

Serious Accidents in July to Nov. 2023

Tamil Nadu: 2 killed in explosion at firecracker factory in Sivakasi



Two women, working at a private firecracker manufacturing unit, were charred to death in a fire accident in the Virudhunagar district near Tamil Nadu's Sivakasi, the police said on Tuesday (July 25).

24 workers injured after explosion triggers fire at Gujarat chemical plant



The blaze erupted at the chemical factory located in Sachin GIDC industrial area at around 2 am on 29 Nov.



THIS ISSUE

Editorial **P.1**

CoE Activities **P.2,3,4**

Job Cycle Check (JCC) **P.5**

Elements of Process Safety management **P.6**

Courses & Services Available **P.7**

EDITORIAL

“Don't use fossil fuels to be saved from being fossil in the future. Think green, think global to defeat global warming.”

Fossil fuels release CO₂, a greenhouse gas that intensifies the greenhouse effect. Human activities have heightened this effect, leading to global warming and associated safety hazards. Global warming, characterized by a prolonged increase in Earth's average surface temperature, poses substantial risks to both ecosystems and human societies. Rising temperatures contribute to the melting of glaciers and polar ice caps, leading to potential safety issues related to rising sea levels. Higher temperatures affect marine ecosystems, causing coral bleaching, ocean acidification, and a loss of biodiversity. The safety of aquatic life and ecosystems is compromised due to these climate-induced changes. Methane, a more potent greenhouse gas than CO₂, is released as permafrost regions thaw. This creates safety concerns, as the released methane can contribute to a dangerous feedback loop, exacerbating the warming effect.

Fossil fuel combustion releases air pollutants (nitrogen oxides, sulfur oxides, and particulate matter),

impacting air quality and posing risks to respiratory health. Choosing cleaner energy sources enhances air quality and ensures a safer living environment.

The extraction and transportation of fossil fuels contribute to environmental degradation, including deforestation, habitat destruction, and oil spills. Such incidents pose immediate safety risks to both ecosystems and human populations.

The exploitation of fossil fuel reserves often leads to conflicts and geopolitical tensions over limited resources.

Transitioning to safer energy options ensures a cleaner and more secure future. While natural gas is considered cleaner than coal and oil, it still releases CO₂ when burned, contributing to global warming. Evaluating and adopting cleaner alternatives is essential to enhance safety on a global scale.

This Safexcellence issue brings special articles on Job Cycle Check (JCC), various COE activities, and elements of process safety management.

Mr.Sudeep Wadia
Asst Professor-CE, SRICT

CoE ACTIVITIES

Three workers die in an accident at plant run by one of India's leading cement manufacturers



The accident due to an oxygen cylinder blast occurred at a cement plant in Himri village run by one of India's leading cement manufacturing companies, UltraTech Cement, on July 18.

Three workers have died from an oxygen cylinder blast at a cement plant in India's Chhattisgarh State.

Two dead, several injured in blast at pharmaceutical factory in Andhra Pradesh



At least two persons were killed and several injured Friday in a blast inside a pharmaceutical factory in the Achyutapuram SEZ in Andhra Pradesh's Anapalli area.

CoE members attended the CCPS India Regional Meeting on December 2, 2023 at Vadodra, Gujarat. The case studies on Process Safety that the several industry leaders presented at this conference were very beneficial to all. This meeting was also sponsored by UPL University of Sustainable Technology.



CoE Members Dr. Ravindra and Dr. Omprakash attended the workshop HAZCHEM on December 5, 2023 at Vadodra, Gujarat organized by LCS India Ltd. It was a great Learning from accidents happened and steps towards achieving the incident free transportation of hazardous Chemicals.



First Batch of the Post Graduate Diploma in Process Safety (PGDPS) – during two days workshop on “Bpwrite and Barrier Management” at UPL University of Sustainable Technology. This workshop was conducted by Mr. Umesh Dhake and Mr. Vishal Chavan from CCPS

Three workers injured in fire at industrial unit in Maharashtra's Palghar district



The blaze erupted at around 9.30 p.m. on July 3 after some storage tanks containing light-density oil exploded due to the fire.

