

Process Technology III - Operations

Performance and Learning Objectives

Performance Objectives

At the conclusion of the course, participants will be able to:

1. The process technician will describe why the role exists, the value of the role and key role responsibilities in accordance with generally accepted industry profiles.
2. Given a generic operating unit and supporting documentation, the process technician will discuss the process flow, process systems, auxiliary systems, utility systems, and major equipment associated with the unit.
3. Given a process scenario, the process technician will develop a unit startup plan.
4. Identify the basic steps involved when placing equipment into service and bringing a unit online.
5. Given a process scenario, the process technician will identify potential unit personnel to communicate with prior to unit startup.
6. Given a process scenario, the process technician will complete all activities necessary to return equipment to service.
7. Given a process scenario, the process technician will describe the common inspections needed to assure mechanical integrity of a system.
8. Given a process scenario, the process technician will demonstrate the correct procedures to remove energy isolation devices according to OSHA regulations.
9. Given a process scenario, the PT will write a normal operations procedure that insures safety and environmental compliance with SH&E and OSHA regulations and minimizes downtime.
10. Given a process scenario, the process technician will describe the tasks required to prepare utility and auxiliary systems prior to startup with 100% accuracy.
11. Given a process scenario, the process technician will follow a unit startup procedure with 100% accuracy.
12. The process technician will recognize and explain the overall operation of a process control system or systems in normal operation.
13. Given a process diagram, the process technician will identify critical process instrumentation used to monitor the process in the field.
14. The process technician will identify normal and abnormal process conditions in the field using sensory perceptions and analytical measuring devices.
15. The process technician will identify appropriate corrective action given an alarm or abnormal trend of process variables using acceptable process adjustment to maintain the process within acceptable operating parameters from the field.
16. Given a P&ID for a section of the operating unit, the process technician will create a

- checklist for monitoring the normal operation of that section.
17. Given a working process model, the process technician will define normal and abnormal process instrumentation readings within acceptable parameters.
 18. The process technician will identify appropriate corrective action given an alarm or abnormal trend of process variables using acceptable process adjustment to maintain the process within acceptable operating parameters.
 19. Given a P&ID for a section of the operating unit, the process technician will create a checklist for monitoring the normal operation of that section.
 20. The process technician will collect samples from various process systems throughout the operating unit utilizing a variety of sampling methods.
 21. The process technician will handle various raw materials and finished products while operating the unit.
 22. The process technician will discuss the importance of housekeeping.
 23. Given a scenario and process plant, the process technician will perform required procedures and tasks to maintain compliance.
 24. The process technician will recognize potential SH&E risks or hazards in a plant scenario and describe preventive action.
 25. The process technician will demonstrate effective verbal communication skills when requesting and conveying information or issuing instructions.
 26. Given a process scenario, the process technician will describe the correct plant personnel to communicate with and the correct information that needs to be communicated.
 27. Given electronic communication devices, the process technician will report field conditions clearly and accurately.
 28. The process technician will test electronic communication devices when shift begins to verify proper working conditions.
 29. Given a process scenario, the process technician will describe the correct plant personnel to communicate with and the correct information that needs to be communicated.
 30. The process technician will demonstrate effective written communication skills when requesting and conveying information or issuing instructions.
 31. Given a process scenario, the process technician will develop a detailed checklist that contains all key elements of unit status.
 32. The process technician will communicate (verbal and written) all key elements of plant status to a shift relief person.
 33. Identify potential emergency operations and emergency situations and describe the process technician's role.
 34. The process technician will recognize a potential emergency operations and emergency situation and take appropriate corrective action to bring the condition to a safe and stable status.
 35. The process technician will select an emergency scenario to use in a practice drill that complies with SH&E practices and OSHA regulations.
 36. Given a potential emergency scenario and appropriate resources (P&IDs, process flow

