENCE:

DOA 0202-01, pg 2, C.2

ANSWER: 081 (1.00)

a.

REFERENCE:

DOA 0500-1, pg 3, sect F

ANSWER: 082 (1.00)

b.

REFERENCE:

DEOP 300-1 entry conditions

ANSWER: 083 (1.00)

b.

REFERENCE:

223L-S1 Pri Ctmt 1p, pgs 12 and 13, sect H, I obj 2.a, 2c

ANSWER: 084 (1.00)

a.

REFERENCE:

239L-S1 Main Steam, pg 11A, fig 2 & 3 obj 3.a
ANSWER: 085 (1.00)

a.

REFERENCE:

DOA 4700-01, pgs 9 and 10 sect 2.a,b.e.n

ANSWER: 086 (1.00)

b.

REFERENCE:

TS 3.6.A.1, pg 3/4.6-1.

ANSWER: 087 (1.00)

d.

.

REFERENCE:

TS pgs B 3/4.1-13 and 1-14 212L-S1 RPS, section V

ANSWER: 088 (1.00)

c.

REFERENCE:

DGP 02-02 pg 26, step G.88

ANSWER: 089 (1.00)

b.

REFERENCE:

216L-S1 NBI pg 32A, B.1&2, obj 6b

ANSWER: 090 (1.00)

a.

REFERENCE:

203L-S1 LPCI Att A, pgs 2A & 3A, sect A & B obj 5.c

ANSWER: 091 (1.00)

с.

REFERENCE:

203L-S1 LPCI Att A, Fig #4

ANSWER: 092 (1.00)

с.

REFERENCE:

3.7.A.1.c.4, pg 3/4.7-3, cooldown to <150# if at 120deg w/rx isolated ANSWER: 093 (1.00)

a.

REFERENCE:

295L-S9, DEOP 500 support procedures 1p, pg 9A &10A obj 1

ANSWER: 094 (1.00)

a.

REFERENCE:

DGP 02-03, "Reactor Scram" G.3.a

ANSWER: 095 (1.00)

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с.
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REFERENCE:

DOA 1000-01, pg #3 note 5, TS pg 3/4.7-4

ANSWER: 096 (1.00)

a.

REFERENCE:

DEOP 100 through 400 entry conditions

ANSWER: 097 (1.00)

a.

REFERENCE:

DEOP 300 series lp pg 9, note at bottom. obj #9

ANSWER: 098 (1.00)

a.

REFERENCE:

Fac bnk 20901S0041 modified

ANSWER: 099 (1.00)

b.

REFERENCE:

201L-03 CRD, pg 25A and fig 8, 201L-S1 CRD HYD, pg 31A 3.d, obj 3.e of 201L-S1

ANSWER: 100 (1.00)

с.

REFERENCE:

215L-S3 IRM pg 3, C, obj 5.b TS table 3.1.1, note #6

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

ANSWER KEY

M	ULTIPLE CHOICE	023	b	
001	с	024	b	
002	a	025	b	
003	d	026	с	
004	a	027	с	
005	a	028	a	
006	Ь	029	a	
007	c	030	b	
800	a	031	с	
009	C	032	d	
010	a	033	b	
011	b	034	с	
012	C	035	a	
013	a or asis	036	C ·	
014	b	037	d	
015	b	038	d	
016	b	039	b	
017	b	040	b	
018	the Key wrong	041	a	
019	b	-042	-b- Que	Delity no correct and
020	с	043	b	
021	с	044	с	
022	a	045	С	
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ANSWER KEY

	MULTIPLE	CHOICE		068	d	
046	d			069	b	
047	b			070	С	
048	d			071	b	
049	a			072	С	
050	b			073	с	
051	b			074	a	
052	С			075	d	
053	b		<i>'</i>	076	a	
054	С			077	с	
055	a			078	с	
056	a			079	a	
057	a			080	a	
058	d			081	a	
059	a			082	b	
060	a			083	b	
061	с			084	a	
062	a			085	a	
063	, a			086	b	
064	d			087	d	
065	С			088	с	
066	a			089	b	
067	a			090	a	
		• .				

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100

С

ANSWER KEY

MULTIPLE CHOICE 091 С 092 С 093 a 094 a 095 С 096 a per chief nota 097 xC 098 a 099 b

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

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ind scale Δр 160.7 280 195.9 230 ·231.2 $\overline{\mathbf{v}}$ 180 #266.4 130 +301.7 80 336.4 30 Ω 372.2 -20 407.5 70 300 400 500 200 100 50 ۴

Reactor Water Temp. vs. GEMAC Wide Range Level Reading ES-401

·							
U. S. NUCLEAR REGULATORY COMMISSION SITE-SPECIFIC WRITTEN EXAMINATION							
APPLICANT INFORMATION							
Name: MASTER EXAMINATION	Region: III						
Date: July 31, 1995	Facility/Unit: DRESDEN STATION						
License Level: SRO	Reactor Type: GE						
INSTRUCTIONS 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 percent. Examination papers will be bicked up 4 hours after the examination starts. All work done on this examination is my own. I have neither given nor received aid.							
Examination Value	Points						
Applicant's Score	Points						
pplicant's Grade Percent							

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

M	JLT	IPL	EC	HOI	CE	0	23	а	b	С	d
001	а	b	с	d		024	а	b	с	d	
002	а	b	с	d		025	а	b	С	d	
003	а	b	С	d		026	а	b	с	d	<u></u>
004	а	b	с	d		027	а	b	С	d	
005	а	b	С	d		028	а	b	.C	d	
006	а	b	С	d		029	а	b	С	d	
007	а	b	с	d		030	а	b	С	d	
008	а	b	с	d		031	а	b	С	d	
009	а	b	с	d		032	а	b	с	d	<u>.</u>
010	а	b	с	d		033	a	b	С	d	
011	а	b	С	d		034	а	b	С	ď	
012	а	b	с	d	<u> </u>	035	а	b	С	d	
013	а	b	С	d		036	a	b	с	d	
014	а	b	с	d		037	а	b	с	d	
015	а	b	С	d		038	а	b	с	d	
016	а	b	С	d	_	039	а	b	С	d	<u> </u>
017	а	b	с	d		040	а	b	с	d	
018	а	b	с	d		041	а	b	с	d	
019	а	b	c	d		042	а	b	с	d	<u> </u>
020	а	b	С	d		043	а	b	с	d	
021	a	b	с	d		044	а	b	с	d	
022	а	b	С	d	•	045	а	b	с	d	

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

MU	JLT	IPLE	E Cł	101	CE	00	68	а	b	С	d
046	а	b	с	d		069	а	b	с	d	
047	а	b	с	d		070	а	b	с	d	
048	а	b	с	d		071	а	b	с	d	
049	а	b	с	d		072	а	b	с	d	
050	а	b	с	d		073	а	b	С	d	
051	а	b	с	d		074	а	b	с	d	
052	а	b	с	d	_	075	а	b	C	d	
053	а	b	с	d		076	а	b	с	d	
054	а	b	с	d		077	а	b	с	d	
055	а	b	с	d		078	а	b	с	d	
056	а	b	с	d		079	а	b	с	d	
057	а	b	с	d	<u> </u>	080	а	b	с	d	
058	а	b	с	d		081	а	b	с	d	
059	а	b	С	d		082	а	b	с	d	
060	а	b	с	d		083	а	b	с	d	
061	а	b	с	d		084	а	b	C.	d	
062	а	b	с	d		085	а	b	с	d	
063	а	b	с	d		086	а	b	с	d	
064	а	b	С	d		087	а	b	С	d	
065	а	b	С	d		088	а	b	С	d	
066	а	b	С	ď		089	а	b	с	d	
067	а	b	с	d	. •	090	а	b	с	d	

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

091	а	b	С	d	
092	а	b	с	d	
093	а	b	С	d	
094	а	b	с	d	
095	а	b	С	d	
096	а	b	с	d	
097	a	b	С	d	
098	а	b	с	d	
099	а	b	с	d	
100	а	b	С	d	

Policies and Guidelines for Taking NRC Written Examinations

- 1. Cheating on the examination will result in a denial of your application and could result in more severe penalties.
- 2. After you complete the examination, 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.
- 3. To pass the examination, you must achieve a grade of 80 percent or greater.
- 4. The point value for each question is indicated in parentheses after the question number.
- 5. There is a time limit of 4 hours for completing the examination.
- 6. Use only black ink or dark pencil to ensure legible copies.
- 7. Print your name in the blank provided on the examination cover sheet and the answer sheet.
- 8. Mark your answers on the answer sheet provided and do not leave any question blank.
- 9. If the intent of a question is unclear, ask questions of the examiner only.
- 10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
- 11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet.
- 12. After you have turned in your examination, leave the examination area as defined by the examiner.

