Industrial Building Design – Blast Resistance and Resilient For Oil and Gas Field Training

Description

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Course Description

The design management procedure for industrial projects will be clarified. The design of the reinforced concrete tanks and the design of the foundation under steel tanks will be illustrated.

This course will focus about the phenomena of ballast load, the dynamic material strength, in addition to the concrete and steel structure design to resist the ballast load. The dynamic analysis technique will be presented. In addition the new materials as CFRP to be used to protect the structure from the ballast load. The course content relies heavily on the recently revised ASCE publication, Design of Blast Resistant-Buildings in Petrochemical Facilities.

The concrete and steel structure design principal will be illustrated to select the suitable structure system. The foundation design under vibrating machine will be illustrated. Pipeline support and foundation under separator, KOD and steel tower will be highlight on its principal of design and how we can review and implement the design package.

The advanced inspection methods for fresh and hardened concrete will be discussed and how to implement maintenance plan for all the concrete structure.

The integrity management system procedure will be illustrated taking into consideration the major factors in design, construction and repair to maintain the concrete structure economically in all its lifetime

Course Objective

- Familiarize participants with the issues, standards, and procedures used to design structures that resist blast loads.
- Provide participants with in-depth knowledge of the principles of dynamic analysis.
- Develop basic competence in the use of available engineering methods for calculating blast loads and

- dynamic structural response.
- Provide an overview of the design approach used for typical construction materials (steel, concrete, masonry),
- Systems (shear walls and frames), non-structural components (doors and windows).

Course Outline

- Design Management process
- Control the design of the industrial projects
- Define the load on the industrial structure
- Blast load effect and calculation
- Pressure Vs time Characteristic
- Load combination with blast load
- Concrete and steel structure design to resist blast
- CFRP principal and design
- Doors and resistance specs to resist blast load
- Precaution in control room design
- Static and Dynamic analysis for blast load
- Fire proofing materials in case of fire
- Reinforced concrete tank design
- Design of steel tanks ring beam
- Pipeline support design
- Design of foundation under machines
- Reinforced concrete wall design principal
- Design of pipeline anchor block
- Reasons of fails and cracks of concrete structure in industrial.
- Precaution in repair of concrete structure
- Construction precaution to achieve design requirement
- The inspection and monitoring procedure to control the construction

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