



STATIONARY BATTERY SEMINAR

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INTRODUCTION AND STATIONARY BATTERY BASICS & TERMINOLOGY

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STATIONARY BATTERY BASICS & TERMINOLGY

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TERMINAL OBJECTIVE

Upon completion of this training, the participant will understand:

The terminology associated stationary batteries necessary for the proper installation, maintenance and testing of the stationary batteries; the components in stationary batteries; the basics of stationary batteries including the charge/discharge reactions; basic battery construction including available plate types; expected life; standard ratings and the distinction between vented and valve regulated (VRLA) cells.

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ENABLING OBJECTIVES

The standard for each of the following objectives is the material contained in the course materials provided to the participant.



Given the course materials the participant shall be able to:

- **B01** Recall the definition of CELL, VENTED CELL, VALVE REGULATED CELL, ELEMENT, BATTERY, and MONOBOLC.
- **B02** Describe the differences between vented and valve regulated cells and name the two types of VRLA cells.
- **B03** Recall why some VRLA cells must be installed on their sides for proper operation
- **B04** Recall the standard rating parameters for a stationary battery, including the standard discharge rate, temperature, electrolyte specific gravity and end-of-discharge voltage.
- **B05** Recall the various plate types and the functions of the plate grid and active materials.
- **B06** Recall the methods used to support the positive plates in a lead-acid cell.



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STATIONARY BATTERY SAFETY

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TERMINAL OBJECTIVE

Upon completion of this training, the participant will obtain:

An overview of the safety practices associated with stationary batteries including safety procedures and requirements for personnel protective equipment (PPE); industry codes and standards that identify safety requirements; US Nuclear Regulatory Commission Regulatory Guides that address safety requirements for batteries installed at nuclear generating stations; requirements for reportability; and use of spill containment systems for stationary batteries.

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	<h2>ENABLING OBJECTIVES</h2>
	<p>The standard for each of the following objectives is the material contained in the course materials provided to the participant.</p> <p>Given the course materials the participant shall be able to:</p> <ul style="list-style-type: none">• SA01 State the safety equipment that is required when inspecting, installing, maintaining or testing stationary batteries.• SA02 Recall the safety procedures that are followed during stationary battery inspection, installation, maintenance and testing.• SA03 Recall the industry codes and standards that identify safety requirements for stationary batteries and requirements for reportability• SA04 Discuss the various methods that can be used to provide for spill containment for stationary battery installations• SA05 Discuss how lead may enter the body
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STATIONARY BATTERY INSTALLATION

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TERMINAL OBJECTIVE

Upon completion of this training, the participant will understand:

The recommended requirements for the installation of a stationary battery; the requirements for receiving and storing a stationary battery, including application of charges during storage; the procedure to be followed during storage; the initial testing and baseline measurements for a stationary battery; and the requirements for maintaining records

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ENABLING OBJECTIVES

The standard for each of the following objectives is the material contained in the course materials provided to the participant.



Given the course materials the participant shall be able to:

- **I01** Recall the procedures for receiving and storing a stationary battery and for applying a charge to the battery, if necessary, during storage.
- **I02** Identify the steps that are followed when installing a stationary battery.
- **I03** Identify the requirements for acceptance testing and obtaining baseline measurements for a newly installed stationary battery.
- **I04** Recall when the electrolyte level of vented cells should be adjusted during installation to bring the electrolyte level of each cell to the manufacturer's reference point.



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STATIONARY BATTERY MAINTENANCE & TESTING

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TERMINAL OBJECTIVE

Upon completion of this training, the participant will understand:

The requirements for periodic inspections and corrective actions; the visual checks necessary and how to perform them; the requirements for measurements including, voltage, electrolyte specific gravity, charge current, ripple voltage and current; intercell connection resistance and internal resistance; the types of cell problems that may be encountered, their identification and their corrective actions; the requirements for discharge testing and the requirements for maintaining records.

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	<h2 style="text-align: center;">ENABLING OBJECTIVES</h2>
	<p>The standard for each of the following objectives is the material contained in the course materials provided to the participant.</p> <p>Given the course materials the participant shall be able to:</p> <ul style="list-style-type: none">• M01 Recall the inspection frequencies for stationary batteries and the types of inspections performed for each.• M02 Recall the visual checks to be made on a battery and battery rack.• M03 Recall the types of measurements to be made on a battery, including correction to the standard reference, and the test equipment used for each.• M04 Recall the corrective actions to be taken for conditions that are found to be outside of established limits for the cells or battery.• M05 Recall the common types of battery problems, their cause and the corrective action that may be taken for each.• M06 Recall the requirements for discharge testing, the frequency of testing and why the test interval may be reduced.
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