

STUDENT MANUAL

Site Day 4

Date/Time	Operating Status	Major Equipment Out Of Service	Remarks
Day 3 1600	Mode 1 100%	B EDG	Asiatic clam buildup led to high operating temperatures. Cleaning underway. TS AS 3.8.1.1.a entered 1600 Day 3
Day 3 1400		MO 8809A	Unsat stroke time test. TS AS 3.5.2 entered.
Day 3 1700		A EDG	A EDG Returned to service after paint removed from fuel racks 1700 11/03

On your way to work you heard on a local radio station that a truck loaded with new nuclear fuel jackknifed within 5 miles of the plant and spilled a full tank of diesel oil that ignited within a quarter of a mile of residential homes and a hospital. You receive a call on your cellular phone from a member of the local fire department who is on-scene fighting a raging fire. The truck driver told the firefighter of the truck contents. You wonder how this accident will affect the rest of your day and what responsibilities you have with respect to this event.

You came in early this morning to do a routine housekeeping walkthrough of the plant. When you get to the cable spreading room you notice the unmistakable aroma of marijuana. As you leave the room and head for the Control Room, you see an Equipment Operator taking readings. You ask him if he has been in the cable spreading room, and he says “not recently”. When you look at his shift tour record sheet, you see that the cable spreading room is checked off for the most recent hourly inspection tour.

At the morning meeting with licensee staff, you learned of a problem that occurred on the back shift last night during plant operations at 100 percent power. During a routine surveillance and inservice test of SI pump, P-203A, to demonstrate adequate differential pressure on recirculation flow, a weld on the combined SI pump minimum flow line (2-inch SI-1501R-1-51) was noted to have a leak rate of 20 drops per minute. The line was pressurized to normal test pressure. The leak stopped when the system was depressurized on completion of the test. A routine contamination survey indicated relatively low levels of contamination on the pipe near the leaking weld (the actual location of the leak is in a welded joint immediately upstream valve 8814) and adjacent floor area.

The Maintenance Manager briefed the meeting attendees on the following alternative plans for addressing this problem:

- Defer repairs until the next outage period scheduled in one month. The minor leak poses no operational problem.
- Isolate the leaking pipe and conduct a weld repair while keeping the plant on line in Mode 1 under T.S. 3.0.3. Repairs must be completed in one hour, or a shutdown must be initiated.
- Conduct a technical specification shutdown to Mode 3 while immediately starting weld repairs.
- Conduct a shutdown to Mode 4 while immediately starting weld repairs.
- Shutdown to Mode 4 before starting the repairs.

For alternatives c, d, and e, the plant would be returned to Mode 1 when repairs were completed. The Plant Review Board (PRB) was convening to consider the alternatives.

As you left the morning meeting, the Maintenance Manager walked out with you and, after exchanging pleasantries, asked you for a personal, unofficial opinion on the best alternative to deal with this problem. Before you could respond, the Plant Manager reminded the Maintenance Manager of the PRB meeting and he hurried off.

Since you intended to focus on maintenance today, this seemed like a good place to start.

You write down the following questions to organize your thoughts:

- a. What is the risk to plant safety in each alternative?
- b. Are other alternatives possible?
- c. Are any of the alternatives precluded by licensing requirements? If so, list the requirements and the specific application.
- d. Are any of the alternatives permitted by licensing requirements but imprudent or non-conservative?
- e. Would any of the alternatives be improved by compensatory measures? If so, what measures would be appropriate?
- f. Should the fact that the valve is contaminated (internally and externally) have any bearing on selecting the course of action?

You head for your office. Something reminded you of a minor incident that occurred during the recent outage. While you were inspecting in the vicinity of number 3 steam generator, where tubes were being plugged by contractor personnel, you saw a tool bag near the tent surrounding the work area and inspected its contents. You saw a thermoluminescent dosimeter (TLD) and a self-reading dosimeter in the bag. You noted the name on the bag and asked the Radiation Protection (RP) technician at the tent access point to tell you the names of personnel working inside the tent. He named two contract workers, one who owned the tool bag. You asked to speak to the man who owned the tool bag.

