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7. Abstract

This document describes the training programs required to become a Phase II and
Phase III certified engineer at PUREX during deactivation.

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ENGINEERING PHASE II & PHASE III CERTIFICATION PROGRAMS - PUREX DEACTIVATION

INTRODUCTION

With the change in mission, the PUREX engineering/certification training program is being revamped as discussed below. The revised program will be administered by PUREX Technical Training using existing courses and training materials. The program will comply with the requirements of the Department of Energy (DOE) order 5480.20A, "Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities." Phase II/III Certification is required to qualify for the cognitive engineer stipend program per WHC-CM-5-9, 2.15.

PHASE I

Phase I training (181800) is generic in its presentation and serves to acquaint process engineers with plant/site engineering requirements. Attendance (one-time) at Phase I training is mandatory for all PUREX Surveillance, System Deactivation, Regulatory Compliance, Technical Safety Support, and Design Engineering engineers. This course is a pre-requisite for Phase II training.

PHASE II

Phase II training is plant specific and requires renewal every two years. In addition to Phase I certification, the requirements for Phase II Certification include the courses listed and described below. Phase II Certification is a pre-requisite for Phase III Certification.

250031 PUREX SURVEILLANCE CERTIFICATION - MANAGER

Course of study covering surveillance of Plant and surrounding facilities. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

250051 PUREX DEACTIVATION OPERATIONS - MANAGER

Course of study covering PUREX Deactivation operations. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

250061 PUREX DISPATCHER CERTIFICATION - MANAGER

Course of study covering PUREX Dispatcher operations. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

250630 PUREX EMERGENCY PROCEDURES AND ABNORMAL PLANT CONDITIONS - TECHNICAL

Course of study providing information needed by managers, engineers, and safety personnel to respond to emergencies and abnormal plant conditions. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every year.

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PHASE III

Phase II certified candidates, other than Design Engineering's cognitive mechanical [heating, ventilation, and air conditioning (HVAC)] and electrical engineers, may become Phase III certified by successfully completing two of the following courses as specified by his/her immediate manager. Separate specific requirements for Phase III certification of Design Engineering's cognitive mechanical (HVAC) and electrical engineers follow. Satisfactory completion of an oral examination administered by a review board appointed by the Manager, PUREX Technical Training is also required for Phase III certification.

250021 PUREX/UO₃ SOLID WASTE HANDLING - MANAGER

Course of study covering solid waste handling at the PUREX and UO₃ facilities. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

250041 PUREX N-CELL/PR ROOM - MANAGER

Course of study covering operation of the PR Room and N-Cell processes. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

250551 PUREX QUALIFIED POWER OPERATOR - MANAGER

Course of study covering all phases of responsibilities for PUREX power operators. Candidate must score $\geq 80\%$ on the written exam to pass. Renewal is required every two years.

ENGINEERING PHASE II & PHASE III CERTIFICATION PROGRAMS - PUREX DEACTIVATION**PHASE III - MECHANICAL (HVAC) COGNIZANT ENGINEER**

PUREX HVAC cognizant engineers must have demonstrated expertise, verified on a checklist signed by the immediate manager, in the following areas:

- o Overall PUREX HVAC systems including the location and operation of all major components and system controls.
- o Reading and understanding of associated HVAC design drawings and IEPD's (instrument and electrical flow diagrams).
- o Timely trouble shooting of HVAC system and control problems based on working knowledge of psychometrics, fan laws, system effects, duct design, air flow theory and electric/pneumatic control theory.
- o Designing major HVAC modifications/executing project engineering responsibilities for conceptual design and detailed design/ fabrication and installation. Demonstrate working knowledge of applicable American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and Sheet Metal and Air Conditioning Contractors National Association (SMACNA) standards.
- o Trouble shooting to support maintenance in the repair of HVAC equipment. Developing work plans and work sequences for job control packages to provide effective direction and control of craft supported work.
- o Selecting electric motors, drive systems, bearings and lubricants for HVAC service.
- o Providing expertise in support of high efficiency particulate air (HEPA) filter testing based on American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME) N-509 & N-510, and Energy Research and Development Agency (ERDA) 76-21.
- o Directing support personnel in testing air flow systems overall performance and/or trouble shooting system problems; and evaluating the data gathered based on incompressible fluid flow theory, fan laws, and system curves.

In addition, mechanical cognizant engineers shall satisfactorily complete a minimum of 24 hours of relevant (as determined by immediate manager) training annually. This training shall be documented on a Training Attendance form, Training Completion Record, Certificate, or another form acceptable to Technical Training.

ENGINEERING PHASE II & PHASE III CERTIFICATION PROGRAMS - PUREX DEACTIVATION**PHASE III - ELECTRICAL COGNIZANT ENGINEER**

PUREX electrical cognizant engineers must have demonstrated expertise, verified on a checklist signed by the immediate manager, in the following areas:

- o Interpreting the National Electrical Code (NEC),
- o The PUREX electrical power distribution system; coordination study, load flow study, and short circuit study.
- o Operating and maintaining the following equipment:
 - diesel generator programmable controllers;
 - the medium and low voltage systems including 251W substation and the utility distribution network;
 - the standby power distribution system;
 - 480 volt motor control centers, the 2400-volt and 480-volt switchgear and their associated direct current control system.

In addition, electrical cognizant engineers shall satisfactorily complete a minimum of 24 hours of relevant (as determined by immediate manager) training annually. This training shall be documented on a Training Attendance form, Training Completion Record, Certificate, or another form acceptable to Technical Training.