



Petrochemical Corporation of Singapore (Private) Limited



*SECURING THE HEALTH AND SAFETY
OF OUR WORKFORCE
SAFEGUARDING OUR COMMUNITY*

RESPONSIBLE CARE® OBJECTIVES & TARGETS 2022

Er. Bernard Leong LW
Health, Safety & Environment cum Quality Control Manager

Annual PCS-Contractors HSE Meeting 2022
21 January 2022



Responsible Care®



1. global chemical industry's commitment
2. continuous improvement in health, safety and environmental performance
3. open and transparent communication

- signatory since October 1999
- PCS RC Policy* spells out **philosophy and principles**
 - ➔ governing all decisions related to health, safety and environment, in all business activities
- applies to all employees and contractors
- mindset of identifying and removing hazards at workplace

* *Responsible Care® Policy is PCS' manifestation of generic "Health, Safety & Environment Policy", as PCS is a signatory of Responsible Care®*

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RESPONSIBLE CARE® POLICY

PCS regards the Health, Safety and Security of our employees, contractors, customers, distributors, suppliers, neighbours, the Public and protection of the Environment as the top priority in its operations. PCS is committed to:

- **Health** ensure a healthy workplace, for the prevention of occupational ill health, by eliminating hazards and reducing occupational health risks
- **Safety** ensure a safe workplace, for the prevention of injuries, incidents, property damage and excel in process safety management, by eliminating hazards and reducing occupational and process safety risks
- **Security** ensure a secure workplace by preventing security incidents
- **Environment** protecting the environment, by minimising the impact of its activities, products and services on the environment, by using material and energy efficiently, and by minimising waste, and preventing pollution by reducing emission to air, discharge to water and to soil to the practical minimum
- **Products** ensure a clear commitment of product stewardship to minimise any impact of our products throughout their life cycles

These are done through a continual improvement process of Plan-Do-Check-Act cycle and also by subscribing to the Responsible Care® principles for the management system in production, handling, use, transport and disposal of products that PCS produces through:

- allocating sufficient resources to develop, operate and maintain the Health, Safety and Environment (HSE) and Security Management Systems
- openness to employees, contractors, customers, distributors, suppliers, officials and the community, including consultation and participation of stakeholders
- assurance of HSE related quality and safety of our products and processes
- providing feedback to and cooperation with the Government and relevant Bodies regarding Singapore HSE and Security (HSES) legal framework and Responsible Care® practices
- assisting our contractors, customers and distributors to understand the hazards of our products
- sharing of HSES experience and offering assistance to others including suppliers, neighbours and the Public

These are also done by:

- regarding HSES as a direct line management responsibility
- communicating the appropriate HSES consideration to contractors, customers, distributors and suppliers
- maintaining good customer relationship to foster safe use and handling of our products
- assisting customers and distributors in the transmission of product stewardship information
- ensuring compliance with applicable legal and other requirements
- setting targets for improvement, measurement, benchmarking, appraisal and performance reporting
- training and motivating employees and contractors to enhance HSES awareness and to promote best HSES practices
- carrying out incident investigation and taking safety management measures to prevent recurrence
- requesting contractors working at PCS to adopt the same HSES principles of this policy
- having an effective emergency response system to minimise any property and HSES damage arising from an emergency situation

HISASHI SHIBAYAMA
MANAGING DIRECTOR

01 JUL 2021
REVISION DATE

Objectives & Targets 2022 - 1



1. Maintain a Healthy, Safe Workplace and best in class Environment

Zero Lost Time Incident	
Total Recordable Case Frequency ≤ 1.4	TRCF per million hours worked
Zero Environmental Incident	RAM* Consequence > Rating of 3 <i>* see slide 4</i>
Zero Hazardous Exposure leading to Occupational Diseases	
Zero Process Safety Incident	RAM Consequence > Rating of 3

- **Adhere to COVID-19 Safe Management Measures (SMM) according to current advisories; keep ourselves and communities healthy and safe**

Risk Assessment Matrix



Potential Consequence					Probability of Occurrence				
					A Very Unlikely Never heard of in our industry	B Unlikely Heard of in our industry	C Likely Has occurred in PCS	D Occasional Occurred several times per year in PCS	E Routine Occurred several times per year in PCS
Rating	People	Asset	Environment	Reputation					
0	No injury	No damage	No effect	No impact					
1	Slight injury	Slight damage	Slight effect	Slight impact					
2	Minor injury	Minor damage	Minor effect	Limited impact					
3	Major injury	Localised damage	Localised effect	Considerable impact					
4	Single fatality	Major damage	Major effect	Major national					
5	Multiple fatalities	Extensive damage	Massive effect	Major international					

ZONES - LOW RISK MEDIUM RISK HIGH RISK

HARM TO PEOPLE

RATING	DESCRIPTION
0	No injury or health effect.
1	Slight injury or health effect (including First Aid and Medical Treatment cases) - not affecting work performance or causing disability.
2	Minor injury or health effect - affecting work performance, such as restriction on activities (Restricted Workday Case). Limited health effect, which is reversible, eg. skin irritation, food poisoning.
3	Major injury or health effect - affecting work performance, such as Lost Time Injury, or a need to take a few days to recover. Irreversible health damage without loss of life, eg. noise induced deafness, chronic back injury.
4	Single fatality or Permanent Total Disability (including Permanent Partial Disability) - from an incident or occupational illness, eg. poisoning, cancer.
5	Multiple fatalities - from an incident or occupational illness, eg. poisoning, cancer.