The contractor steam generator “jumper” exited the tent to talk to you. When you asked him about the TLD and the self-reading dosimeter, he said that he had an extremity TLD on his wrist, and the RP technician was ensuring that the allowable “stay time” in the steam generator was not exceeded. He didn’t believe that the self-reading dosimeter was working properly because it was erratic. He asked the RP technician to hand him the TLD from his tool bag. The RP technician concurred with the worker.

The contractor “jumper” then re-entered the steam generator. A person working nearby said that you had a telephone call from Headquarters, so you left the steam generator area to return the call. As you now remember, the rest of that day was very busy and you forgot the incident. You reflect on this, and wonder if this incident should be pursued now.

Yesterday during a plant tour you learned that a safety-related Class 1E high steam flow instrument was modified six months ago by the connection of a recorder to the instrument’s test jacks. The instrument provides initiation and control signals to the safety injection system (SIS) actuation logic circuits to initiate safety injection in conjunction with low-low Tave to mitigate the consequences of a major steam pipe rupture. The plant had experienced spurious high steam flow signals after closure of turbine trip valves in the past, and this recorder was installed to collect data on the problem.

During your plant tour yesterday, a female security guard asked you if you thought it was wrong for her to carry "Mace" within the protected area. She said several other security guards also carried Mace, especially during night duty. You took her name and indicated you would look into it.

She also said that there would be far fewer security problems if people would follow established procedures. She said she was harassed by her shift supervisor for requiring contract construction workers to follow correct security procedures when entering a vital area rather than just blocking a door open for long periods to carry lumber and equipment through. According to her, other guards routinely relaxed security to allow easy access for the workers, as she had noted in security records.

When she would not break the rules, the construction workers intimidated her and actually hit her in the head when bringing lumber through the door she was guarding. This was another reason for her to carry Mace although the workers claimed the incident was her fault for being in the way.

When she explained her concerns to her supervisor, he told her to stop holding up work in progress and just do her job without causing problems.

During your plant tour today, you observed a Plant Equipment Operator making a routine shift of operating equipment on a system that is not safety-related. When he had difficulty opening a valve with the installed 12-inch diameter handwheel, he attached a 24-inch pipe wrench to the handwheel perimeter ring to increase the torque and succeeded in breaking the valve disk loose from its seat. He said that many valves are more difficult to operate since a new valve stem thread lubricant was introduced 3 months ago. He pointed this out to his supervisor who said the valves would loosen up over time.

A copy of a Plant Trouble Close-out report was on your desk when you returned from your plant tour. When the plant was started up after the outage, the required level of hydrogen in the reactor coolant system was difficult to maintain. The pressure control valve for the Volume Control Tank (PCV 8155) was adjusted to increase the minimum pressure in the vapor space to 65 psig. After this adjustment, hydrogen level in the reactor coolant system returned to normal. This action was approved by onsite engineering personnel to improve the control and removal of oxygen produced by the radiolysis of water in the core.

While you are relaxing with the newspaper before dinner, you get a telephone call from your brother who lives locally. He said that a member of his church, whom he knows as a friend, is a technician in the plant maintenance department. This man told your brother that he was ordered by a senior maintenance manager to falsify records in the interest of keeping the plant online. There was an implied threat that the worker might be fired or demoted to a position of reduced responsibility and pay if he did not change the records. The worker secretly recorded a conversation with the manager in which this threat occurred, but he is afraid to come forward with the information because he changed the records and feels that the NRC will support licensee management. The plant is nearing a record for sustained full power operations, and correcting the maintenance problem will require shutting down the plant.

As you were going to bed, you received a telephone call from the Plant Manager. After apologizing for calling late, he told you that a problem with Asiatic clam buildup in the lube oil cooler for centrifugal charging pump, P-205A, was detected after a routine shift in running equipment put this pump on line. A decision to clean this cooler placed P-205A in an inoperable status, and the T.S. 3.5.2 action requirement allows 72 hours to restore the pump to operation. While the cooler was being cleaned, the running centrifugal charging pump, P-205B, was noted to have a slowly increasing differential temperature on the service water side of its lube oil cooler.