Fire at Marathon refinery in St. John Parish burns for seven hours



A fire that erupted at the Marathon Petroleum refinery in Garyville early Friday burned for roughly seven hours before it was extinguished after 2 p.m., allowing nearby residents to return home after a mandatory evacuation order was put in place within 2 miles of the facility.

Post Graduate Diploma in Process Safety

UPL UNIVERSITY OF SUSTAINABLE TECHNOLOGY
UPL Center of Excellence In Process Safety

UPL Rotary Ankleshwar

- *Part-time Post Graduate diploma in Process Safety.
- *Specially designed for working professionals.

Post Graduate Diploma in PROCESS SAFETY

UPL University.ac.in

Post Graduate Diploma in Process Safety

Duration of Course – 1 Year (Two Sem) (70% on job & 30% off job).
Faculties: Indian SMEs / Retired PSM Professionals / Industry Experts / Faculties from UPL University
Participants: Chemical / Instrumentation / Mechanical Engineers from Industry / B.Sc. (Relevant Experience) / M.Sc.

Course Contents

- Basic of Chemical Engineering
- Process Safety Overview, Information and its interpretation.
- Reaction Hazard Assessment.
- Technical Safety-1 (Stage gate methodology, Inherent Safety, Hazard)
- Workshop-1 (PHA)
- Workshop-2 (OPA (Layer of Protection Analysis))
- Incident Investigation Techniques
- Technical Safety-2 (Emergency Response & Preparedness, Emergency Relief System, Safety Critical Equipment, ORA and its interpretation)
- Management of Change & Pre-Start-Up Safety Review Operational Control Procedure, Operational Safety Hazard Identification & Risk Assessment
- Workshop-3 (Bowtie & Barrier Management)
- Workshop-4 (Hazard Area Classification Risk Assessment)

Objectives to be fulfilled

- * Understanding of basic process safety principles.
- * A Practical understanding of process hazards and risks, and its mitigation.
- * Understanding of the technical elements of Risk-Based Process Safety.
- * A basic understanding of qualitative and quantitative methods, techniques and tools used in process safety management (PSM).
- * A basic understanding of what can go wrong and key technological safeguards.

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Registration for PGDPS course use this link : <https://forms.gle/DcrH4SbjKDu71Gay6>

Safety Training for School Students

The Centre of Excellence (COE) at Shroff S. R. Rotary Institute of Chemical Technology (SRICOT) Ankleshwar organized work place and Life Safety training program for the school students of Bhavdarshan vidyalaya, Saraswati Vidyalaya Mandvi, P J Chadda school Dahej, Shri Jay Mataji Ashram School, Siludi and Shravan Vidyalaya Ankleshwar students. In all total 3500 students had actively participated in this awareness training program.



PHA/HAZOP Team at Center of Excellence in Process Safety

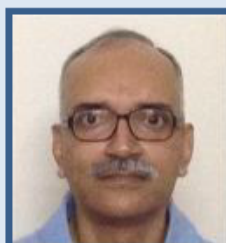
CoE in process safety offers consulting services in the field of hazard identification and risk analysis to the chemical and allied industries. The following highly qualified experts are available to lead the HAZOP investigation as the chairman.



Mr. Atul Deshpande
B. Tech Chemical Engineering

Mr. Atul Deshpande is a chemical engineer with overall 28 years of experience in chairing HAZID, HAZOPs, LOPA, Process Safety Management of the gas cracker plant, plant operations, planning, project implementation, energy conservation, quality. He has Implemented Process Safety management systems and BBS systems at various sites and trained under the leadership and guidance of DuPont Safety. He was also a part of implementation system at RIL Nagothane site under Du Pont.