QUESTION: 001 (1.00)

The following conditions exists:

- -- The 2A LPCI pump is out of service for repairs to the motor.
- -- During the day shift the OOS card on the control room control switch was removed as part of a temporary lift to allow running the motor uncoupled.
- -- Testing is continuing into the next shift.

Which of the following is the required action?

- a. A test card is the ONLY card required to be hung.
- b. Both a test card and a caution card must be hung.
- c. A caution card is the ONLY card required to be hung.
- d. The temporary lift must be rehung since testing can never extend to the next shift.

QUESTION: 002 (1.00)

Approval for entry into a VERY HIGH RADIATION AREA must be obtained from:

- a. Shift Manager
- b. Station Manager
- c. Radiation Protection Manager
- d. On-shift Radiation Protection Supervision

QUESTION: 003 (1.00)

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You have been assigned to escort a group of people. How many persons can you escort into the plant?

- a. NO more than 5 at any one time.
- b. NO more than 10 at any one time.
- c. 5 in the Vital Areas, and up to 10 in the Protected Areas.
- d. 10 in the Vital Areas, and no more than 15 in the Protected Areas.

QUESTION: 004 (1.00)

Select the MINIMUM Emergency Plan classification which requires plant assembly and accountability?

- a. Unusual Event
- b. Alert
- c. Site Emergency
- d. General Emergency

QUESTION: 005 (1.00)

When verifying the position of a locked open valve the operator should attempt to move the valve in the:

- a. OPEN direction moving the valve ONLY as far as the locking device will permit.
- b. SHUT direction moving the valve ONLY as far as the locking device will permit.
- c. OPEN direction ONLY enough to verify valve movement. Remove the locking device as required.
- d. SHUT direction ONLY enough to verify valve movement. Remove the locking device as required.

QUESTION: 006 (1.00)

An ATWS has occurred and the following conditions exist:

- -- Reactor power 20% on APRMs
- -- Reactor water level 20 inches
- -- Drywell pressure 1.1 psig
- -- All scram valves open
- -- SDV vent and drain valves closed
- -- Mode switch in SHUTDOWN
- -- SDV water level high scram signal in

Which of the following describes resetting of the scram to allow draining of the Scram Discharge Volume under these conditions?

a. Wait 10 seconds after the mode switch is placed SHUTDOWN, reset the scram.

- b. Place the CRD Discharge Volume Bypass switch in "BYPASS", reset the scram.
- c. Place the mode switch in STARTUP and the discharge volume high water level bypass keylock switch in "BYPASS", reset the scram.
- d. The RPS scram jumpers MUST be installed, reset the scram.

OUESTION: 007 (1.00)

A startup is in progress and the following conditions exist:

Reactor power
Reactor water level
Reactor pressure
Condenser vacuum
Mode switch
MSIVs
2% on APRMs
30 inches
550 psig
20 inches
in STARTUP
open

Which of the following describes the effect if RPS bus "A" is deenergized?

- a. All MSIVs will close.
- b. A full scram will occur.
- c. MSIVs "A" and "C" will close.
- d. ONLY channel "A" half scram will occur.

QUESTION: 008 (1.00)

Which of the following are DC powered AND must energize to operate?

- a. Scram dump valves.
- b. Backup scram valves.
- c. Scram pilot solenoid valves.
- d. SDV vent and drain pilot valves.

QUESTION: 009 (1.00)

Which of the following describes the change in Alternate Rod Insertion (ARI) system operation when the system is manually initiated instead of automatically initiated?

- a. The recirculation pumps DO NOT automatically trip.
- b. The recirculation pumps trip WITHOUT a time delay.
- c. Only one ARI pushbutton must be armed and depressed.
- d. One of the automatic initiation signals must be present.

QUESTION: 010 (1.00)

A Unit 2 shutdown is in progress and the following conditions exist:

- -- Reactor power 13% and decreasing
- -- Reactor water level 30 inches
- -- Reactor pressure 1020 psig
- -- Mode switch in RUN
- -- APRMs/IRMs bypassed None

Both divisions of the 48/24 VDC power system become deenergized. Which of the following states the effect on the Unit 2?

a. The mode switch must be placed in STARTUP to prevent a scram.

b. A reactor scram occurs if the mode switch is moved to STARTUP.

- c. Reactor power decrease must be stopped until IRMs and SRMs are available.
- d. After the mode switch is in STARTUP, a reactor scram will occur when APRM power decreases below 3%.

QUESTION: 011 (1.00)

A control rod is being fully withdrawn to position 48. Which of the following is indication of an UNCOUPLED control rod?

- a. Red position 48 lights illuminate.
- b. Rod position indication goes blank.
- c. Green position 48 lights turn amber.
- d. Amber position 48 lights turn green.

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QUESTION: 012 (1.00)

When the APRM Channel 2 meter function switch is placed in the "COUNT" position, which of the following is the MINIMUM indication for the APRM to be still operable?

- a. 45%
- b. 50%
- c. 55%
- d. 60%

QUESTION: 013 (1.00)

Assuming the EHC pressure regulator is working properly, which of the following would be an indication of an open or leaking safety/relief valve?

- a. Total steam flow increase.
- b. Indicated steam line flow increase.
- c. Tailpipe temperature stable at 310 deg F.
- d. Increased differential pressure across the reactor core.

QUESTION: 014 (1.00)

The following conditions exist:

- -- The reactor is at 100% power.
- -- RPS MG SET "A" is inoperable for maintenance.
- -- RPS Bus "B" has been shifted to alternate power.

Subsequently, both EPAs for RPS MG SET "B" become inoperable, but RPS bus "A" remains energized from the MG Set. For the existing plant conditions, which of the following is an acceptable action?

- a. Shift RPS bus "A" to its alternate power supply.
- b. Trip main steam line rad monitors A & C and continue operation.
- c. Within 72 hours restore at least one RPS MG Set B EPA to operable service.
- d. Restore one EPA for RPS MG Set B to service within 30 minutes or remove the MG set from service.

QUESTION: 015 (1.00)

Which of the following are indications of a jet pump failure? A reactor power:

- a. INCREASE with indicated core flow INCREASE.
- b. DECREASE with indicated core flow INCREASE.
- c. INCREASE with indicated core flow DECREASE.
- d. DECREASE with indicated core flow DECREASE.

QUESTION: 016 (1.00)

Failure of recirculation pump seal #1 will be indicated by:

- a. #1 seal cavity low pressure alarm.
- b. #2 seal cavity low pressure alarm.
- c. #1 seal cavity pressure near reactor pressure.
- d. #2 seal cavity pressure near reactor pressure.

QUESTION: 017 (1.00)

The following conditions exist:

- -- A HPCI initiation signal is present.
- -- The HPCI system is injecting to the RPV.
- -- No other trip or isolation signal is present.

Which of the following will result in a HPCI system isolation and then an AUTOMATIC reset of the isolation circuitry?

- a. Low reactor pressure.
- b. High HPCI steam line flow.
- c. High HPCI area temperature.
- d. Low booster pump suction pressure.

QUESTION: 018 (1.00)

With the reactor recirculation pump flow mismatch circuit in effect, which of the following will AUTOMATICALLY cause a reactor recirculation pump to trip?

- a. Total feed flow decrease below 20% for 15 seconds.
- b. The low speed pump's discharge valve NOT full open.
- c. Total steam flow decrease below 20% for 15 seconds.
- d. The high speed pump's discharge valve NOT full open.

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QUESTION: 019 (1.00)

During a normal Recirculation Pump start sequence, when is the scoop tube positioned to the 28% position by the individual pump speed controller? The scoop tube will be positioned to the 28% position:

- a. as soon as speed exceeds 45%.
- b. after the Field Breaker has closed.
- c. as soon as the Drive Motor Breaker is closed.
- d. when the Recirc loop flow limiter is NOT in effect.

QUESTION: 020 (1.00)

The temperature requirements (steam dome to bottom head drain temperature and recirc loop temperatures) for starting a recirculation pump have been verified. Select the MAXIMUM time allowed to start the pump before the temperature requirements must be verified again.

- a. 5 min.
- b. 10 min.
- c. 15 min.
- d. 30 min.

QUESTION: 021 (1.00)

Select the condition that does NOT require Jet pump operability checks to be performed.

- a. After starting recirc pumps at rated temperature and pressure.
- b. Daily when both recirculation pumps are operating in cold shutdown.
- c. During plant heatup, within 24 hours of placing the mode switch in STARTUP.
- d. When operating with a single recirculation pump at less than maximum flow.

