

Sdp \ Exercise1 \
Exercise#1_lp.wpd

Title: SDP Exercise #1	Course: 504P
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1. Training Aids/Materials

- 1.1 Power Point presentation file sdpexercise1.ppt is required for this presentation.
- 1.2 SDP Phase 1 worksheets should be supplied to each student.
- 1.3 Ensure each student has a copy of the SDP screening criteria from IMC-0612 Appendix B. Portions of this manual chapter should have been passed out during the initial lecture on the SDP.

2. Teaching Objectives: This example was chosen for the following reasons.

- 2.1 The example demonstrates that most issues will be screened out of Phase 2 of the SDP process.
- 2.2 The example shows that the SDP may be used for non-safety related equipment.
- 2.3 The example is in the initiating events cornerstone.

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3. Presentation

- 3.1 Review the purposes of hydrogen seal oil systems with the students. A quick review slide is located on **slide 2** of the Power Point presentation.
- 3.2 Present the issue to the students. The issue deals with a turbine trip that occurred during the loss of a non-vital AC bus. The details of the event are available in the Inspection report located background documentation. The issue is located on **slide 3** in the Power Point presentation.

Note

Slide 4 of the associated Power Point presentation animates Figure 1 of IMC-0612 Appendix B. Clicking in a blank space brings up a decision diamond. Clicking on the diamond takes the presentation to the questions for that diamond. Each question page has an action button to return the presentation back to slide 4. Continue in this way to draw the necessary logic.

- 3.3 After all students have read the issue, lead the student discussion to the Issue Disposition Section of IMC-0612 Appendix B.

- 3.3.1 Performance Deficiency (Page 3 of Appendix B)

- 3.3.1.1 Did the licensee fail to meet a requirement or a standard?

- Yes, the licensee did not follow the recommendations of the vendor's technical manual.*

- 3.3.1.2 Was the cause reasonably within the licensee's ability to foresee and correct and could it have been prevented? *The licensee's maintenance staff controls the set points and adjustments of this valve. The licensee should have realized that the valve's setting was below the turbine trip set point and corrected the situation. Setting the valve correctly would have prevented the reactor/turbine trip.*

- 3.3.1.3 Technically, the issue is now a finding per the flow chart.

3.3.2 Traditional Enforcement? (Page 3 of Appendix B)

3.3.2.1 Does the issue have actual safety consequences (e.g., overexposure, actual release greater than 10 CFR Part 20 limits)? *NO.*

3.3.2.2 Does the issue have the potential for impacting the NRC's ability to perform its regulatory function? *NO.*

3.3.2.3 Are there any willful aspects of the violation? *NO. In fact, the licensee informed the NRC of its findings.*

3.3.2.4 Traditional Enforcement is not applicable.

3.3.3 Is the finding greater than minor? (Page 3 of Appendix B)

3.3.3.1 Could the issue be reasonably viewed as a precursor to a significant event? *Significant event is not well defined, but generally thought to be an event such as a LOCA with failure of mitigating equipment, so, the answer to this question is NO.*

3.3.3.2 If left uncorrected, could the finding become a more significant safety concern? *Some students will want to make the point that if uncorrected, the issue would perhaps result in more reactor/turbine trips. This may be a legitimate answer - but, there is another way to answer the question, and this will be presented later. This may be hard to defend with the licensee.*

3.3.3.3 Does the finding relate to performance indicators that would have caused the PI to exceed a threshold? *Unplanned reactor trips are counted in the PI program, but not enough information is given to assume that the licensee did not count this in its PI program.*

3.3.3.4 Is the finding associated with one of the cornerstone attributes listed at the end of this attachment and does the finding affect the associated cornerstone objective? *The*

finding affects the equipment performance attribute, human performance attribute, and configuration control attribute of the Initiating Events cornerstone. The objective of the cornerstone is to limit the likelihood of events, so it is affected. This is a “kickout”, and is probably easier defended.

3.4 Phase 1 Screening - The “correct answer” is loaded by clicking the pdf symbol on the last slide in the Power Point file. This file should not be loaded until all students have finished the exercise.

3.4.1 Phase 1 Worksheet - Page 1

3.4.1.1 The problem deficiency is failure to follow vendor recommendations.

3.4.1.2 The description of the problem is the reason for the turbine/reactor trip.

3.4.1.3 The affected system is the turbine-generator system. Turbine-generator auxiliaries is also an acceptable answer.

3.4.1.4 The licensing basis function could have been entered as N/A, but it doesn't hurt to remind the students the purpose of commercial nuclear power.

3.4.1.5 The turbine-generator is not a safety system so NONE is entered on this line.

3.4.1.6 Systems/components that could lead to a reactor trip should be in the licensee's maintenance rule documentation. Since this is not the performance deficiency, the Inspection Report is silent on this issue. It was checked to remind or inform the students of Maintenance Rule requirements.

3.4.1.7 Less than 3 days is entered here because of the trip occurred on 2/14, and the improperly set valve was reported on 2/15. For SDP purposes, < 3 days will put us in the right hand column on the likelihood table, but it isn't used in this exercise.

3.4.2 Phase 1 Worksheet - Page 2

3.4.2.1 Only the transient initiator contributor box in the “Initiating Events Cornerstone” column is checked. The fire initiator contributor is not applicable from the issue description.

3.4.3 Phase 1 Worksheet - Page 3

3.4.3.1 Only the Initiating Event box of item 3 is checked. This sends the process to the “Initiating Events Cornerstone” column of Page 4.

3.4.4 Phase 1 Worksheet - Page 4

3.4.4.1 “LOCA Initiators” does not apply.

3.4.4.2 “Transient Initiators” - even though reactor trip frequency was increased by the performance deficiency, no mitigation equipment is involved. Therefore, NO is checked.

3.4.4.3 As given in the description of the issue is that fire needs not to be considered. So “External Event Initiators” does not apply. This screens the issue to GREEN, and we are done.

3.4.5 Phase 1 Worksheet - Page 5. The box that screens the issue to a GREEN finding is checked.

Note to instructor: This is a real event, and its details may be found in file Exercise#1_bkground.pdf. The event occurred at Waterford 3. Waterford has a control system called a reactor power cutback which drops control rods. The reduction in power from the control rod drop combined with the Steam Dump and Bypass Control System allowed the unit to experience a turbine trip without a direct reactor trip. The exercise assumed a reactor trip to make the event applicable to Westinghouse-designed plants.