- sheets, etc.), The process technician will write an emergency procedure that complies with SH&E practices and OSHA regulations.
37. Given an emergency scenario and emergency procedure, the process technician will demonstrate the appropriate emergency response to the emergency operating situation that complies with SH&E practices and OSHA regulations.
 38. Given a new topic or concept related to the course, the process technician will train the class in an operations related topic including management of change (MOC) issues.
 39. Describe the major steps performed in a normal shutdown including general safety and environmental requirements.
 40. Given a process scenario, the process technician will identify potential plant personnel to communicate with prior to a unit shutdown.
 41. Given a process scenario, the process technician will follow a unit shutdown procedure with 100% accuracy.
 42. Given a process scenario, the process technician will define a detailed checklist to follow for shutting down auxiliary equipment with 100% accuracy.
 43. Given a process scenario, the process technician will define a detailed checklist to follow for shutting down utility equipment with 100% accuracy.
 44. Describe the steps required to prepare equipment for routine maintenance.
 45. Given a process scenario, the process technician will identify potential unit personnel to communicate with prior to equipment maintenance in compliance with general SH&E and unit policies.
 46. Given a process scenario surrounding equipment maintenance, the process technician will consider maintenance costs for a piece of equipment over a period of time.
 47. Given a process scenario surrounding equipment maintenance, the process technician will apply SH&E policies and regulations in accordance with SH&E/OSHA regulations.
 48. Given an equipment maintenance scenario, the process technician will locate and/or create the proper documentation required for equipment maintenance.
 49. Given a maintenance job work request, the process technician will create a work order and a maintenance schedule that includes planning, tools, parts, equipment, people, and cleanup.
 50. The process technician will explain the concept of the work permit for allowing other groups to enter and work in a plant environment.
 51. The process technician will create a generic work permit that received input from the various groups involved in doing a maintenance job in the plant.
 52. Given the Timtene lockout/tagout procedure, the process technician will describe equipment clearing practices and work that complies with MSDS guidelines, and OSHA, EPA, and SH&E regulations.
 53. The process technician will describe the purpose and use of safety/environmental equipment.
 54. The process technician will describe plant situations where the use of safety/environmental equipment is required.
 55. The process technician will demonstrate proficiency in the inspection and use of safety/environmental equipment.

56. The process technician will provide assistance with the major activities involved in pre-turnaround planning.
57. The process technician will provide assistance during the major stages of a unit turnaround.
58. The process technician will perform non-operations activities while maintenance is being performed on equipment.
59. Given a new topic or concept related to the course, the process technician will train the class in an operations related topic.

Learning Objectives

Session 1: Course Overview; Introduction to Operations

1. List the attendance requirements for Process Technology III – Operations.
2. List the homework requirements for Process Technology III – Operations.
3. List the class participation requirements for Process Technology III – Operations.
4. List the evaluation requirements (project, participation, tests, etc.) For Process Technology III – Operations.
5. List the team activity requirements for Process Technology III – Operations.
6. Discuss the importance of this course as a capstone experience in the Process Technology program and how the material learned here will prepare the student for work "on-the-job".
7. Recall the history and development of the process technician role within the process industry.
8. Recall key concepts from the Process Technology I – Equipment course.
9. Recall key concepts from the Process Technology II – Systems course.
10. Recall key concepts from the Instrumentation course.
11. Discuss the term "operations" and its process industry synonyms.
12. List the various process technician roles and responsibilities (i.e., "outside" versus "control room" tasks) within an operating unit.
 - Operate and monitor unit from the control room (i.e., Via DCS)
 - Operate and monitor unit from the outside (i.e., By making rounds)
 - Take and analyze (as required) samples (i.e., Composite, grab, bomb, etc.)
 - Perform housekeeping activities
 - Conduct safety inspections
 - Handle materials
 - Prepare for, assist with, and/or perform maintenance as required.
13. Discuss the activities that may be the responsibility of the process technician of the future.

Session 2: The Operating Unit

1. Discuss the purpose of a block flow diagram (BFD).
2. Identify the major processing stages, which make up the generic operating unit.
3. Identify the plant auxiliary and utility systems, which support the generic operating unit.
4. Describe the purpose of a process flow diagram (PFD) and the information and symbology found on a PFD.
5. Trace the process flow through the operating unit using the PFD.
6. Identify all process systems included in the generic operating unit from the PFD.
7. Identify all major process equipment associated with the generic operating unit from the PFD.
8. Describe the purpose of a plot plan and the information found on a plot plan.
9. Discuss the relationship between the generic operating unit and the other units in the plant.

Session 3: Initial Unit Startup – Commissioning

1. Define the term "commissioning".
2. Differentiate between starting up a new unit versus starting up an existing unit.
3. List the tasks which must be completed in order to adequately prepare for a commissioning.
4. Discuss the role of the process technician in each of the planning tasks listed above.

