STUDENT MANUAL

Site Day 1

Date/Time	Operating Status	Major Equipment Out Of Service	Remarks
Day 1	Mode 1 85%	N/A	7 days since post-RFO entry into Mode 1 Increasing Power at 1/2%/hr
Day 1 04:15	Mode 1	East Ring Bus Offsite Power Feeder	Technical Specification 3.8.1.1 Action Statement (a) entered

You arrive at work and everything appears normal. You park in your normal spot and walk to the gatehouse. You notice the gatehouse clock reads 07:15. There is a small line as usual. You approach your turn to step onto the explosive detector and you notice the enter light is on. You step onto the explosive detector and the machine begins its sampling. As you step off the detector, you note that a red fault light is lit. You proceed to the X-ray machine and place your lunch and briefcase on the moving platform and move to the end of the machine and retrieve your lunch and briefcase as they come off the machine. You insert your badge into the keycard reader and the exit door to the gatehouse clicks open. You enter the protected area and proceed to your office.

Using your key, you unlock the door to the NRC resident office, turn on the lights, and go to your desk to put away your lunch and briefcase. You check the answering machine and find a number of messages. The first is from your branch chief who left a message for the senior resident inspector. The chief needs the man-rem expended by the licensee during their last outage. The chief needs the information first thing in the morning because he needs to brief the Regional Administrator at 09:00. The second call is from a local citizen who routinely attends public NRC meetings. She has a question concerning a statement made by the licensee about an inadvertent release. She is interested in knowing what radionuclides were released, how the concentration was measured, and if this is a violation of NRC requirements. She wants a return call as soon as possible. The third call is from a reporter for the local newspaper. He wants to get information concerning the cost of replacement power during the last outage. He also overheard a conversation in a local restaurant that the NRC is planning to issue a large civil penalty against the licensee for problems during the recent outage. He read your last inspection report in the local public document room and could find no mention of a civil penalty. He wants to know why you are covering up for the licensee. The fourth message is from the senior resident. He caught the flu from his school-age children and is out sick. If anything important comes up, he wants you to give him a call. He will be at home, somewhere between the bedroom and the bathroom.

You get your hard hat and leave your office, heading for the control room. On your way to the control room, the head of the on-site engineering office stops you in the hall and says that he has the repair package and post-maintenance test results you requested for the "A" centrifugal charging pump. The pump failed the quarterly in-service test (IST) for required discharge head just prior to the last outage. The test was performed on the last day of the IST surveillance interval for that pump. The pump was reworked, tested, and returned to service during the outage (documentation for the post-maintenance IST follows this narrative). All of the system engineers work for this person. He is not sure what questions you have, but he is sure he can get any information you need. You ask him to provide you with the dates on which the centrifugal charging pumps were verified to start automatically upon receipt of a safety injection test signal per Technical Specification (TS) surveillance requirement 4.5.2.e.2.

You plan to observe maintenance to be conducted tomorrow on the discharge relief valve for the positive displacement charging pump. Apparently, the spring which holds the valve shut against normal pump

discharge pressure has weakened with age and cyclic operation. The head of on-site engineering stated that a new design is available that should not be subject to this failure mode.

You note that this might be a good opportunity to conduct IP 71111.19, "Post Maintenance Testing," IP 71111.15, "Operational Evaluations," and IP 71152, "Identification and Resolution of Problems." You planned to review these IPs today along with other pertinent references to be prepared to perform an in-depth examination of this maintenance activity tomorrow. You plan to look at the maintenance activity from the determination of the cause of a failure of a system, structure or components to a final determination of operability after repairs have been completed.

You use your key card, and enter the control room. You hang your hard hat on one of the available hooks and request permission to enter the exclusion area of the control room, the area reserved for operators. The assistant shift supervisor denies you permission to enter and then walks away, entering into a discussion with the board reactor operator. You wait, and after 10 minutes the assistant shift supervisor grants you permission to enter.

The control room is busy today. One of the maintenance planners is discussing today's maintenance issues with the shift supervisor. The off-going assistant shift supervisor is writing the control room log from the night before. The on-duty assistant shift supervisor is busy reviewing system tagouts. There is an I&C technician at one of the instrument racks looking at an instrument with a deficiency tag hanging from it. One of the reactor operators is taking the logs, methodically moving along the control boards, reading meters and displays, sometimes operating switches to get all readings. There is a large red tag on the east side of the ring bus (230KV bus 2 is deenergized - Rivergate #2 South and Alston BPA #2 North offsite power sources are isolated from the bus and disconnects V-843 and V-811 are open).

