

Engro: Striving for World Class Safety

By:

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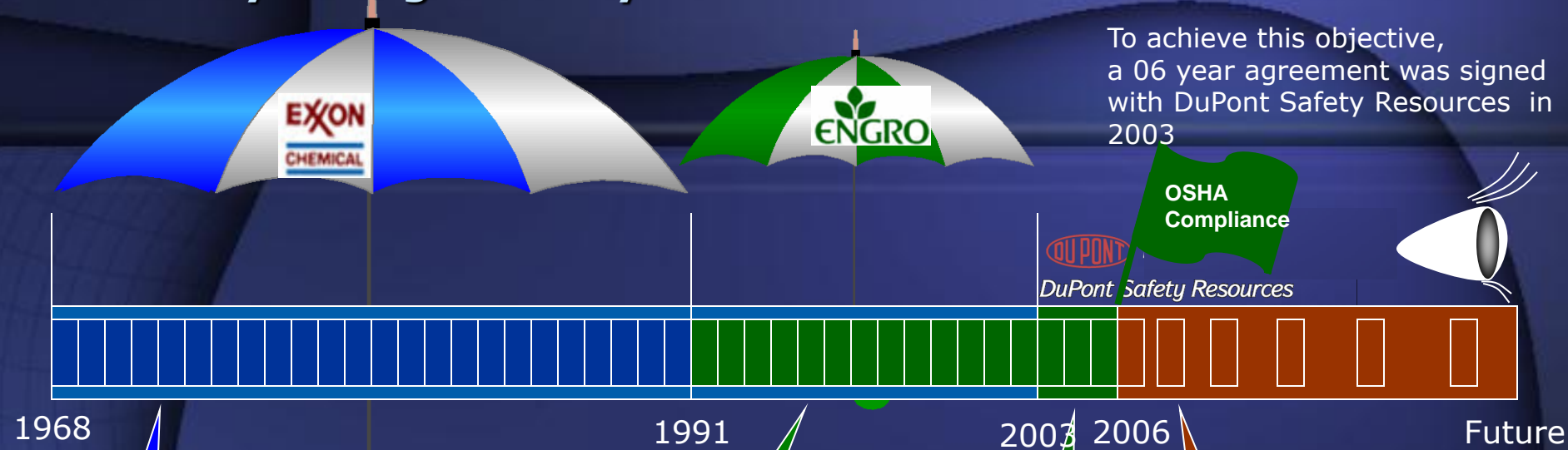
IEP, Karachi Centre

Location

- Engro Chemical Pakistan Ltd.
 - Urea manufacturing at Daharki, 600 km north of Karachi.
- Has following certifications:
 - ISO-9002 since 2001
 - ISO-14001 since 2003
- Planned
 - SA-8000 planned in 2005
 - OHSAS-18001 planned in 2005
 - ISO-17025 planned in 2005
 - DuPont Alignment planned in 2006



ECPL Safety Management Systems Time Line



To achieve this objective, a 06 year agreement was signed with DuPont Safety Resources in 2003

1968 1991 2003 2006 Future

Pioneers of Safety Management in Pakistan

- Exxon Safety Management Practices
- Exxon Basic Practices / Design Practices
- Training & Audits by Exxon resources

Maintaining HSE while Growing & Diversifying

- Exxon Safety Management Practices
- Exxon Basic Practices / Design Practices
- Safety Standards & Procedures

Upgrading of HSE Systems to Comply with OSHA

- One of the best results in Pakistan.
- Gaps existed between our system and world Class Practices

Excellence & Growth

- Striving for "World Class HSE"
- Grow in Business

Safety Management

- There are two dimensional safety risks, which are:

Personnel Safety

- The purpose is to eliminate :
 - Personal injury
 - Damage to equipment
 - To Change Behaviors



Process Safety

- The purpose is to avoid:
 - Fires
 - Explosions
 - Release of Hazardous Materials
 - To Protect People and Assets



