Agenda

- PHSER – An introduction
- Assessing Safety & Health Risks in Construction projects
- Implement health and safety practices for optimal project outcomes
- Determining how PHSER should be used in projects to improve safety
- Myths & Magic of PHSER
- Case Histories
- Way Forward - How standards are being raised and how to build standards into project framework
PHSER

“A procedure for the execution of Project HSE Reviews, which provide assurance to a Business Unit / Site that its intended developments fully accord with company’s “HSE Expectations”
Why talk about projects?

“Projects, rather than repetitive tasks, are now the basis for most value-added in business.”

- Tom Peters
PHSER Introduction

Main Project CVP Staged deliverables:
- Determine project feasibility and alignment with business strategy
- Select the preferred project option(s)
- Finalize project scope, cost and schedule, and get project funded
- Produce an operating asset consistent with scope, cost and schedule
- Evaluate asset to ensure performance to specifications and maximum return to the shareholders

HSE Review Requirements:
- Appraise Stage PHSER
- Select Stage PHSER
- Pre-Sanction Stage PHSER
- Construction Stage PHSER
- Pre-Startup Stage PHSER
- Operate Stage PHSER
Purpose of PHSER Workshop

- To provide assurance to end user that HSE hazards have been identified and assessed

- To ensure that appropriate controls have been or will be implemented to reduce the risk to a level which is ALARP

- In practice – to help project teams to know whether they are ready for the next project stage from an HSE point of view, and help to close any gaps.
Why PHSER?

Failure of vertical vessel due to filling with cold water while hydro testing.
Why PHSER?

Emptying the tank with vent valve blocked with plastic sheet

The plastic sheet on top of the tank
Why PHSER?

While filling tank with fire hydrant water roof blew off due to inadequate vent design.
Issues of Construction Industry

- Limited success of managerial intervention
- Complexity of site management process
- Poor HSE planning
- Undue emphasis on individual failure of the workers
- Lack of Safety Performance monitoring and feedback
- Competitive tendering
Objectives of the PHSER in Construction stage

- To confirm that the construction activities comply with Group HSE Codes of Practice and individual company’s HSE and Asset Integrity Standards and Procedures.

- To confirm that no dilution of the design intent, introducing additional hazards, has occurred during fabrication and construction and that any changes have been authorized correctly including, where appropriate, approval by the original design Engineers.

- To review and check that the procedures for materials handling, inspection, testing and document control are in place and being implemented.
Objectives of the PHSER in Construction stage

- To review the arrangements in place to ensure that the facility is being constructed without harm to the Health and Safety of personnel, including the public or to the environment.

- To review the 'Construction HSE Plan' and the outcome of the 'Construction HSE Audit'. The audit will assess the level of compliance with the aforementioned HSE Plan.

- To make a written Report on the review team’s findings / recommendations to the Senior Project Manager.
Approach to PHSER

- Review of action lists from earlier HAZID, HAZOP and safety design review studies
- Review of documents already completed
- Interviews
- Audits of systems in place
- It is not intended to get into detail, but rather
  - To get an overview of status
  - To identify particular critical problem areas if there are any
PHSER Methodology

- Kick of Meeting
- Review of overall scope of project
- Briefly discuss project and HSE studies already undertaken or planned
- Agree list of areas requiring or warranting more detailed evaluation
- Allocate work activities for review by individuals / teams
- Report back to Chairperson / scribe
- Wrap-up discussion
Input to the PHSER

- The reviews run much more effectively if documentation is in place and readily accessible, preferably paper copies which can be reviewed by the team. This approach requires the least effort from the project team.