QUESTION: 022 (1.00)

Which of the following will prevent HPCI discharge to the CST through the test line return valve 2301-15?

- a. HPCI minimum flow valve open.
- b. CST level is less than 10,000 gals.
- c. Either HPCI torus suction valve open.
- d. Reactor vessel level is below 8 inches.

QUESTION: 023 (1.00)

When an automatic Isolation Condenser system initiation signal is present, the outboard condensate return valve (1301-3):

- a. can be throttled if necessary.
- b. cannot be placed in PULL TO LOCK.
- c. is interlocked fully open or fully closed.
- d. is procedurally prohibited from being throttled.

QUESTION: 024 (1.00)

Operation of the Condenser Mechanical Vacuum Pump is prohibited with the mode switch in RUN because:

- a. it precludes a possible hydrogen explosion.
- b. there is NO provision for monitoring the discharge.
- c. a greater vacuum is required for turbine operation.
- d. it cannot remove sufficient gases when greater than 15% power.

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QUESTION: 025 (1.00)

The following conditions exist:

- -- A loss of all off-site power has occurred.
- -- Unit 2 and Unit 3 diesel generators have started and are supplying their emergency buses.
- -- The 2/3 diesel generator is running unloaded

Which of the following will result if the "Close" mechanical pushbutton on the Diesel 2/3 output breaker to bus 33-1 is depressed in order to power bus 33-1?

The Diesel 2/3 output breaker to bus 33-1 will:

- a. close and remain closed.
- b. not close due to interlock.
- c. close and then immediately trip open.
- d. close and Diesel 2/3 output breaker to bus 23-1 will trip open.

QUESTION: 026 (1.00)

DC control power is lost to a 4160 Volt Motor Operated Air Circuit Breaker for an ECCS pump. Which of the following manual operations may be performed at the breaker without use of any breaker tools?

The breaker may be:

- a. only closed (if open).
- b. only tripped open (if closed).
- c. closed (if open) then tripped and closed again.
- d. tripped open (if closed), closed and tripped open again.

QUESTION: 027 (1.00)

Which of the following Primary containment Isolation Systems require loss of both the AC and DC power supplies to its components in order to cause a full group isolation?

- a. Group 1 only
- b. Group 4 only
- c. Groups 1 and 4
- d. Groups 4 and 5

QUESTION: 028 (1.00)

With the reactor at 100% power, the MAXIMUM number of MSIVs that may be closed without resulting in a full reactor scram is:

a.	0	Clarification provided: "Standing in the control
b.	1	Room @ 100 % power, how many MSIVS can
c.	2	you close without a reactor scram?" Answer
d.	3	the question as written." Clarification given to
		all candidates, Ro/SRO.

QUESTION: 029 (1.00)

Assuming that there is fuel in the reactor vessel, which of the following requires secondary containment to be established?

- a. Both trains of SBGTS become inoperable.
- b. New fuel is to be moved into the fuel pool.
- c. A control rod blade will be replaced with a new one.
- d. All source range detectors are discovered to be inoperable.

QUESTION: 030 (1.00)

Which of the following will bypass ALL rod blocks caused by SRM "A"?

- a. All IRMs on range 8.
- b. Reactor mode switch in REFUEL.
- c. SRM "A" detector fully withdrawn.
- d. SRM "A" function switch NOT in operate.

QUESTION: 031 (1.00)

The following conditions exist:

- --' The mode switch is in RUN.
- -- IRM "11" becomes INOP due to High Voltage low.

Which of the following will subsequently cause a half scram?

- a. APRM channel 1 downscale signal.
- b. APRM channel 1 placed in BYPASS.
- c. Placing IRM "11 in BYPASS with APRM channel 1 downscale.
- d. Placing IRM "11 in BYPASS with APRM channel 1 in BYPASS.

QUESTION: 032 (1.00)

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The following conditions exist:

- -- A valid Automatic Depressurization System (ADS) initiation signal has been received.
- -- ADS Logic Channel "A" FAILS TO actuate due to loss of 2A-1.
- -- ADS Logic Channel "B" actuates (energizes).

SELECT the EXPECTED response from the Safety Relief Valves (SRV).

- a. No SRVs open
- b. The Target rock valve and two ERVs open
- c. Only four ERVs open
- d. All SRVs open

QUESTION: 033 (1.00)

The following conditions exist:

- -- ADS automatically actuated from a leak inside containment.
- -- Reactor water level is steady at -65 inches.
- -- All LPCI and CS pumps are running.
- -- 120 second timer is timed out.
- -- All ADS valves are open.
- -- Drywell pressure reached 3 psig and is now 1.5 psig.
- -- Reactor pressure is 400 psig.

If the timer reset button is depressed and then released, which of the following describes the result on the Automatic Depressurization System? The SRVs will:

- a. remain open.
- b. close and remain closed.
- c. close and then reopen after 120 seconds.
- d. close and then reopen after 8.5 minutes.

QUESTION: 034 (1.00)

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What effect does losing power to 125 VDC Bus 2B-1 have on the Unit 2 Diesel Generator? The Unit 2 Diesel Generator:

- a. can NOT be started either automatically or manually.
- b. will NOT automatically start but can be manually started from the Control Room.
- c. will automatically start but all output breaker protective trips are inoperable.
- d. will NOT automatically start, or start from the Control Room, but can be manually started locally.

QUESTION: 035 (1.00)

Which of the following describes why operators are cautioned NOT to open Reactor Water Cleanup valves, Blowdown to the Condenser (1201-11) and the Blowdown to Rad Waste (1201-12), at the same time?

- a. Condenser vacuum will be reduced.
- b. The cleanup pumps may trip on low suction pressure.
- c. It will vacuum drag radwaste to the condensate system.
- d. The heat exchangers cannot remove sufficient heat to prevent system isolation.

QUESTION: 036 (1.00)

If the reactor is shutdown, which of the following require that reactor water level be maintained at or above 48 inches?

- a. Anytime no reactor recirculation pumps are running.
- b. One recirc pump running with one SDC loop less than full flow.
- c. One recirc pump running with less than two SDC cooling loops at full flow.
- d. Anytime no reactor recirculation pumps are running with less than two SDC cooling loops at less than full flow.

QUESTION: 037 (1.00)

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The following conditions exist:

- -- Unit 2 is operating at 100% power.
- -- RBM channel 8 has been declared inoperable.
- -- NO limiting control rod pattern exists.

Which of the following applies?

- a. Reactor power must be reduced to less than 30%.
- b. RBM channel 8 may be bypassed indefinitely if RBM channel 7 remains operable.
- c. Power operation may continue for a maximum of 24 hours without both operable RBM channels.
- d. If RBM 8 channel is placed in a tripped condition, power operation may continue for 24 hours.

QUESTION: 038 (1.00)

The following conditions exist:

- -- The reactor has been scrammed .
- -- There is a coolant leak into the drywell.
- -- Main turbine bypass valves have been opened in accordance with DEOP 100, RPV/P.

Conditions degrade and require immediate Emergency RPV Depressurization per DEOP 400-2. Select the required action.

- a. Close the bypass valves and open 5 ADS valves.
- b. Open 5 ADS valves then close the bypass valves.
- c. Open 5 ADS valves and leave the bypass valves open.
- d. Continue depressurization using only the bypass valves.

QUESTION: 039 (1.00)

The following conditions exist:

- -- A Loss of all Site AC power has occurred...
- -- No emergency diesels started.
- -- All control rods are fully inserted.
- -- Reactor level is -135 inches and decreasing.
- -- HPCI is injecting.

The earliest that ADS valves may be opened for emergency depressurization is:

- a. immediately.
- b. at -143 inches.
- c. when level reaches -185 inches.
- d. when any other injection source is operating.

QUESTION: 040 (1.00)

The following conditions exist:

- -- The reactor is at full power.
- -- Testing is in progress which adds heat to the torus.
- -- The torus bulk temperature is increasing.

The required action is to stop testing before exceeding:

- a. 95°F, enter DEOP 200-1 at 95°F, scram at 105°F.
- b. 95°F, enter DEOP 200-1 at 105°F, scram at 110°F.
- c. 105°F, enter DEOP 200-1 at 95°F, scram at 110°F.
- d. 105°F, enter DEOP 200-1 at 105°F, scram at 110°F.

QUESTION: 041 (1.00)

Intentional rod motion to SHORTEN reactor period is NOT permitted if:

- a. power is on IRM range 8.
- b. the existing period is negative.
- c. the existing period is 100 seconds or less.
- d. the SRMs indicate power has increased by 3 doubling times.