Developed various process safety standards, audit protocol and PSM culture across the manufacturing sites. Participated and coordination in PHA (process hazard analysis), risk assessment, MOC (T/P), PT and QRA for process plants , risk register etc. Process safety performance monitoring through leading and lagging indicators. He was Chairman of PHA/MOC/Audit subcommittee and also participated in PSM benchmarking.



Mr. ALOK KUMAR
B.Tech. Chemical Engineering,
IIT Kanpur, 1981.

Mr Alok Kumar has a long working experience in different sectors of the Chemical Process Industries like Organic Chemicals, APIs, Agrochemicals, Pulp & Paper, Petrochemicals, & Environmental Infrastructure.

He has experience of managing various functions like Process Engg & Design, Scale Up, Project Engg & Management, EPC firms, Operations Management, Corporate EHS Management, and overall as CEO.

He is involved in PHA & Hazop since 1988, and brings a unique perspective and enhanced value addition to these PHAs & Hazop workshops owing to his varied functional & sectorial experience.

He has written articles on how to improvement management systems based on Hazop Findings.



Dr. Ravindra and Dr. Omprakash visited the Grasim Industries Ltd. Epoxy Plant in Vilayat, today. A two-day Unit Safety Conclave has been scheduled for December 27 and 28, 2023 at the same plant. We briefly presented the CoE-Safety activities and discussed the various courses offered by the University. Unit Head, Mr Rakesh Chokshi, Safety Head, Mr Sanjeev Verma and other departments head along with 45 members from the plants were present for this program.

2 injured as fire breaks out in fireworks unit in Tamil Nadu's Virudhunagar



Two workers sustained severe burn injuries after a fire broke in a fireworks unit at Kottainatham village in Tamil Nadu's Virudhunagar on Monday. On information about the incident, fire and rescue services personnel went to the spot and put out the fire.

3 workers injured in Jejuri chemical plant explosion



Three workers sustained burn injuries in an explosion in a chemical manufacturing plant in Neera village in Jejuri around noon on 3rd September. The Pune rural police identified the injured workers and they are undergoing treatment at private hospital in Pune.

JOB CYCLE CHECK (JCC)



Prepared by,
Mr. Jayesh Gol,

UPL Ltd, Head OHS, Ankleshwar.

Purpose & What is Job Cycle Check (JCC)

Job cycle check is a process to identify the gaps in the existing operational control and modify Risk Assessment.

The job cycle check is a combined, Operator-supervisor-employee analysis of the employee's/Worker performance on some part or all of a job or task of the job. Operating and maintenance procedures and practices must exist for the job(s) being evaluated.

The purpose of the job cycle check is to provide a system that will:

- Look at the safety aspect of each operating and maintenance procedure, task or practice.
- Keep all procedures and practices current and adequate.
- Ensure that employees know the procedures and practices.
- Continuously provide refresher training for personnel.
- Evaluate the risk associate with all stages of entire Job Cycle

Proper use of this procedure will provide a safe operation, identification of hidden hazards, a review of standard practices, and an improvement in efficiency.

Scope and Shop floor application

The procedure is applicable to job-task or activities being performed in the work place. This is applicable to all shift personnel who are carrying out various activities like: Routine Operations, Non Routine Operations.

Steps of JCC:

How to make a Job cycle Check:

- Supervisor Preparation / Activity identification and make a list
- Off the Job evaluation / brainstorming of each job steps evaluations
- On the job evaluation / field visit for actual job performing evaluation in each step
- Fill the Checklist of JCC and Check all Checklist parameter followed Or Not
- Final Evaluation - Identify the deviation observed during each stage and identify the gaps with existing procedures.

