



Background of PSM

▶ PSM is a result of significant process industry incidents, for example:

- 1921, Oppau, Germany, Ammonium Nitrate Explosion, 530 Workers Killed.
- 1974, Flixborough, England Cyclohexane Release & Explosion, 28 Workers killed.
- 1976, Seveso, Italy, TCDD-dioxin Release from reactor.
- 1984, Bhopal, India, Chemical Release and Fatalities.
- 1984, Mexico City Explosion, 300 Fatalities.
- 1986, Chernobyl Disaster, 64 Workers killed.
- 1989, Pasadena, Texas, chemical plant explosion, 23 deaths and over 100 confirmed injuries.



▶ International Standards & Guidelines (Equivalent)

- Integral part of OSHA Occupational Safety and Health Standards since 1992 Process Safety Management of Highly Hazardous Chemicals. (29 CFR 1910.119)
- IEC-61511
- CCPS

▶ Benefits of PSM

The major aim of PSM is to develop plant systems and procedures to prevent unwanted releases, which may ignite and cause toxic impacts, local fires, or explosions in plants - effecting nearby communities.

PSM also address issues related to the Operability, Productivity, Stability, and Quality output of processes, leading to the specification of safeguards against undesirable events.

Proper safety management results in reduced exposure to lawsuits, penalties, public liability claims, and hikes in insurance premiums. Other intangible benefits include retention of corporate image.

▶ Our Approach

An effective Process Safety Management Program requires a systematic approach to evaluating the whole chemical manufacturing process.

Using this approach, the process design, process technology, process changes, operational and maintenance activities and procedures, no routine activities and procedures, emergency preparedness plans and procedures, training programs, and other elements that affect the process are all considered in the evaluation.

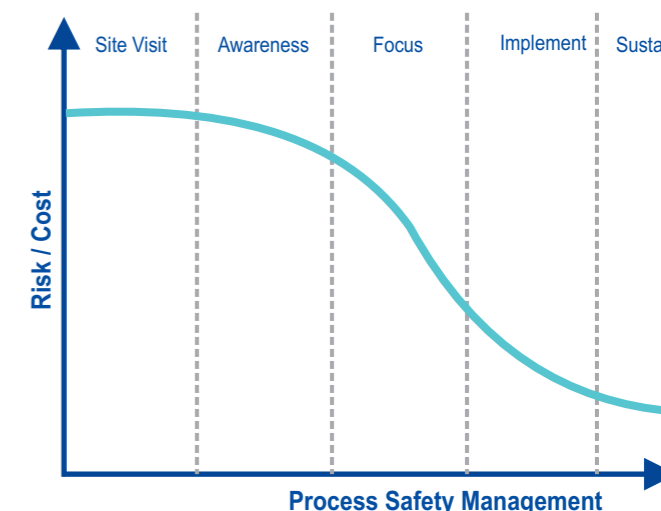


The Process Safety Management Program targets highly hazardous chemicals that have the potential to cause a catastrophic incident.

GCI initiates the PSM 360 Program from Gap PSM Audit followed by next Steps.

▶ PSM is achieved by following process & steps :

1. PSM Gap Audit
2. Forming PSM Council
3. PSM Organogram, Roles & Responsibility
4. PSM Action Plan
5. PSM Key Performance Indicators
6. PSM Manual
7. PSM Awareness Program
8. PSM Elements Training
9. PSM Implementation and Monitoring
10. PSM Internal & External Audit
11. PSM Inspection & Review Meetings
12. PSM 3rd Party Audit



▶ PSM Process Flow Chart

PSM is a Program that can be implemented in Small, Medium & Large Chemical Industries manufacturing, storing hazardous chemicals & has hazardous processes.



▶ PSM 14 Elements are :

1. Process Safety Information
2. Employee Involvement
3. Process Hazard Analysis
4. Operating Procedures
5. Training
6. Contractors
7. Pre-Startup Safety Review (PSSR)
8. Mechanical Integrity
9. Hot Work
10. Management of Change
11. Incident Investigation
12. Emergency Planning & Response
13. Compliance Audit
14. Trade Secrets





► Our Experience :

GCI has extensive experience in Oil & Gas, Petrochemicals, Fertilizer, Cryogenic, Heavy Chemicals, Speciality Chemicals, Pharmaceuticals, Pesticides & Insecticides, Dyes, Pigments & Intermediates, Cement, Steel Plant, Metallurgical, Mining & all types of Process Industries.

► Our Team :

GCI has dedicated qualified & on hand experienced experts & expertise in all types of industries.

► Timeframe :

PSM is a committed program ranging from one to three years and on size of the Industries, types of operations - Manual & DCS/PLC Operations.

GCI'S Other Programs



The **ZAP 360** program has philosophy to prevent & control the accidents by Engineering ,Administrative controls ,Training & PPE's with Behavioral Based Accident Prevention Program with ZAP Council, Organization, implementation, training, monitoring & Audit program with Zero Accident Target.