QUESTION: 042 (1.00)

During plant startup the following plant conditions are noted to occur over a 3 minute period.

- -- Reactor pressure decreased to 800 psig, now stable.
- -- Reactor Water Level + 20 inches trending to normal.
- -- Reactor power decreased 5%, now stable at 50%
- -- Generator output decreased to 350 Mwe from 400 Mwe.
- -- Reactor Protection Sys No actuations have occurred.

Which of the following is required?

- a. Scram the reactor.
- b. Trip the main turbine.
- c. Perform a reactor shutdown.
- d. Increase power with recirculation flow.

QUESTION: 043 (1.00)

Which of the following will satisfy the condition "The reactor is Shutdown" as stated in the RPV/P leg of DEOP 400-5?

- a. The SBLC tank level has decreased by 27%.
- b. All control rods at position 02 except one at position 48.
- c. Neutron monitors indicate below midscale of IRM range 7 and steady negative 80 second period.
- d. A QNE has determined that all shutdown margin requirements will be met with the existing rod pattern.

QUESTION: 044 (1.00)

The scram discharge volume vent and drain valves DID NOT close when a scram occurred. Which of the following would be the adverse consequence?

- a. There will be a primary leak to the reactor building.
- b. The CRD discharge path has insufficient back pressure.
- c. The timer allowing scram reset after 10 seconds will NOT initiate.
- d. The reactor pressure will be necessary to complete rod insertion.

QUESTION: 045 (1.00)

The following conditions exist:

- -- A reactor startup is in progress.
- -- The mode switch is in STARTUP.
- -- The main turbine is tripped.
- -- A valid Group I isolation has occurred.
- -- The reactor did NOT scram
- -- No ATWS condition exists.

Select the only signal that could have generated the Group I isolation?

- a. Low reactor water level
- b. Low main steam line pressure
- c. High steam tunnel temperature
- d. High main steam line radiation

QUESTION: 046 (1.00)

With RAPIDLY rising and uncontrolled reactor water level above 48 inches, which of the following is required?

- a. Inhibit ADS.
- b. Shut all MSIVs.
- c. Scram the reactor.
- d. Isolate the IC system.

The following conditions exist:

- -- The reactor is critical with the mode switch in STARTUP.
- -- The running Control Rod Drive (CRD) pump has tripped and cannot be immediately restarted.
- -- The other CRD pump is out of service for maintenance.
- -- The accumulator trouble alarm for the rod being moved has just been received.

A reactor scram is required:

- a. immediately.
- b. if reactor pressure is below 600 psig.
- c. if a valid control rod drift alarm is received.
- d. only if an adjacent accumulator trouble alarm occurs.

QUESTION: 048 (1.00)

With the reactor operating at the 102% Flow Control Line (FCL) the following occurs:

- -- One reactor recirculation pump trips.
- -- The operating reactor recirculation pump speed is 55%.
- -- No unstable neutron instrumentation is observed.
- -- The unit is determined to be in the PROHIBITED region of the Power-Flow Map (fig 1 of DOS 0500-18).

Which of the following is the required method for exiting this region?

- a. Manually scram the reactor.
- b. Start the tripped reactor recirculation pump.
- c. Insert CRAM arrays until power is reduced to 37%.
- d. Increase flow in the operating recirculation loop.

QUESTION: 049 (1.00)

During normal operations, intentional entry into the PROHIBITED region of the Power-Flow Map is:

- a. never permitted.
- b. permitted if both recirculation pumps are operating.
- c. permitted if Reactor Core instability is not indicated.
- d. permitted when authorized by a Qualified Nuclear Engineer.

QUESTION: 050 (1.00)

Which of following conditions will ALWAYS require entry into DEOP 300-1?

- a. SBGT system automatically started.
- b. Reactor building floor drain sump overflowing.
- c. Reactor building equipment drain sump HI alarm.
- d. Reactor building to atmosphere d/p at 0.5 inches of water.

QUESTION: 051 (1.00)

Drywell pressure indication is NOT operable. Which of the following would be positive indication that drywell pressure is at or above 2.00 psig?

- a. Torus pressure is 1.7 psig.
- b. Torus pressure is 2.7 psig.
- c. All 5 ADS safety relief valves open.
- d. The torus to drywell vacuum breakers and torus vacuum reliefs are open.

QUESTION: 052 (1.00)

IF an Electromatic Relief Valve vacuum breaker has failed in the open position during ERV operation, which of the following will result?

- a. An increase in drywell to torus differential pressure.
- b. Direct pressurization of the torus air space each time the ERV is opened.
- c. Steam bypassing the T-quenchers with a direct discharge path into the torus.
- d. Torus water being drawn up into the ERV discharge line after the ERV is closed.

QUESTION: 053 (1.00)

A loss of instrument air to which of the following will NEVER cause an automatic protective system scram?

- a. CRD flow control valves.
- b. Feedwater regulating valves.
- c. Main Steam Isolation Valves.
- d. Feedwater heating cascade and emergency drain valves.

QUESTION: 054 (1.00)

The following conditions exist:

- -- A loss of all AC power occurred at 6:45 am.
- -- Reactor pressure was initially 1030 psig.
- -- The IC system was manually initiated at 7:00 am.

The following RPV pressures have been recorded.

TIME	RPV Pressure
7:00 am	798 psig
7:15 am	610 psig

Assuming a constant rate of temperature reduction, when must the cooldown be secured in order to prevent exceeding the Technical Specification for cooldown without use of the step reduction limit?

Note: Answer rounded to nearest minute.

- a. 07:20 am
- b. 07:35 am
- c. 07:50 am
- d. 08:05 am

QUESTION: 055 (1.00)

Without operator action, if the Turbine Stop Valve closure scram fails to actuate, core protection is provided by the:

- a. load reject scram.
- b. MSIV closure scram.
- c. condenser low vacuum scram.
- d. reactor pressure and neutron flux scrams.
QUESTION: 056 (1.00)

Unit 2 is in cold shutdown and vented via the main steam line drains. All shutdown cooling and recirculation flow is lost. Select the MAXIMUM vessel level allowed without losing this vent path.

- a. 48 inches
- b. 109 inches
- c. 140 inches
- d. 185 inches

QUESTION: 057 (1.00)

As drywell temperature increases, which of the following level indications will increase when actual water level remains the same?

- a. Fuel zone
- b. Wide range
- c. Medium range
- d. Narrow range

QUESTION: 058 (1.00)

If a LPCI signal has been automatically initiated, placing the Containment Spray /Torus Cooling Permissive Keylock switch (316A/B) in "MANUAL", will permit drywell spray:

- a. if drywell pressure is above 1 psig and RPV level is above-191 inches.
- b. if drywell pressure is below 1 psig and RPV level is above-191 inches.
- c. if drywell pressure is above 1 psig and RPV level is below-191 inches.
- d. anytime the 2/3 Core Coverage Override Keylock Switch (317A/B) is in "Manual OVERRIDE".

QUESTION: 059 (1.00)

If reactor water level is at -200 inches, which of the following is the MINIMUM action necessary in order to clear the interlock and open the torus cooling or spray valves, MO-19/20?

- a. Only place the 2/3 Core Coverage Override Keylock Switch (317A/B) in "Manual OVERRIDE"
- b. Only place the Containment Spray /Torus Cooling Permissive Keylock switch (316A/B) in "MANUAL"
- c. Place Keylock Switch (317A/B) in "Manual OVERRIDE" and Keylock switch (316A/B) in "MANUAL"
- d. Close the LPCI cross tie valve (MO-32) and place the 2/3 Core Coverage Override Keylock Switch (317A/B) in "Manual OVERRIDE"

QUESTION: 060 (1.00)

The following conditions exist:

- -- A relief valve spuriously opened and stuck open.
- -- A reactor scram was initiated.
- -- MSIVs isolated due to a level transient.
- -- RPV level is recovering to normal.
- -- The Isolation Condenser is operable.
- -- Torus cooling is in service.
- -- Torus bulk temperature is increasing.

Which of the following is the initial required action as torus temperature increases?

- a. Initiate Torus Sprays.
- b. Emergency depressurize if torus bulk temp exceeds 120°F.
- c. Cooldown at normal rates if torus bulk temp reaches 120°F.
- d. Open the ERVs as necessary to maintain pressure below the Heat Capacity Temperature Limit, (fig 200-1-E).

When DEOP 400-2, permits defeating isolation interlocks in order to rapidly depressurize without ADS valves, which of the following Group I isolation signals may be bypassed?

- a. All Group I isolation signals.
- b. Only the low RPV water level at -59 inches.
- c. Only low RPV water level at -59 inches and low main steam line pressure.
- d. All Group I isolation signals except main steam line high radiation.