Session 4: Normal Startup - Overview and Communication

1. Discuss the different types of startups: normal/routine startup, startup after emergency shutdown, startup after equipment maintenance, and startup after turnaround.
2. Recall that unit startup activities are covered by OSHA's PSM (Process Safety Management of Highly Hazardous Materials) standard, specifically by PSM's Pre-Startup Safety Review element.
3. Describe the risks and hazards associated with unit startup.
4. List the key activities involved when placing equipment into service and bringing a unit online.
5. List all the departments and personnel who will be involved in or affected by the unit startup.
6. List the types of information that will need to be communicated regarding unit startup.
7. Discuss the communication methods that might be used at different points during the process of starting up the unit.

Session 5: Normal Startup - Equipment Return to Service

1. Discuss the importance of obtaining an accurate estimate for when equipment will be

returned from maintenance personnel.

2. List the energy and equipment isolation methods and devices that must to be removed after equipment maintenance.
3. List the equipment used by maintenance or contractors, which may need to be removed.
4. List the final safeguards, which should be taken prior to returning the equipment to service.
5. List the common inspections needed to assure mechanical integrity.

Session 6: Normal Startup – Removal of Energy Isolation Devices

1. Review the OSHA Control of Hazardous Energy (Lockout/Tagout) standard.
2. Discuss the various methods and devices which can be used to isolate equipment from the various types of energy:
 - Lock
 - Tag
 - Blind
 - Double block and bleed
 - Break
 - Disconnect
 - Switch gear
3. Discuss the various types of energy within the Timtene Unit that must be isolated:
 - Chemical
 - Electrical
 - Hydraulic
 - Mechanical
 - Pneumatic
4. Identify the points where energy isolation is required, and the device/method used at each point, for the Timtene Unit.
5. Discuss who should remove the energy isolation devices.
6. Discuss the steps that must be followed when removing energy isolation devices.

Session 7: Procedure Writing

1. Given a process scenario, the PT will write a normal operations procedure that insures safety and environmental compliance with SH&E and OSHA regulations and minimizes downtime.

Session 8: Normal Startup – Utilities and Auxiliaries

1. Describe the purpose and function of the utility and auxiliary systems, which support the operating unit:
 - Boiler Feed Water Treatment System
 - Steam Generation and Distribution
 - Cooling Tower and Cooling Water System
 - Air System
 - Water System
 - Electrical
 - Natural Gas
 - Nitrogen
 - Sewer
 - Flare and Relief
 - Refrigeration
2. Describe the hazards associated with starting up each system.
3. Describe the precautions that must be taken to mitigate the hazards associated with starting up the utility systems.

Session 9: Normal Startup - Utilities and Auxiliaries

1. List the steps required to startup two of the utility and auxiliary systems, including valve alignment:
 - Identify all valves that must be checked for proper alignment.
 - State the proper position for each valve for startup.
 - State whether the valves will be checked via the DCS and/or via the field technician.
 - Position the valves correctly.

Session 10: Normal Startup - Process Unit

1. Describe the purpose and function of each process system:
 - Reaction
 - Cooling
 - Separation
2. Describe the hazards associated with starting up each process system and the unit.
3. Describe the precautions that must be taken to mitigate the hazards associated with

starting up each process system and the unit.

4. Discuss the order in which the various process, auxiliary, and utility systems should be started up.
5. List the steps required to startup the Timtene Unit, including valve alignment:
 - Identify all valves, which must be checked for proper alignment.
 - State the proper position for each valve for startup.
 - State whether the valves will be checked via the DCS and/or via the field technician.
 - Position the valves correctly.

Session 11: Normal Startup - Process Unit; Review for Test

1. Describe the purpose and function of each process system:
 - Reaction
 - Cooling
 - Separation
2. Describe the hazards associated with starting up each process system and the unit.
3. Describe the precautions that must be taken to mitigate the hazards associated with starting up each process system and the unit.
4. Discuss the order in which the various process, auxiliary, and utility systems should be started up.
5. List the steps required to startup the Timtene Unit, including valve alignment:
 - Identify all valves, which must be checked for proper alignment.
 - State the proper position for each valve for startup.
 - State whether the valves will be checked via the DCS and/or via the field technician.
 - Position the valves correctly.

Session 12: Test; Normal Operations – Overview

1. Discuss the purpose of a piping and instrumentation diagram (P&ID) and the information and symbology found on a P&ID.
2. Describe how the various areas and systems within the operating unit will be monitored and controlled (i.e., Making rounds vs. Via DCS).