GCI offers **7S 360** is ambitious program for improving total productivity with Safety & Workplace conditions by establishing clear 7 S Policy, 7 S Performance indicators, 7 S Council as organization to implement & monitor the 7 S plan and conduct regular 7 S Internal Audits & co-ordinate external period audits.



GREEN CIRCLE, INC.

*Integrated HSEQR Consulting Engineers, Scientists & Trainers
(MoEF Recognised Environmental & Research Laboratory)*

Web:www.greencircleinc.com, **Email:** info@greencircleinc.com

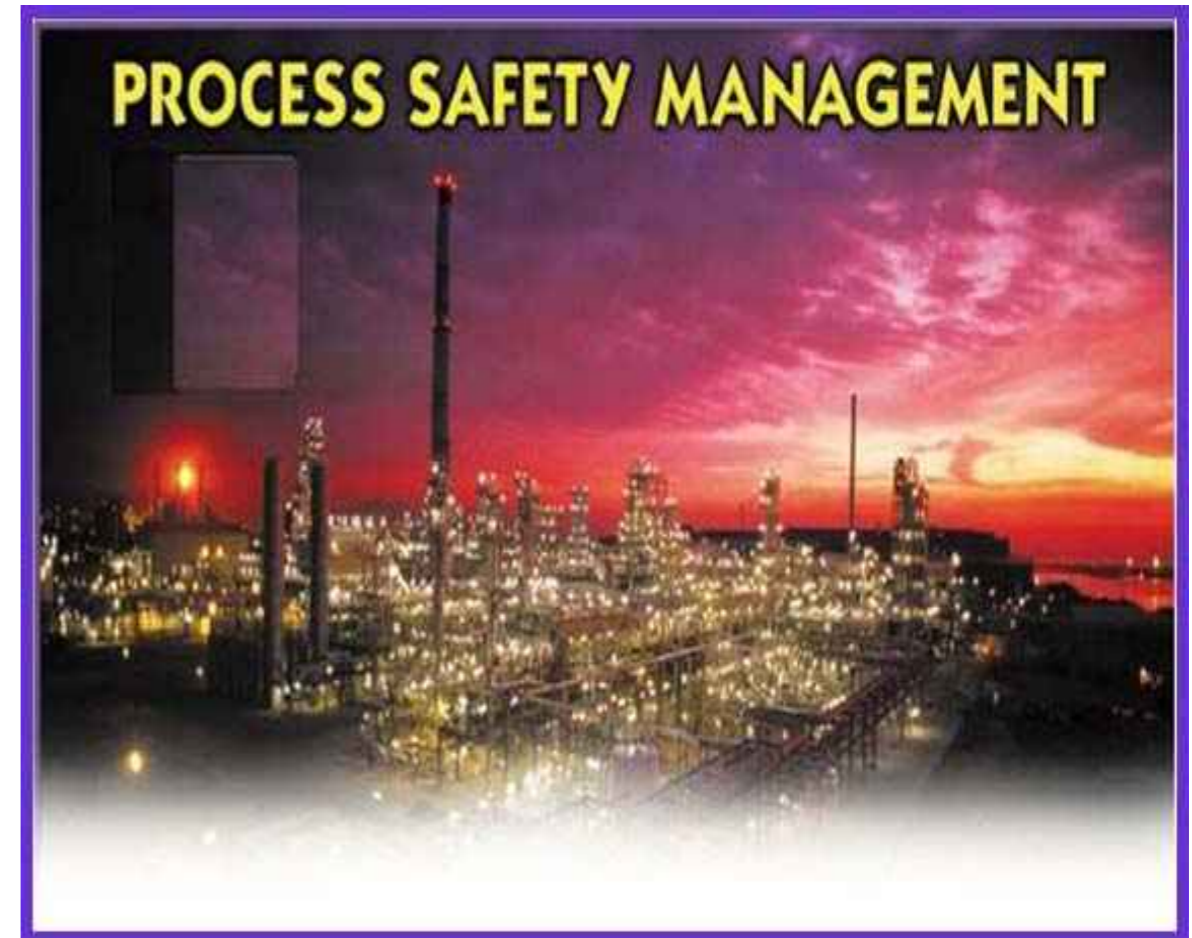
Call +9898246340

ALSO AT

**NEW DELHI KOLKATA RAIPUR MUMBAI PUNE
RAIPUR HYDERABAD BANGALORE**

OVERSEAS

AUSTRALIA OMAN KUWAIT TANZANIA VIETNAM



GREEN CIRCLE, INC.

*Integrated HSEQR Consulting Engineers, Scientists & Trainers
(MoEF Recognised Environmental & Research Laboratory)
India*

Web:www.greencircleinc.com, **Email:**info@greencircleinc.com

Call +9898246340