QUESTION: 062 (1.00)

During execution of "Reactor Scram", DGP 02-03, if:

- a. any control rods are NOT inserted to or beyond position 02, the operator must exit DGP 02-03 and enter DEOP 100.
- b. any control rods are NOT inserted to or beyond position 02, the operator must exit DGP 02-03 and enter DEOP 400-5.
- c. more than one control rod is withdrawn beyond position 02, the operator must exit DGP 02-03 and enter DEOP 400-5.
- d. any control rods are NOT inserted to or beyond position 02, the operator must enter DEOP 400-5 concurrently with DGP 02-03.

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QUESTION: 063 (1.00)

The following conditions exist:

- -- The reactor is shutdown
- -- RWCU is not operable
- -- Both recirculation pumps are inoperable
- -- Two SDC pumps are operating at full flow
- -- RPV water level is +55 inches
- -- RPV water temperature is 200°F and increasing at 1.0°F/min.

SDC pump flow is lost and cannot be immediately regained. Which of the following operator actions is necessary?

- a. Increase RBCCW flow.
- b. Initiate the IC system.
- c. Establish primary containment.
- d. Raise water level to 140 inches.

QUESTION: 064 (1.00)

The following conditions exist:

- -- The plant has experienced a transient and the MSIVs received an isolation signal.
- -- Neither MSIV in the "A" line closed, all others closed.
- -- The reactor successfully scrammed.
- -- RPV level is stable at 20 inches, reactor pressure is 900 psig and slowly decreasing.
- There is an unisolable steam leak in the turbine building.
- Various turbine building ARMs indicate increasing levels.
- A SITE EMERGENCY has been declared based upon barrier loss.
- -- Radiation surveys are in progress.

At this time, which of the following must be entered?

- a. DGP 02-03 only
- b. DGP 02-03 and DEOP 100 and DEOP 200-1
- c. DGP 02-03 and DEOP 100 and DEOP 400-2
- d. DGP 02-03 and DEOP 200-1 and DEOP 300-1

QUESTION: 065 (1.00)

A primary leak of unknown origin has occurred in the reactor building. The Clean Up System Area ARM and the Vessel Instrument Rack Area ARM are both at full scale. The required action is to Scram, enter DEOP 100 and:

- a. enter DEOP 400-2 and Emergency Depressurize.
- b. if reactor building area temperatures confirm MAX safe conditions, enter DEOP 400-2.
- c. if local surveys determine actual radiation levels to be at 2500 mr/hr, then enter DEOP 400-2.
- d. enter DEOP 300-2 while a local survey determines actual radiation levels, enter DEOP 400-2 as radiation surveys dictate.

QUESTION: 066 (1.00)

The following conditions exist:

- -- A small steam leak has occurred in the drywell.
- -- Drywell pressure is at 3 psig and steady.
- -- RPV level is +15 inches and steady.
- -- RPV pressure is 500 psig and dropping slowly.
- -- All systems are functioning as designed.

Which of the following would be UNEXPECTED for the conditions given?

- a. Drywell coolers operating.
- b. Emergency diesel generators operating.
- c. Core Spray suction valves interlocked open.
- d. Both Core Spray pumps running on minimum flow.

QUESTION: 067 (1.00)

During a scram from 100% power, which of the following describes the response of a withdrawn control rod if the accumulator piston for its hydraulic control unit does NOT move?

NOTE: Assume the accumulator is mechanically bound up.

The control rod will:

- a. NOT insert.
- b. insert at slower than normal speed.
- c. insert after the CRD flow control valve opens.
- d. insert only if CRD charging pressure is greater than 400 psig.

QUESTION: 068 (1.00)

During non-emergency conditions, which of the following RPS trip signals is NEVER bypassed?

- a. IRM High Flux
- b. APRM High Flux (15%)
- c. Reactor low water level
- d. Mode Switch in SHUTDOWN

QUESTION: 069 (1.00)

Which of the following would constitute unacceptable air quality in a confined space?

- a. Oxygen levels at 22.1 percent.
- b. Hydrogen gas at 5% of its lower explosive limit.
- c. Airborne combustible dust concentrations such that vision is limited to 10 feet.
- d. Toxic contaminant concentration above the Material Safety Data Sheet limit but below the OSHA limit.

QUESTION: 070 (1.00)

Select the temporary alteration that would be exempt from the requirements of DAP 05-08, Control of Temporary System Alterations. The alteration is a:

- a. freeze seal in a non-safety-related system.
- b. hose installed to drain a system for an equipment outage.
- c. piece of measuring and test equipment which is installed in line.
- d. temporary setpoint change which is more conservative than the nominal setpoint.

QUESTION: 071 (1.00)

- Which of the following must be verified prior to allowing a 5 square inch hole in the secondary containment outer wall or roof to be opened?
 - a. NO secondary containment isolation exists.
 - b. At least one train of Standby Gas Treatment is running.
 - c. An operator equipped with sealant is stationed on both sides of the opening.
 - d. Secondary Containment to atmosphere differential pressure is less than 0.3 inches of water.

QUESTION: 072 (1.00)

Which of the following is required for a Temporary Procedure Change (TPC) which does NOT change intent? The TPC must be approved by two members of plant management, at least one of which:

- a. holds an SRO license and the TPC must be approved in accordance with Technical Specifications within 7 days of implementation.
- b. holds an SRO license and the TPC must be approved in accordance with Technical Specifications within 14 days of implementation.
- c. is from the responsible work organization and the TPC must be approved in accordance with Technical Specifications within 7 days of implementation.
- d. is from the responsible work organization and the TPC must be approved in accordance with Technical Specifications within 14 days of implementation.

QUESTION: 073 (1.00)

An emergency has arisen on Unit 2. Which of the following DO NOT have unlimited access to the control room during this condition?

- a. Station Manager
- b. Operations Manager
- c. Site Vice President
- d. NRC Resident Inspector

QUESTION: 074 (1.00)

An individual has been called to report for unscheduled work. What is the MAXIMUM length of time since consumption of alcohol within which a Breath Alcohol Test is required for this individual?

- a. 3 hours.
- b. 4 hours.
- c. 5 hours.
- d. 8 hours.

QUESTION: 075 (1.00)

During a refueling outage, a Refueling Platform Operator has worked the following hours:

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

(No non-working breaks were taken, turnover time has been excluded)

On which day did he first violate the Overtime Guidelines?

- a. Sunday
- b. Monday
- c. Tuesday
- d. Wednesday

QUESTION: 076 (1.00)

Unit 2 is in a refueling outage. Preparations are being made to remove Transformer 22 from service for replacement. Prior to this evolution, the initial briefing must be conducted by:

- a. any on shift SRO.
- b. the Shift Manager.
- c. a Senior Line Manager.
- d. the Unit-2 Unit Supervisor.

QUESTION: 077 (1.00)

In accordance with DATR 6.1, Administrative Controls, a site fire brigade is required on site at all times consisting of at least:

- a. four members which may include personnel required for essential functions during a fire emergency but NOT the shift crew required for safe shutdown of the plant.
- b. five members which may include personnel required for essential functions during a fire emergency but NOT the shift crew required for safe shutdown of the plant.
- c. five members which DOES NOT include personnel required for essential functions during a fire emergency or the shift crew required for safe shutdown of the plant.
- d. seven members which DOES NOT include personnel required for essential functions during a fire emergency or the shift crew required for safe shutdown of the plant.

QUESTION: 078 (1.00)

The Shift Manager is given discretion to perform Independent Verification (IV) on certain systems that do not require IV.

These systems include:

- a. TBCCW System.
- b. Fire Protection Water Supply.
- c. High Pressure Coolant Injection System.
- d. all liquid radioactive waste handling systems.

QUESTION: 079 (1.00)

Which of the following would be an unlikely effect of a hydrogen-oxygen burn in the primary containment?

- a. Uncontrolled release of radioactivity.
- b. Damage to plant equipment required for the safe shutdown.
- c. Peak pressures exceeding the structural capability of the Drywell.
- d. Negative pressure excursions exceeding the capacity of the Torus to Reactor Building vacuum breakers.

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QUESTION: 080 (1.00)

The following conditions exist:

- -- A normal reactor startup is in progress.
- -- Reactor power on SRMs is 9000 cps and increasing.
- -- All IRMs are on range 2 or 3.

An SRM High rod block occurs as expected. The rod block should be cleared by:

- a. placing the mode switch in RUN.
- b. moving all IRM range switches to range 3 or above.
- c. continuously withdrawing the SRM detectors to full out.
- d. withdrawing SRM detectors while remaining above 100 cps.