Session 13: Normal Operations – Field Technician

1. Identify all local instruments for the Timtene Unit, the Filtration System, and the Refrigeration System using the P&IDs.

2. Describe local instruments in terms of:
 - a) The process variable monitored by the instrument
 - b) Normal range
 - c) Description of instrument function

3. List all of the types of equipment within the Timentene Unit, the Filtration System and the Refrigeration System that will be monitored and/or started, stopped or switched by the field technician, such as:
 - Compressors
 - Exchangers
 - Motors
 - Pumps
 - Valves
 - Vessels
 - And others

4. Describe how specific types of equipment must be monitored to insure proper operation.
5. Describe how to check various types of equipment for vapor and liquid leaks.
6. Explain the corrective action that should be taken for each type of leak.
7. Describe typical equipment, tools and personal protective equipment required when performing routine tasks in the field.
8. Discuss other types of personal protective equipment that may be required when performing routine field tasks in special operating environments.
9. Discuss the methods used to document the technician's work in the field.

Session 14: Normal Operations – Control Room Technician

1. Locate the systems controlled via:
 - Analog (electronic/pneumatic) means
 - DCS

2. Differentiate between instruments that:
 - Control
 - Indicate
 - Record

3. Identify instruments that have alarm and/or shutdown functions.
4. Identify instruments that are included in logic systems.

5. Locate the setpoint, alarm, shutdown and trip information.
6. List the possible causes for level and flow alarms.
7. List the corrective actions for level and flow alarms.
8. Discuss the importance of communicating with other technicians and other units prior to taking certain corrective action.
9. Discuss other duties typically assigned to the board operator, such as data entry, recordkeeping, etc.

Session 15: Normal Operations - Other Duties

1. Name the systems within the operating unit that will require periodic sampling.
2. Describe the sampling procedures and equipment that are used for different sampling events.
3. Discuss the personal protective equipment that must be used while performing different sampling activities.
4. Explain the importance of following the sampling procedure precisely.
5. Discuss the process technician's role in sample analysis.
6. Discuss the various types of analyses (methods and equipment) conducted on process samples.
7. Explain the importance of sample analysis to the proper unit operation.
8. Identify the points within the operating unit where the following types of process materials are handled manually:
 - Supply materials (lube oil, etc.)
 - Catalyst & Chemicals
9. Discuss the procedures and equipment used to handle materials at various points.
10. Discuss the hazards associated with handling various raw materials and finished products.
11. Discuss the personal protective equipment that must be used while performing various material handling activities.

Session 16: Normal Operations – Housekeeping and Complying with SH&E Policies

1. Define "housekeeping" in process industry terms.
2. List the types of tasks that can be categorized as housekeeping.
3. Explain why attention to housekeeping is important.
4. Discuss the personal protective equipment that must be used while performing various housekeeping activities.
5. Recall safety, health, and environmental risk or hazards found within the process industry.

6. List methods the unit employees can utilize to minimize or prevent these risks or hazards.
7. Discuss typical SH&E policies and procedures, which may be implemented in order to minimize or prevent SH&E risks and/or hazards.
8. Discuss how unit personnel can assist in this implementation.
9. Identify the safety equipment located in the various areas of the operating unit.
10. Describe what items should be inspected when checking each piece of safety equipment.
11. Describe how often each piece of safety equipment should be inspected.

Session 17: Normal Operations - Verbal Communication

1. Recall the basic components associated with effective verbal communication: sender, receiver, message, interference, and feedback.
2. Recall the key obstacles that prevent effective verbal communication.
3. Use effective verbal communication techniques to ask for or provide information.
4. Name the various personnel within the Operations Department with which process technicians will communicate.
5. Name the various personnel from other areas of the plant with which process technicians will communicate.
6. Discuss the various types of information that may be exchanged verbally (face-to-face) between these personnel/departments and process technicians.
7. Discuss verbal and non-verbal communication methods used in noisy operating environments (i.e.: Hand signals).
8. Describe the different types of electronic communication devices (radios, intercoms, phones, cell phones, sound-powered phones, etc.) used in the process industry today.
9. Discuss proper protocol for using these different types of electronic communication devices.
10. Demonstrate proper protocol when using radios or intercoms.
11. Discuss the various features and functions of the electronic communication device.
12. Discuss the features and functions that should be tested for operability prior to using the electronic communication device.
13. Demonstrate how to test the electronic communication device for operability.