Importance of Personnel (Behavioral) Safety



| Unsafe Acts Associated with | %age Contribution |
|---|-------------------|
| Personal protective equipment (PPEs) | 12 |
| Positions of People | 30 |
| Reactions of People (Actions of People) | 14 |
| Tools and Equipment | 28 |
| Procedures and Orderliness | 12 |
| Total Injuries Caused by Unsafe Acts | 96 |
| Total Injuries with Other Causes | 4 |

Personnel (Behavioral) Safety Management Elements

Strategic Elements

- Strong Demonstrated Management Commitment
- Safety Policy and Principles

Organization Elements

- Safety as a Line Organization Responsibility
- Integrated Organization for Safety
- Progressive Motivation

Operational Elements

- Effective Two-Way Communication
- Continuous Safety Training and Development
- Transport and Driving Safety

Demonstrated Management Commitment

Commitment must exist at the top and through the line organization. This assigns following responsibilities:

- Maintain and implement HSE rules and procedures.
- Guidance for establishment and implementation of safety programs
- Active participation in safety motivational / communication programs.
- Personal participation in investigation of serious injuries / incidents based on severity
- Establishing a program to encourage off-the-job HSE awareness
- Quantitative safety goals and objectives for performance measurement.
- Ensure that necessary training, tools and equipment are provided

What ECPL Has Done... to Establish Management Commitment

- Corporate HSE Committee has been established at the top level of ECPL
 - Headed by Chief Executive Officer (CEO).
- Sub-HSE Committees at divisional level
 - Headed by executives
 - The committees include:
 - Audit
 - Policy, Rules, Procedures
 - Incident Investigation
 - Rewards and Recognition (contractor & employee motivation)

What ECPL Has Done to... Upgrade Personnel (Behavioral) Safety

- Visible Ongoing Support from Managers & Front-line Supervisors
 - ECPL supervision including executives, managers and 1st line supervisors have started field safety audits.
 - The outcome of these audits is improvement in correction of unsafe behaviors.
- Significant Workforce Participation
 - Adopted a 'bottom-up' approach so that those most likely to be hurt are actively engaged in eliminating the occurrence of unsafe behaviors.
- Observational Data Collection
 - On the basis of 'what gets measured gets done', observers monitor safety behavior of the employees on a regular basis.
 - Data-driven Decision Making Processes

What ECPL Has Done to... Comply with OSHA for Process Safety Compliance

- Revision of Safety Critical Equipment definition
 - Included equipment and circuits containing hazardous chemicals in addition to securities / interlocks
- Conducting a Consequence Analysis based on Worst Case Scenario
- Use methodologies to determine and evaluate the hazards other than HAZOP. The methodologies are:
 - What-If / Checklist,
 - Failure Mode and Effect Analysis
 - Fault Tree Analysis
- Facility Siting and Human Factors consideration during the PHA studies
- Writing down the consequences of operating outside the process limits (deviations) and steps to be taken to correct these deviations
- Developed inspection briefs and quality assurance documents for equipment.
- Multi disciplined team for Pre-Startup Safety Reviews for safe commissioning of all the changes.

