

[To Mary Kay O'Connor Process Safety Center Home Page](#)

[To Program details for Day 1](#)

[To Program details for Day 2](#)



## **Inherent Safety, Health and Environmental (SHE) Reviews**

**Raymond W. French, Donald D. Williams, and Everett D. Wixom**  
**Exxon Chemical Company**  
**4500 Bayway Drive**  
**Baytown, Texas 77522-0400**

---

Paper presented at the 1st Annual Symposium of the Mary Kay O'Connor Process Safety Center,  
"Beyond Regulatory Compliance, Making Safety Second Nature",  
George Bush Presidential Conference Center, College Station, Texas  
March 30-31, 1998.

---

### **ABSTRACT**

How can an organization institutionalize the inherent safety process? To help accomplish this objective Exxon Chemical has developed an Inherent Safety, Health & Environmental (SHE) Review process to be carried out at various stages of new product/process development and project execution. A synergistic team (chemist, safety engineer, process designer, industrial hygienist, and appropriate others) is employed to identify hazards and make suggestions to eliminate them by incorporating Inherent SHE.

The first review should be carried out at the chemistry development stage of new product or process research. Industrial hygiene participation is very important in order to understand relative acute and chronic health hazards of all materials employed in the process including alternatives. The chemist is responsible for defining both desired and undesired reactions that are involved including the potential for runaway reactions and decompositions.

A second Inherent SHE Review is scheduled during the design basis development stage of the project execution process. The focus of this review is on improving the Inherent SHE of the design through such things as hazardous material inventory reduction, reduced pressures/temperatures, simplification of the process, and elimination of equipment.

A third review takes place when Inherent SHE considerations are looked at during the HAZOP review. This is conducted when Process & Instrument Drawings are available. Changes during this stage of the project execution process are more difficult as they increasingly impact cost and schedule.

A fourth timing of Inherent SHE reviews is also encouraged on existing facilities to identify improvement opportunities for the site and for future projects.

Requirements for Inherent SHE Reviews are included in Exxon Chemical's Operations Integrity Management Practices (OIMP), the Project Execution Process (PXP), and Product Innovation Process (PIP). Inherent SHE principles are also incorporated into our design and engineering practices.

A one-day in house workshop has been developed to teach potential members of Inherent SHE Review teams about Inherent SHE and the review process.

[To Mary Kay O'Connor Process Safety Center Home Page](#)

[To Program details for Day 1](#)

[To Program details for Day 2](#)