Session 18: Normal Operations - Written Communication and Shift Change; Review for Test

1. Review the basic components of good composition: grammar, spelling, style, transitions, etc.
2. Review the basic components of good writing: preparation, formatting, drafting and proofreading.
3. Recall the various personnel within the Operations Department with which process

- technicians will communicate in writing.
4. Recall the various personnel from other areas of the plant with which process technicians will communicate in writing.
 5. Discuss the various types of information that may be exchanged in written form (using paper or electronic means) between these personnel/departments and process technicians.
 6. Discuss situations when written communication should be used rather than verbal communication, and vice versa.
 7. Discuss situations when written communication is best conducted via electronic means rather than via paper means, and vice versa.
 8. Discuss the importance of following company guidelines when preparing written communication.
 9. Use effective written communication techniques to ask for or provide information.
 10. State the types of information which need to be completed during shift change:
 - Unit status
 - Alarms
 - Equipment condition/problems
 - Procedures in progress
 - Process trends
 - Maintenance activity completed, in-progress, and planned
 - Presence of non-operating personnel
 - Status of permits in force
 11. Discuss the level of detail necessary to accurately convey complete unit status information.
 12. Discuss the different methods used to make relief.
 13. Name the individuals who will typically be present during shift change.
 14. Describe how a typical shift change occurs.
 15. List the documentation used during a typical shift change.
 16. Discuss the importance of making timely relief.
 17. Discuss the importance of establishing good relationships with members of our shift and members of other shifts.

Session 19: Test; Abnormal Operations - Emergency Operations and Emergency Situations

1. Discuss what types of events could be considered "emergency situations".
2. Discuss actions that should be taken to mitigate each situation.
3. Describe how operating personnel prepare for each situation (i.e., drills, exercises).
4. Discuss what types of events could be considered "emergency operations".
5. Identify possible causes for these various conditions.

6. Discuss possible corrective action for each of the various possible causes.
7. Discuss how each of these critical conditions could affect the normal operation of the unit's process, utility, and auxiliary systems.
8. Discuss the field technician's role in correcting these operations and situations.
9. Discuss the board technician's role in correcting these operations and situations.

Session 20: Abnormal Operations - Table Top Drill

1. The process technician will select an emergency scenario to use in a practice drill that complies with SH&E practices and OSHA regulations.
2. Given a potential emergency scenario and appropriate resources (P&IDs, process flow sheets, etc.), The process technician will write an emergency procedure that complies with SH&E practices and OSHA regulations.
3. Given an emergency scenario and emergency procedure, the process technician will demonstrate the appropriate emergency response to the emergency operating situation that complies with SH&E practices and OSHA regulations.

Session 21: Conducting On-The-Job Training

1. State the purpose of On-The-Job Training (OJT).
2. Describe the levels of skill development involved in OJT.
3. List the sequence of phases involved in preparing for and conducting an OJT experience.
4. Describe the proper method for organizing and preparing to conduct an OJT experience.
5. Describe the proper method for demonstrating a task to a trainee.
6. Describe the proper method for observing a trainee as he or she practices a new task.
7. Describe the proper method for providing feedback to a trainee.

Session 22: Normal Shutdown - Overview and Communications

1. Differentiate between the different types of shutdowns: normal/routine shutdown, emergency shutdown, shutdown for equipment maintenance, and shutdown for turnaround.
2. Describe the risks and hazards associated with unit shutdown.
3. Recall that unit shutdown activities are covered by OSHA's PSM (Process Safety Management of Highly Hazardous Materials) standard.
4. List the key activities involved in performing a normal/routine shut down.
5. List all departments and personnel who will be involved in, or affected by, the unit shutdown.
6. Discuss the communication methods that might be used at different points during the process of shutting down the unit.
7. List the types of information that will need to be communicated regarding unit shutdown.

Session 23: Normal Shutdown - Shutdown Process Unit

1. Discuss the order in which the various process, auxiliary, and utility systems should be shut down.
2. For each process system:
 - Describe the hazards associated with shutting down each system.
 - Describe the precautions that must be taken to mitigate the hazards associated with shutting down each system.
 - List the steps required to shut down each system.
3. For each auxiliary system:
 - Describe the hazards associated with shutting down each system.
 - Describe the precautions that must be taken to mitigate the hazards associated with shutting down each system.
 - List the steps required to shut down each system.
4. For each utility system:
 - Describe the hazards associated with shutting down each system.
 - Describe the precautions that must be taken to mitigate the hazards associated with shutting down each system.
 - List the steps required to shut down each system.
5. Discuss protocol for handling discrepancies between the documented procedure and actual steps followed to complete the task.
6. Recognize the importance of following the written procedure.