QUESTION: 081 (1.00)

The following conditions exist:

- -- Units 2 and 3 are operating near 100% power.
- -- Train A of SBGT received an automatic start signal.
- -- Train B of SBGT started due to a train A fault.
- -- SBGT system total flow is 4800 scfm on FI-7540-13.
- -- All valves and fans have operated normally.

Which of the following is the required action?

- a. NO actions required, the SBGT system is operating within specifications.
- b. The operability of train B is NOT in question, however the system flow should be adjusted down to 4000 scfm.
- c. Restore at least one train of SBGT to operable status within 36 hours or establish plant conditions that DO NOT require secondary containment.
- d. Restore the A train to an operable status within 7 days or be in Hot Shutdown within 12 hours and cold shutdown within the following 24 hours.

QUESTION: 082 (1.00)

Select the MINIMUM water temperature allowed in the Unit 2 or 3 Spent Fuel Pool or reactor cavity when fuel is present.

- a. 40°F
- b. 68°F
- c. 77°F
- d. 100°F

QUESTION: 083 (1.00)

With the refueling platform over the core, which of the following, BY ITSELF, will initiate a rod block?

- a. Service platform in use.
- b. Mode switch in "REFUEL".
- c. Mode switch in "STARTUP".
- d. Any refueling hoist loaded.

QUESTION: 084 (1.00)

Identify the reason that reactor power goes down when reactor water level is deliberately lowered during a failure to scram (ATWS) event.

- a. Increased core voiding.
- b. Decreased reactor pressure.
- c. Increased reactor water temperature.
- d. Further concentration of injected boron.

QUESTION: 085 (1.00)

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Which of the following is the MINIMUM action required when a review of operating logs, one day after a transient, shows that a Safety Limit has been violated?

- a. Place the reactor in Hot shutdown.
- b. Place the reactor in Cold shutdown.
- c. Obtain NRC approval to remain at power.
- d. Obtain Shift Manager approval to remain at power.

QUESTION: 086 (1.00)

The following conditions exist:

- -- The Isolation Condenser system cannot be initiated.
- -- No injection source is available.
- -- Reactor water level reaches -185 inches.

Which of the following describes why 5 ADS valves must be opened in accordance with DEOP 400-3?

- a. Steam Cooling is NOT effective in removing decay heat when RPV level is above -185 inches.
- b. Below this level there will be insufficient steam pressure to automatically open the ADS.
- c. This level provides the maximum cooling effect per pound mass of steam available in the core.
- d. This is the minimum level that will generate sufficient steam to cool the uncovered core without continuous steam flow.

QUESTION: 087 (1.00)

The Automatic Depressurization System is inhibited during an ATWS situation because if actuated:

- a. it would cause a large loss of RPV inventory and impose a severe thermal transient on the fuel.
- b. a considerable amount of energy could be put into the Torus well before it is necessary or required.
- c. once below the shutoff head of the low pressure ECCS systems, the injection water might cause a large power excursion.
- d. it would drive plant conditions above the RPV Saturation Temperature curve making RPV water level indication unreadable.

QUESTION: 088 (1.00)

Why does DEOP 200-1 require emergency depressurization if you cannot restore and maintain the reactor below the ADSV Tail Pipe Level Limit, Fig 200-1-J?

- a. Suppression Pool-Drywell Vacuum Breakers will be covered.
- b. The torus external structural support limits will be exceeded.
- c. The structural capability of the ADS discharge lines may be exceeded.
- d. The pressure suppression feature of the steam discharged from the RPV cannot be assured.

QUESTION: 089 (1.00)

One of the purposes of the Drywell Spray Initiation limit is to prevent:

- a. drywell pressure drop to less than atmospheric pressure.
- b. air in-leakage into the containment during rapid pressure reduction.
- c. convection cooling when water is sprayed into a saturated atmosphere.
- d. failure of the downcomers prior to opening of the torus-to- drywell vacuum breakers.

QUESTION: 090 (1.00)

Should it become necessary to lower reactor level during an ATWS condition (DEOP 400-5, sect RPV/P), the following systems are specified for use to maintain level:

Condensate/feedwater CRD HPCI LPCI

Only these systems are to be used because:

- a. at this point in the ATWS, reactor pressure precludes use of other systems.
- b. these systems provide the cleanest source of water for injection into the reactor.
- c. their point of injection ensures mixing of the cold injection water prior to core entry.
- d. these systems can operate automatically so the operator need only verify lineups when this step is reached.

QUESTION: 091 (1.00)

The following conditions exist:

- -- The reactor is operating at 100% power.
- -- Upon transfer of the Instrument Bus power supply, the emergency drain valves for various feedwater heaters open.
- -- Feedwater temperature drops 200°F.

A reactor scram is necessary:

- a. to preclude a reactor trip on high power.
- b. to keep Critical Power Ratio within analyzed limits.
- . c. because decreasing reactor flow will not keep up with the reactor power increase.
 - d. because the feedwater inlet to the RPV cannot withstand the large temperature change.

QUESTION: 092 (1.00)

A situation has arisen where it is desired to use a Human Out of Service in lieu of the station Out of Service program. Which of the following is a requirement for using a Standing (Human) Out of Service?

- a. Station Manager approval must be obtained.
- b. Duration of the evolution must be less than one hour.
- c. Personnel from the Operating department must be used in place of an OOS card.
- d. NO more than three isolation points may be held by Human Out of Services at one time for a given maintenance activity.

QUESTION: 093 (1.00)

The following conditions exist:

- -- Reactor power is 100%.
- -- The Traversing Incore Probe (TIP) system is in operation.
- -- A TIP detector is within the core area.
- -- Technician error causes a Group II containment isolation signal.
- -- Within one minute the isolation signal is reset.

Which of the following describes the response of the TIP system.

- a. A "Tip Isolation Off Normal" alarm will occur and the in core detector automatically withdraws until the isolation is reset.
- b. Any TIP detector NOT in its shield shifts to manual reverse and withdraws to the shield chamber. After five minutes the ball valve closes.
- c. The TIP drive automatically shifts to manual reverse and withdraws the in core detector until the Group II isolation is reset.
- d. The TIP detector shifts to manual reverse and withdraws to the shield chamber. The ball valve closes when the detector is in the shield.

QUESTION: 094 (1.00)

Which of the following describes a properly oriented fuel bundle?

- a. The orientation lug on the fuel assembly handle points away from the control rod.
- b. The channel spacer buttons face the control rod of the fuel assembly.
- c. Serial number on the handle is readable from the outside edge of the fuel assembly.
- d. The channel spring clip is located on the outside edge of the fuel assembly.

QUESTION: 095 (1.00)

Which of the following constitutes "Adequate Core Cooling"?

NOTE: Only the injection sources stated are injecting.

- a. ATWS in progress, the feed system is maintaining level between -185 inches and -143 inches, MSIVs are open.
- b. All rods in, IC operating, MSIV/ADS valves are closed, RPV level is -200 inches and decreasing, RPV pressure is 200 psig.
- c. ATWS in progress, CRD, HPCI and SLC (with Boron) are injecting, RPV level is -200 inches and increasing, MSIVs are open.
- d. All rods in, HPCI is injecting, 1 ADS valve is open, RPV level at -200 inches and increasing, MSIVs and IC-3 are closed.

QUESTION: 096 (1.00)

Isolation of a primary system leak is required by DEOP 300-1 and 300-2, in order to limit radioactive discharge. Under these conditions, the term "Primary System" refers to any system:

- a. containing reactor coolant.
- b. for which the ASME "N" stamp is issued.
- c. connected to the RPV that contains radioactive water.
- d. connected to the RPV that has a reduced leak rate if RPV pressure is lowered.

QUESTION: 097 (1.00)

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The following conditions exist:

- -- RPV level cannot be maintained above -143 inches.
- -- DEOP 400-4 is executed to flood containment and thus cover the core.

Which of the following is the MINIMUM containment level such that the core is covered?

- a. 27 feet
- b. 70 feet
- c. 82 feet
- d. 93 feet

QUESTION: 098 (1.00)

While conducting refueling operations, a fuel bundle is dropped. Select the required immediate action.

- a. Terminate all core alterations and evacuate the fuel floor.
- b. Stop fuel movements until continuous radiation surveys are established on the bridge.
- c. Initiate SBGTS, monitor ARMs and stop fuel movements if a high radiation alarm is received.
- d. Evacuate all persons from the fuel floor if a refuel floor radiation alarm is received.