- Any gaps in written information require interviews, so that it is best if written information is complete.
Documents Required

- Design Changes Procedure
- Certification/Inspection Documentation Procedures
- Site Co-ordination Procedures
- Site Organogram (End User/CONTRACTOR)
- Company HSEMS
- QA audit Reports on Vendors, Contractors
- QA Programme and bar chart of construction activities
- Overview of responsibilities and functions of company, CONTRACTOR, Subcontractor, Agencies, other third party involvement, suppliers, stockists
Documents Required

- Phase II HSEIA Report (applicable for UAE projects)
- Construction Safety Procedures
- Construction HSE Plan
- Construction HSE Audit checklists/ reports
- Emergency Response Plan/ Mock Drill Reports
- HAZOP Reports
- Safety Studies Action Tracking Registers
Documents Required

- HAZID Reports
- Job Safety Analysis and Pre-start Cards
- Hazards and Effects Register
- SIMOPS Reviews
- FEED Stage PHSER Reports
- Constructability Review / 3D Reviews / tie-in
- PTW Procedure / PTW records
Auditee / Interviewee

- EPC – Representatives
  - Project Manager
  - Safety Manager
  - Construction Manager
  - QA / QC Manager
  - Planning Manager

- Sub Contractor Representatives
  - Project Manager
  - Safety Manager
  - Construction Manager
  - Site Supervisors
Verification

- Interview Of PMC / End User Representatives
- Study Of Records
- Site Visit
Areas of Focus

- Changes in Design if any
- Risk Assessments conducted for Construction activities
- Tie-ins with existing facilities have been identified and subjected to review
- Procedures (QA, Co-coordinating, etc.). Rigorous selection process for suppliers and subcontractors.
- Documentation (Control)
- Inspection
- Dimensional Control
- Statutory
- Liaison
- Construction Regulations
- Contractor Pre-qualification and Control
- Health, Safety and Environmental Training
- Scaffolding Standards
- Control of Substances Hazardous to Health
Areas of Focus

- Control of Substances Hazardous to Health
- Safe Access / Egress
- Electrical Safety
- Housekeeping
- Fire Protection Standards
- Cranes and Lifting Gear
- Work over Live Plant
- Permit to Work
- Noise Control
- Personal Protective Equipment
- First Aid
- Excavation Safety
- Demolition
- Site Radiography
- Site Transport
Reference Standards

- Group / Company Standards
- API / NFPA Standards
- Corporate Standards of Oil & Gas Sector
What do we look for?

**REVIEW BY DEVIATION!**

- Procedure / Records On How To Do It?
- Audits / Proofs On How Do You Actually Do It?
- Verification Through Observation Wherever Applicable?
Evaluation Overview - Example

- HSE Policy
- Project HSE targets
- Risk assessment and Hazard identification
- Competence and Training
- HSE Meeting
- HSE Motivation
- Construction Safety
- Emergency Response Plan
- Health Management
- Environment
- QA/QC
- MOC
- Action Tracking HSE studies
PHSER - Benefits

- **Is a structured approach to examining the HSE risks.** It is composed of a number of elements, which are tailored to suit the needs of the organization and/or project.

- An audit of project procedures and their implementation **to ensure compliance with health, safety and environmental standards & legislations.**

- Acts as a basis for participation of employees within the company.

- Provides **assurance to stakeholders that sensitive areas of HSE risk have been identified** and appropriate procedures have been developed to manage these risks.
Case Histories – Magic's of PHSER

- Competence based training matrix and content of induction training
- Unified HSE policy and organization chart for the construction consortium
- Fire water system of site office
- HSECES for which performance standards to be developed
- Quality of contractor HSE plan
- Additional requirements - Traffic Management Plan for heavy vehicle movement, SIL studies
- Disposal of Hazardous wastes generated at site
- Scaffolding – MOC & Fire breaks
- Barricade Management
MYTHS OF PHSER

- It is an alternative to Site audits
- PHSER will address all deviations
- It is part of Quality Control
Way Forward

• Currently followed in Oil & Gas sector in all projects, major projects in process industry
• Integration of Value Assurance Process with PHSER in all industry
• Will be used as a performance measurement tool in future
UAE HYDROCARBONS

EPC Projects 2012

How Safety Standards are being raised in construction through

Project Health Safety Environment Review (PHSER)

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