What ECPL Has Done... to Comply with OSHA for Process Safety Compliance

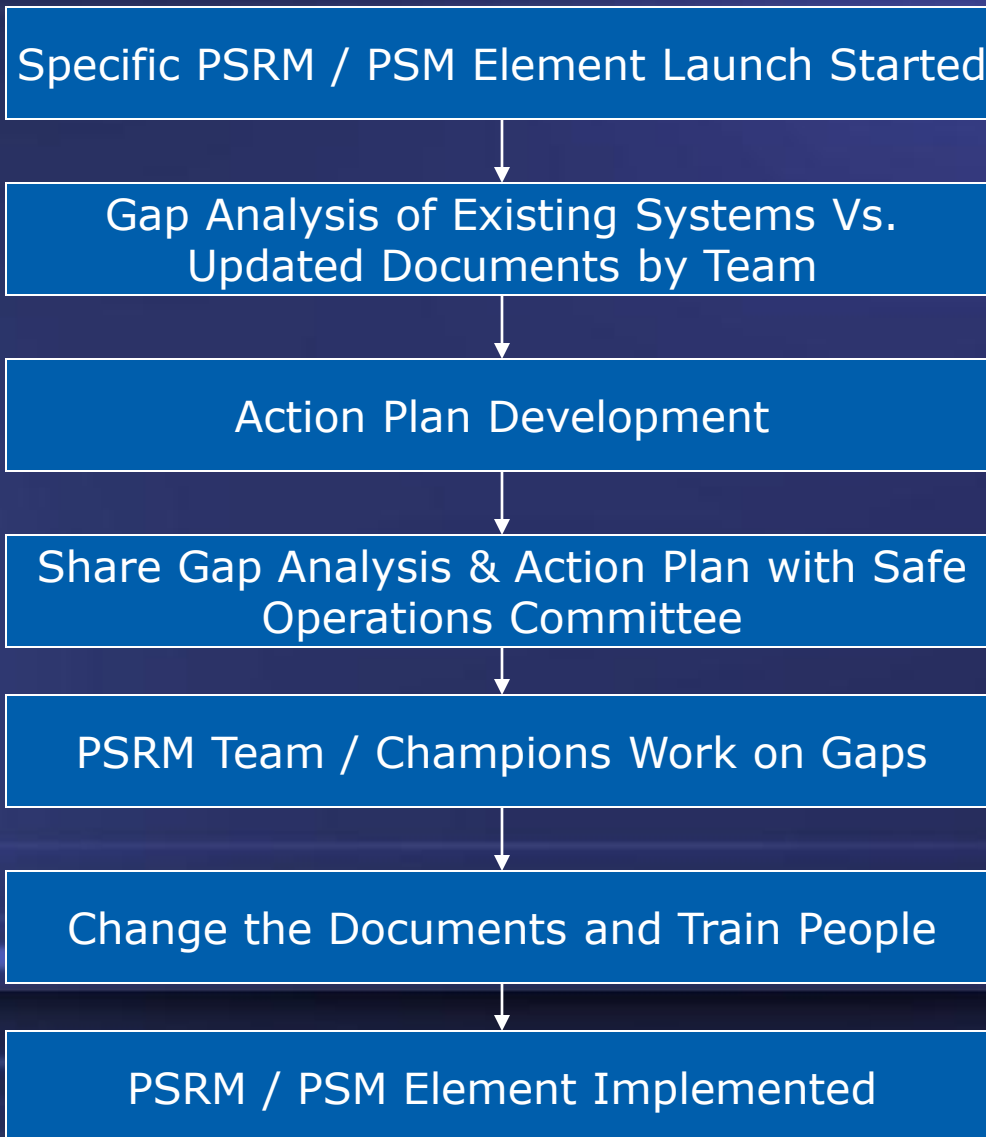
- Contractor safety is one of the significant elements which has improved ECPL site safety tremendously. After implementing this element:
 - Contractors are involved in Job Safety Analysis
 - Contractors have accountability as well as participation in the site safety management.
- Incident investigations are now given due importance as per their severity or potential consequences
 - A scoring system devised for all process safety incidents.
- Regarding emergency response, ECPL has taken two directions
 - Systems and procedures strengthened to OSHA and EPA requirements and
 - Conduct the business in a socially responsible manner. For this, ECPL is getting SA-8000 certification.

Model for Development / Implementation of System

There are 05 steps in the model:

1. Upgrade Safety Management System Documents
2. Form and Assign Implementation Teams
3. Carryout the Implementation Work
4. Get Approvals
5. Implement the Change

Process Flow Diagram for Upgrading the Safety Management System



Conclusion

- ECPL safety systems upgrade process enjoys top management's consistent support, commitment and leadership.
- ECPL also believes that with collective efforts of line management, employees and contractors, the target of achieving world class safety systems and operational excellence will be met smoothly.

Questions...