QUESTION: 099 (1.00)

If torus level is decreasing and cannot be recovered, HPCI must be secured at 12 feet:

- a. unless its suction is from the CST.
- b. to prevent threatening containment integrity.
- c. unless RPV level cannot be maintained above TAF (-143 inches).
- d. to prevent further reduction of torus level below 11 feet which then requires emergency depressurizaton.

QUESTION: 100 (1.00)

• The following conditions exist:

- -- An ATWS is in progress.
- -- Reactor power is 22%.
- -- Reactor water level is -10 inches.
- -- Reactor pressure is 960 psig.

Which of the following will be severely challenged and is of primary importance should a full MSIV closure occur?

- a. RPV integrity.
- b. Fuel integrity.
- c. Primary containment integrity.
- d. Secondary containment integrity

(********** END QF EXAMINATION **********)

ANSWER: 001 (1.00)

b.

REFERENCE:

DAP 03-05, section E.10.c, page 19 of 58 Admin Procedure Objective 29900LP029

ANSWER: 002 (1.00)

c.

REFERENCE:

DAP 12-04, section E.5, page 4 of 22

ANSWER: 003 (1.00)

a.

REFERENCE:

DAP 13-10, ESCORT DUTIES, section E.5, page 3 of 5 Previous Dresden Exam

ANSWER: 004 (1.00)

c.

REFERENCE:

EPIP 0400-01, section C.1, page 1 of 10

ANSWER: 005 (1.00)

d.

REFERENCE:

DAP 07-14, section F.1.b, page 6 of 10

ANSWER: 006 (1.00)

d.

REFERENCE:

212LS1 RPS, pg 23 E.5, pg 35 N.3, obj 5

ANSWER: 007 (1.00)

b.

REFERENCE:

212LS1 RPS, pg 26 F.4.g, obj 6.a

ANSWER: 008 (1.00)

b.

REFERENCE:

201L-S1 CRD HYD, pg 15A, 18A, 19A, obj 3.d.7

ANSWER: 009 (1.00)

a.

REFERENCE:

212LS1, RPS/ARI, pg 46, ATWS obj A.3.a

ANSWER: 010 (1.00)

b.

REFERENCE:

215L-S3, IRMs, pg 17 & 18, obj 5.b DOA 6900

ANSWER: 011 (1.00)

b.

REFERENCE:

201L-S2, RMC and RPIS, pg 20A, obj 03.b, 09.e, 11.b

ANSWER: 012 (1.00)

с.

REFERENCE:

215L-S5, APRM pg 6A.E.1 and 18a table, obj 3.c

ANSWER: 013 (1.00)

с.

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REFERENCE:

3391-S1 Main Stm Sim Attachment pg 7, obj 4.e. and f Steam Tables Mollier Diagram, TMI Lessons learned

ANSWER: 014 (1.00)

d.

REFERENCE:

262L-S2 Low voltage AC, pg 7 and fig 1, obj

ANSWER: 015 (1.00)

b.

REFERENCE:

223L-S4 internals obj 6.a DOA 0201-01, section A

ANSWER: 016 (1.00)

d.

REFERENCE:

202L-S1 Recirc, fig 3, obj 6.d

ANSWER: 017 (1.00)

a.

REFERENCE:

206L-S1 HPCI, pg 17, 18, 19 obj 5.c & 5.c

ANSWER: 018 (1.00)

b.

REFERENCE:

202L-S2, RR flow control, pgs 18 and 19, obj 3.d, 5.c

ANSWER: 019 (1.00)

b.

REFERENCE:

202L-S2 RR flow control, pg 8, para 3, obj 3.d

ANSWER: 020 (1.00)

с.

REFERENCE:

DOP 0202-01, G.9 and G.10, TS 3.6.H.5 202L-S1 RR system obj 7.C

ANSWER: 021 (1.00)

b.

REFERENCE:

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DOP0202-01, pg 7, F.14
DOS 0202-02, Jet Pump Operability and Degradation,
TS 3.6.g, pgs 6-10,11,12
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ANSWER: 022 (1.00)

с.

REFERENCE:

206L-S1 HPCI pg 21A, 4.b. obj 5.j

ANSWER: 023 (1.00)

a.

REFERENCE:

207L-S1, IC attachment A, pg 3A, obj 5.a

ANSWER: 024 (1.00)

a.

REFERENCE:

DOP 5400-10, pg 3, E.1

ANSWER: 025 (1.00)

a.

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REFERENCE:

264L-S1, EDGs, pg 21, c.2.b

ANSWER: 026 (1.00)

d.

REFERENCE:

2621-S2, ckt breaker control. pg 7A, III.A obj 3.a, 6,a DOP 6500-02, section g.10. obj 3.a.b.c

ANSWER: 027 (1.00)

a.

REFERENCE:

223L-S1 PCIS, pg 13 D.1, pgs 21 and 22, obj 6.a,b,c,

ANSWER: 028 (1.00)

a.

REFERENCE:

223L-S1 PCIS, pg 6, III.A.1.a, obj 5.a

ANSWER: 029 (1.00)

с.

REFERENCE:

TS 3.7.C

ANSWER: 030 (1.00)

a.

REFERENCE:

215L-S4 SRM, pg 18, rod blocks, obj 5.a

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SENIOR REACTOR OPERATOR
ANSWER: 031 (1.00)
a.
REFERENCE:
215L-S3, IRMs, pg 15, 16, 17, obj 5.b
215L-S5, APRM pg 18A
ANSWER: 032 (1.00)
d.
REFERENCE:
218L-S1 ADS, pgs 7,14, obj 6.a
ANSWER: 033 (1.00)
c.
REFERENCE:
218L-S1, ADS system, pg 8, b.d, pg 13, 5.B and 5.C obj 2 and 3
ANSWER:
           034 (1.00)
a.
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REFERENCE:

262L-C1 125 DC dist, pg 3 of 4 obj 2.c

ANSWER: 035 (1.00)

a.

REFERENCE:

204L-S1 RWCU pg 11 NOTE, obj 2.c DOP 1200-1,2,3 various notes

ANSWER: 036 (1.00)

d.

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REFERENCE:

DOP 100-03, pg 4, E.4 OBJ:205T03-03 from 20500S0031

ANSWER: 037 (1.00)

b.

REFERENCE:

TS 3.2.c.2, pg 3/4.2-2

ANSWER: 038 (1.00)

с.

REFERENCE:

DEOP 400-2

ANSWER: 039 (1.00)

b.

REFERENCE:

295L-S1 DEOP 100 lp , pg 26, d.1 obj #10

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ANSWER: 040 (1.00)

с.

REFERENCE:

DEOP 200-1, and lp 200-1, obj 8 TS 3.7.A.c pg 3/4.7-2

ANSWER: '041 (1.00)

c.

REFERENCE:

DAN 902 (3)-5 E-4 Note #1

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SENIOR REACTOR OPERATOR
 ANSWER: 042 (1.00)
a.
 REFERENCE:
DEOP 100 - power > 6\% when a scram is required.
 ANSWER:
         043 (1.00)
d.
 REFERENCE:
DEOP 400-5 lp, pg 31, obj #20
DEOP 100 1p pg 8, 2.a, b
 ANSWER: 044 (1.00)
a.
 REFERENCE:
201L-S1 CRDH fig 7, obj 3.g
   295034A202 .. (KA's)
 ANSWER: 045 (1.00)
с.
 REFERENCE:
223L-S1 PCIS pg 6 & 7,
                       obj 5.a
ANSWER: 046 (1.00)
с.
 REFERENCE:
DOA 0600-01, pg 7, D. 10
ANSWER: 047 (1.00)
a.
REFERENCE:
DOA 0300-01, c.5, oper immed action
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ANSWER: 048 (1.00)

a.

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REFERENCE:

DOA 0202-01, pg 2, C.2

ANSWER: 049 (1.00)

a.

REFERENCE:

DOA 0500-1, pg 3, sect F

ANSWER: 050 (1.00)

b.

REFERENCE:

DEOP 300-1 entry conditions

ANSWER: 051 (1.00)

b.

REFERENCE:

223L-S1 Pri Ctmt 1p, pgs 12 and 13, sect H, I obj 2.a, 2c

ANSWER: 052 (1.00)

a.

REFERENCE:

239L-S1 Main Steam, pg 11A, fig 2 & 3 obj 3.a

ANSWER: 053 (1.00)

a.

REFERENCE:

DOA 4700-01, pgs 9 and 10 sect 2.a,b.e.n

ANSWER: 054 (1.00)

b.

REFERENCE:

TS 3.6.A.1, pg 3/4.6-1.

ANSWER: 055 (1.00)

d.

REFERENCE:

TS pgs B 3/4.1-13 and 1-14 212L-S1 RPS, section V

ANSWER: 056 (1.00)

c.