The plant is at 85 percent power and increasing. The last refueling outage lasted 60 days and ended 7 days ago. The licensee has been increasing power slowly for the last few days. There have been frequent spurious problems with the 5A heater drain tank "low-low" level switch that has been causing the P-105A heater drain pump to trip off-line.

There are more than the normal number of lit annunciators on the main control board. There is an alarm in for the "A" Reactor Protective System (RPS) S/G level high alarm. This is a known problem coming out of the outage. I&C has calibrated the channel twice and still the alarm is locked in. There is a fire alarm in the "A" diesel generator room. During outage testing this alarm locked in and operators have not been able to reset it. The "B" S/G has a high pressure signal locked in for no apparent reason. The other three pressure channels for that steam generator are reading as expected.

You review the assistant shift supervisor's logs. At 20:10 yesterday, the train "A" emergency diesel generator unit was started for a routine surveillance test. Both diesel engines started, but one carried significantly less load that the other, as evidenced by engine exhaust temperature comparisons. On-scene personnel noted that the fuel racks appeared to be sticking on one of the diesels for the "A" generator. At 20:20, the "A" EDG surveillance test was terminated and the EDG was secured.

During the previous evening shift, an inadvertent release occurred from the volume control tank (VCT) during a degas evolution. The VCT was vented to the waste gas collection header where the running waste gas compressor takes suction to discharge to the on-line waste gas decay tank. The compressor tripped due to electrical fault. The second waste gas compressor was offline for routine maintenance. While the operator was troubleshooting the compressor problem, the relief valve on the waste gas collection header lifted; this produced a release to the auxiliary building vent exhaust duct. The logs stated that a waste release permit was created for this release and the licensee's public information tape was updated to include information on this release. A licensee representative issued Unusual Occurrence Report (UOR) #35, and it is being used to track follow-up corrective action.

The logs also state that the east ring bus feeder was removed from service at 04:15 at the request of the

dispatcher. A line crew is scheduled to inspect insulators on the East Distribution Line today. Technical Specification 3.8.1.1 Action Statement (a) was entered, switch lineups were verified, and testing of the "B" EDG is pending.

The "A" charging pump is running with the "B" charging pump in standby in a normal operating lineup. The licensee typically alternates the charging pump lineup to equalize wear and tear on equipment. As you are leaving the Control Room, you get a call from the head of on-site engineering telling you that surveillance 4.5.2.e.2.a was conducted on P-205A 15 months ago and on P-205B 24 months ago.

TEST DOCUMENTATION RESULTS FOR INSERVICE TESTING OF "A" CENTRIFUGAL CHARGING PUMP

1. BACKGROUND

T.S. 4.5.2.f requires a flow balance test following completion of modifications to ECCS subsystems. FSAR Table 9.3-7 specifies CCP recirculation bypass flow should be 60 GPM for each pump. T.S. 4.5.2.i requires the CCP to develop greater than 2400 psid on recirculation flow during inservice testing.

2. TEST RESULTS IN THIS CASE

The pump satisfactorily passed the flow balance test and developed greater than 2400 psid on recirculation flow, but the bypass recirculation flow was 50 GPM. The system engineer determined 50 gpm to be acceptable after discussing the issue with the pump vendor.

The inservice test of CCP "A" differential pressure on recirculation flow indicated 2500 psid on an instrument with an accuracy of +/-3% of full scale of 6000 psid.

DRAFT
UNUSUAL OCCURRENCE REPORT (UOR) #35

UNPLANNED RELEASE DURING DEGAS EVOLUTION

During the evening shift, an unplanned release occurred during a degas evolution of the Volume Control Tank (VCT).

Waste gas compressor C3O1B was out of service due to leakage on a compressor diaphragm. (This was detected by the compressor leakage monitoring alarm.)

During the degas evolution, CV8101 was opened to vent the VCT to the waste gas collection header. PCV 8157 was operating to maintain a minimum pressure in the VCT of 15 psi. Pressure in the VCT was increased due to makeup to the VCT during the degas evolution.

Coincident with this evolution, the C301A waste gas compressor tripped due to electrical fault. This caused the pressure in the waste gas compressor suction surge tank to increase, lifting the surge tank relief valve (PSV 4302) which is set at 20 psi. The waste gas surge tank high pressure alarm was received in the control room and acknowledged by the operator. The operator was distracted by the diagnostic actions to determine and correct the cause of the waste gas compressor trip and did not associate the waste gas surge tank high pressure alarm with the degas evolution until 30 minutes later. It was at that time that he linked the degas evolution to the high waste gas compressor surge tank alarm, stopped the evolution, closed the VCT vent, CV8 101, and reported the situation to the supervising control room operator.

Subsequently, it was determined that an unmonitored release had occurred, and all notifications were made.