Explosion at Indian chemical plant kills seven, injures 27



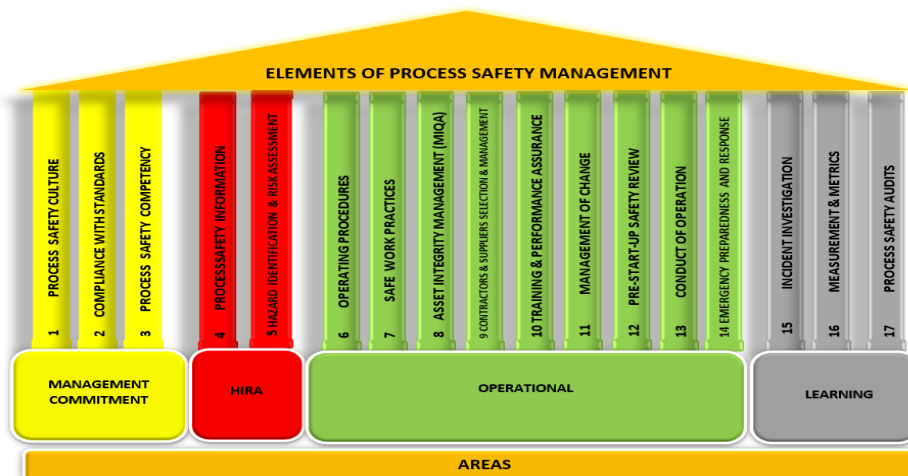
Seven people were killed by an explosion at a chemical plant in Surat on 29 November. The incident happened at a facility operated by chemical manufacturer Aether Industries and left 27 others with injuries.

US chemical plant explosion injures one



An explosion at a chemical plant in the city of Shepherd in rural Texas injured one worker and sent a significant plume of black smoke across nearby residential areas on 8 November. Police said an initial investigation suggested the blast happened after an employee discovered a leaking chemical container. The worker attempted to use a forklift truck to lift the container, however the chemicals ignited and caused the explosion.

ELEMENTS OF PROCESS SAFETY MANAGEMENT



Incidents continue to occur in various industries that use highly hazardous chemicals which may be toxic, reactive, flammable, or explosive, or may exhibit a combination of these properties. Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled. This, in turn, creates the possibility of disaster.

There are many renowned process safety management systems available worldwide. These systems have most of the safety elements in common, with little variations in number and titles.

SRICT CoE has selected 17 process safety elements and based on these, shall attempt to analyze each disaster for the probable cause/s. **SAFEXCELLENCE** team will note, study and analyze each and every significant accident based on the published literature and will bring the missing process safety element/s to you.

This is the first step taken by SRICT CoE for establishing a data bank of major accidents and subsequent analysis towards educating our industrial partners. Taking clue of this analysis, the industries can get benefited by revisiting process safety to achieve a goal of zero accident.

MISSING PSM ELEMENTS WHICH CAUSE ACCIDENTS

Accidents	Missing PSM elements																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion at firecracker factory, Sivakasi, Tamil Nadu.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion at Pharmaceutical factory, Sahiti Pharma Private Limited, Achyutapuram, Andhra Pradesh.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion at firecracker factory, Kottainatham village in Tamil Nadu.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Explosion at Ultra Tech Cement's plant in Himri, Chhattisgarh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in Boisar, Palghar, Maharashtra.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fire broke out in Marathon Petroleum refinery in Garyville, Louisiana, United States.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
24 workers injured after explosion triggers fire at Gujarat chemical plant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
03 workers injured after explosion at Chemical Plant in Jejuri, Pune, Maharashtra	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Dr. Ravindra Kanawade
Asso. Professor, UPL University

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(SCAN QR CODE)

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**TRAINING PROGRAMME ON PROCESS SAFETY
MANAGEMENT**

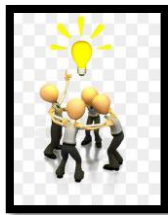


**ASSISTING INDUSTRIES IN IMPLEMENTATION OF
PROCESS SAFETY MANAGEMENT**

**PSM CONSULTING ASSIGNMENTS TO
MEDIUM/LARGE CHEMICAL COMPANIES**



**ASSISTING INDUSTRIES TO CONDUCT HAZARD
AND OPERABILITY STUDY (HAZOP)**



**ASSISTING INDUSTRY SPONSORED RESEARCH
PROJECTS IN PROCESS SAFETY**

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