Session 24: Equipment Maintenance - Overview and Communications

1. Describe the risks and hazards involved when preparing equipment for routine maintenance.
2. List the key activities necessary for preparing equipment for routine maintenance.
3. List all departments and personnel who will be involved in, or affected by, the equipment maintenance.
4. List the types of information that will need to be communicated regarding the preparation of equipment for routine maintenance.
5. Discuss the communication methods that might be used at different points during the performance of routine maintenance.

Session 25: Equipment Maintenance - Economic Impact

1. Define the terms "preventive" and "reactive".
2. Compare the advantages of preventive maintenance with the disadvantages of reactive maintenance.
3. Discuss the types of preventive maintenance that should be performed on a selected piece of equipment.
4. Discuss the process technician's role in the performance of various preventive maintenance activities.
5. Suggest a schedule for performing these various preventive maintenance activities for the selected piece of equipment.
6. Describe the costs associated with one specific preventive maintenance activity.
7. Create an estimate of preventive maintenance expenses for one specific maintenance activity for one selected piece of equipment based upon the various costs associated with the maintenance activity.
8. List the types of reactive maintenance that may be required in the absence of a preventive maintenance program.
9. Describe the costs associated with each reactive maintenance activity.

Session 26: Equipment Maintenance - SH&E Impact

1. Provide examples of possible safety issues surrounding equipment maintenance:
 - Confined space entry
 - Energy isolation
 - Equipment identification
 - Fall protection
 - Proper communication
 - Pyrophoric Deposits
 - Carcinogenic/Chemical Hazards
2. Explore measures to take to minimize the safety issues surrounding equipment maintenance.
3. Provide examples of possible health issues surrounding equipment maintenance:
 - Exposure to hazardous materials
 - Proper use of PPE
 - Issuance of all necessary permits
4. Explore measures to take to minimize the health issues surrounding equipment maintenance.
5. Provide examples of possible environmental issues surrounding equipment

maintenance:

- Disposal of waste materials (contaminated equipment, chemical waste, etc.) removed from equipment
 - Response to any releases (vapor, leaks, etc.)
 - Spill cleanup
 - Housekeeping
6. Explore measures to take to minimize the environmental issues surrounding equipment maintenance.

Session 27: Equipment Maintenance - Documentation and Permits

1. Discuss the types of documentation that must be completed prior to performing maintenance on a selected piece of equipment.
2. Discuss the role the process technician may have in preparing each type of paperwork.
3. State the purpose of a work permit.
4. List the various types of work permits used within the process industry.
5. Name the departments or groups that may need to be consulted when and/or may need to sign a work permit.

Session 28: Equipment Maintenance - Equipment Isolation

1. Differentiate between energy sources and devices used for isolation.
2. Discuss the methods used to clear equipment.
3. Recall the purpose of various SH&E equipment used during equipment clearing and isolation.
4. Select the appropriate SH&E equipment for use in a specific clearing and isolation scenario.

Session 29: Turnarounds; Take Home Test

1. Define the term "turnaround".
2. Differentiate between routine maintenance and work performed during turnaround.
3. List the tasks which must be completed in order to adequately prepare for a turnaround.
4. Discuss the role of the process technician in each of the planning tasks listed above.
5. List the key phases of a unit turnaround.
6. Compare and contrast routine shutdown versus shutting down for turnaround.
7. Describe the role of the process technician in unit turnarounds in accordance with general industry practices.
8. Compare and contrast routine startup versus starting up after turnaround.
9. Outline PSM's Management of Change requirements in relationship to turnarounds.

10. Outline the PSM's Pre-Startup Safety Review requirements in relationship to turnarounds.
11. Explain how unit personnel would evaluate the success of a turnaround.

Session 30: Final Projects - Conducting an OJT Session

No new learning objectives.

Session 31: Final Projects - Conducting an OJT Session

No new learning objectives.

Session 32: Final Projects - Conducting an OJT Session

No new learning objectives.

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