REFERENCE:

DGP 02-02 pg 26, step G.88

ANSWER: 057 (1.00)

b.

REFERENCE:

216L-S1 NBI pg 32A, B.1&2, obj 6b

ANSWER: 058 (1.00)

a.

REFERENCE:

203L-S1 LPCI Att A, pgs 2A & 3A, sect A & B obj 5.c

ANSWER: 059 (1.00)

с.

REFERENCE:

203L-S1 LPCI Att A, Fig #4

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SENIOR REACTOR OPERATOR
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ANSWER: 060 (1.00)

c.

REFERENCE:

3.7.A.l.c.4, pg 3/4.7-3, cooldown to <150# if at 120deg w/rx isolated

ANSWER: 061 (1.00)

a.

REFERENCE:

295L-S9, DEOP 500 support procedures lp, pg 9A &10A obj 1

ANSWER: 062 (1.00)

a.

REFERENCE:

DGP 02-03, "Reactor Scram" G.3.a

ANSWER: 063 (1.00)

с.

REFERENCE:

DOA 1000-01, pg #3 note 5, TS pg 3/4.7-4

ANSWER: 064 (1.00)

a.

REFERENCE:

DEOP 100 through 400 entry conditions

ANSWER: 065 (1.00)

a.

REFERENCE:

DEOP 300 series 1p pg 9, note at bottom. obj #9

ANSWER: 066 (1.00)

a.

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REFERENCE:

Fac bnk 20901S0041 modified

ANSWER: 067 (1.00)

b.

REFERENCE:

201L-03 CRD, pg 25A and fig 8, 201L-S1 CRD HYD, pg 31A 3.d, obj 3.e of 201L-S1

ANSWER: 068 (1.00)

c.

REFERENCE:

215L-S3 IRM pg 3, C, obj 5.b TS table 3.1.1, note #6

ANSWER: 069 (1.00)

d.

REFERENCE:

DAP 03-14, section E.13.b, page 7 of 29 Admin Procedure Objectives 29900LK007

ANSWER: 070 (1.00)

b.

REFERENCE:

DAP 05-08, section E.2-3, page 6 of 34

ANSWER: 071 (1.00)

a.

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REFERENCE:

DAP 07-18, section E.2, page 2 of 4 Admin Learning Objective 29900LK036

ANSWER: 072 (1.00)

b.

REFERENCE:

DAP 09-06, section E.1, page 4 of 21 Administrative Learning Objective 29900LP019

ANSWER: 073 (1.00)

с.

REFERENCE:

DAP 13-02, section F.2.c, and Attachment B Administrative Procedure Objective 29900LK087

ANSWER: 074 (1.00)

c.

REFERENCE:

DAP 13-17, section F.5.f, page 9 of 19

ANSWER: 075 (1.00)

a.

REFERENCE:

DAP 01-09, Control of Overtime

ANSWER: 076 (1.00)

c.

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REFERENCE:

DAP 07-37, section F.2.b and Attachment B

ANSWER: 077 (1.00)

с.

REFERENCE:

DATR 6.1

ANSWER: 078 (1.00)

a.

REFERENCE:

DAP 07-27, section F.1, page 6 and 7 of 13 Administrative Procedure Objective 29900LK050

ANSWER: 079 (1.00)

d.

REFERENCE:

Lesson Plan, DEOP Primary Containment Control, Section E.1, page 28 of 38, Objective 7

ANSWER: 080 (1.00)

d.

REFERENCE:

New question, from fac ques #21504B0071 provided at prep week

ANSWER: 081 (1.00)

с.

REFERENCE:

TS pg 3/4 7-20 B.1.b, DOP 7500-01,F.3&4 obj 5.a,b,c, and 7.a ref fac bnk 26100S0111 modified

ANSWER: 082 (1.00)

b.

REFERENCE:

DOP 1900-01, 03, Limitations and Actions

ANSWER: 083 (1.00)

с.

REFERENCE:

210L-S2, RMCS, table 2 obj 10.a.3

ANSWER: 084 (1.00)

a.

REFERENCE:

DEOP 1p 400/5, pg 14, A.8.c obj 11

. . -

ANSWER: 085 (1.00)

a.

REFERENCE:

TS 6.4, pg 6-15 and definitions Note - Although d places plant in HSD there is no requirement to scram which would be a maximum not a minimum action.
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SENIOR REACTOR OPERATOR
                                                                     PAGE 66
 ANSWER:
          086 (1.00)
d.
 REFERENCE:
DEOP 400-3 lp, pg 7, B.3 and C.1 also DEOP 100 lp pg 27,
 ANSWER:
          087 (1.00)
c.
 REFERENCE:
DEOP 400-5 lp pg 4, 2.a.b.c.d obj #3
 ANSWER: 088 (1.00)
c.
 REFERENCE:
DEOP 200 lp, pg 26, 6.a,b obj 2.e
 ANSWER: 089 (1.00)
d.
 REFERENCE:
DEOP 200 series lp pgs 11 & 12, sect #4 obj 2.a
 ANSWER: 090 (1.00)
с.
 REFERENCE:
DEOP 400-5 lp pg, 9, 5.a obj #4
ANSWER: 091 (1.00)
b.
 REFERENCE:
DOA 3500-02 pg 3, C.2.d
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ANSWER: 092 (1.00)

с.

REFERENCE:

DAP 03-05, section E.15, page 23 of 58 Admin Procedure Learning Objective 29900LK005

ANSWER: 093 (1.00)

d.

REFERENCE:

215L-S1 TIP sys, pg 7A, obj 5.a

ANSWER: 094 (1.00)

b.

REFERENCE:

DFP 0800-07, Fig #1

ANSWER: 095 (1.00)

b.

REFERENCE:

DEOP 400-5, 1p pg 17, 9.a.1 and DEOP 400-3 1p pg 6, B.1

ANSWER: 096 (1.00)

d.

REFERENCE:

DEOP 300 1p pg 5, 4.a pg 11, 2.a obj #6

ANSWER: 097 (1.00)

с.

REFERENCE:

DEOP 100 lp pg 13.b and DEOP 400-4, TAF is 82 ft

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ANSWER: 098 (1.00)

d.

ť,

REFERENCE:

DFP 0850-02, pg 3, C.1

ANSWER: 099 (1.00)

b.

REFERENCE:

DEOP 200 lp, pg 24, A.3.a. OBJ #5

ANSWER: 100 (1.00)

c.

REFERENCE:

DEOP 400-5 lp pgs 7 and 8, c.1.2.3 obj #5

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

SENIOR REACTOR OPERATOR Page 1 A N S W E R K E Y

MU	JLTIPLE CHOICE	023	а	
001	b	024	a	
002	С	025	а	
003	а	026	d	
004	c	027	а	
005	d	028	а	
006	d	029	с	
007	b	030	а	
008	b	031	а	
009	a .	032	d	
-010 -	+ Del QUES NU LORRELT ANS	033	С	
011	b	034	а	
012	c	035	а	
013	с.	036	d	
014	d	037	b	
015	b	038	с	
016	d	039	b	
017	а	040	С	
018	b	041	с	
019	b	042	а	
020	с	043	d	
021	þ	044	а	
022	С	045.	С	
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SENIOR REACTOR OPERATOR A N S W E R K E Y

м			068	c						
046	c	069	d	-						
047	a	070	b							
048	-	071	2							
049	2	072	u h							
050	h	072	0							
051	5 b	073	C							
051		074	, ,							
052	a 2	075	a							
055	d 	070	C							
054		077	C							
055	a .	078	a							
056	C	079	d							
057	b	080	d							
058	a	081	С			•				
059	С	082	b			•				
060	с	083	С							
061	а	084	а							
062	а	085	а							
063	С	086	d							
064	а	087	с			1				
065 ,	AC ISCURRECT NOT A	088	С		,					
066	a	089	d							
067	b	090	с					•		

Page 2

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SENIOR REACTOR OPERATOR A N S W E R K E Y

Page 3

MULTIPLE CHOICE

091	b				•			
092	С							
093	d							
094	b							
095	b							
096.	d							
097	С							
098	d			×				
099	b							
100	с							

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

ind scale Δр 280 160.7 195.9 -230 231.2 180 $\overline{\mathbf{v}}$ NE BOTTOM HH-266.4 130 -301.7 80

NORM. OPER BO ON NARWAY) **1336.4** 30 ZERO 503 Ω -372.2 -20 407.5 70 300 400 500 100 200 50 F John M. 1-16.m 1/18/85

Reactor Water Temp. vs. GEMAC Wide Range Level Reading