Objectives & Targets 2022 – 2a

2. Maintain Good HSE Performance and Management System

- Maintain zero major non-conformity in external and internal HSE audits
- Enhance Contractor Companies bizSAFE capacity building through PCS Maintenance Contractors HSE Committee's (PCC) championship as bizSAFE Mentor
- Ensure Safety Case written presentation as a live document
 - ✓ propagate its purpose as knowledge management and retention
 - ✓ competency development of newer workforce

Objectives & Targets 2022 – 2b

2. Maintain Good HSE Performance and Management System

- Promote technology-enabled HSE
 - ✓ mindset change to further digital transformation in health, safety and productivity
- Propagate Vision Zero*, centred on a belief that all work related injuries and ill health are preventable

**see slide 7*



Vision Zero



“A movement that aims to inculcate a mindset that all injuries and ill health at work are preventable and a belief that zero harm is possible.”



Jurong Island Vision Zero Cluster

- Jurong Island Vision Zero Working Group formed in Jan 2018, under the Workplace Safety and Health Council (Chemical Industries) Committee; led by industry
- target for companies on Jurong Island to have unified culture for Workplace Safety and Health (WSH)
- leadership and commitment key to creating robust WSH culture
- Jurong Island community first in Singapore to form Vision Zero cluster; launched on 23 Nov 2018

Objectives & Targets 2022 – 3a

3. Ensure a HSE competent Workforce

- Identify appropriate training and targeted delivery to enhance awareness and understanding of hazards and risks of workplaces and activities; assess / ensure competence to consistently follow Safe Work Procedures
- Strategise to increase human interaction with process to reduce **transient operations human error***
 - ✓ review competency-based training and knowledge transfer
- Identify underlying human factors, including competency-based behaviour and mental health well-being, on performance variability; integrate into Safety Case

**see slide 10*

Objectives & Targets 2022 – 3b

3. Ensure a HSE competent Workforce

- Emphasise empowerment and nurture ownership in health and safety
 - ✓ refine culture which encourages everyone to take personal responsibility for HSE as part of Total Workplace Safety and Health (Total WSH); **WSH 2028**



Human Error in Process Safety



- Human error led to two of most significant incidents
- ✓ Piper Alpha (1988)
 - failure to fit blind correctly
 - shift changeover
 - contractor failed to report status of work
- ✓ BP Texas City (2005)
(underlying problems)
 - historical deviations of startup
 - lack of communication
 - fatigued operators

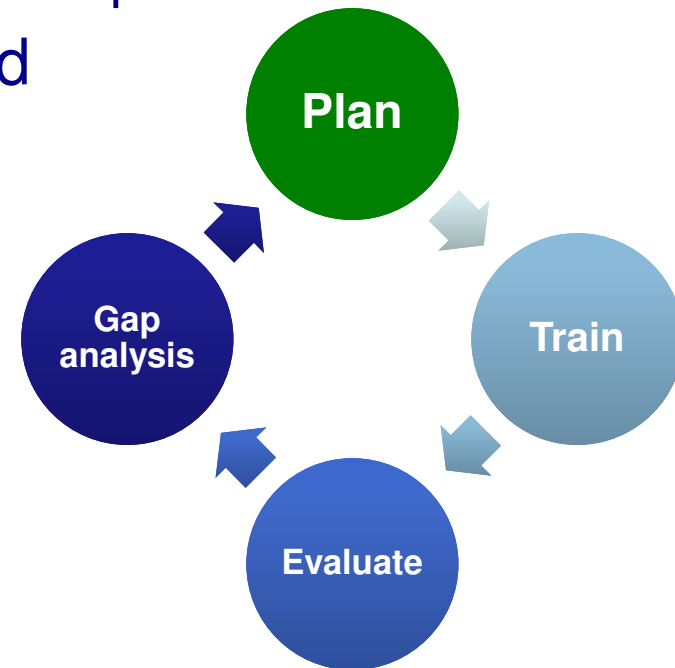
Classification

- ✓ **Learning gap**
[don't know]
- ✓ **Memory gap**
[know but don't remember]
- ✓ **Inconsistency**
[have knowledge but variability in method]
- ✓ **Application**
[know but incorrect action]
- ✓ **Omission**
[know but missing step or action]
- ✓ **Decision**
[wrong decision in a given situation]

Training and Competency



- Section 12 of Workplace Safety and Health Act 2006
“...such measures as are necessary to ensure the safety and health of the employer’s employees at work”
 - “...ensuring that those persons at work have adequate instruction, information, training and supervision”
- Different types of expertise required
- **Competency** is a combination of **Knowledge, Ability** and **Skill**
 - ✓ written training programme
 - ✓ compiled by competent person
 - ✓ given prior to start of work, changes
 - ✓ records to be kept
 - ✓ refresher training every 3 years



Objectives & Targets 2022 – 4a

4. Strengthen Responsible Care[®] Practices

- *Continue outreach activities, sharing practical and sustainable approaches in Responsible Care[®] programmes as Responsible Care[®] Leader*
 - ✓ *embed Responsible Care[®] in marketing collateral and outreach programmes*
- *Active support and participation in national workplace health and safety initiatives*



Objectives & Targets 2022 – 4b

4. Strengthen Responsible Care[®] Practices

- Improve manufacturing efficiency through equipment and process enhancements to further reduce energy consumption
 - ✓ promote conservation and address impacts to the environment
- Active outreach / sharing of HSE experience / expertise, within Complex, and through SCIC / industry avenues



Objectives & Targets 2022 – 5



5. Ensure Compliance with Legal and Other Requirements

- Ensure workplace health and safety awareness and compliance through regular site inspection* **see slide 15*
 - ✓ identify and control potential risk situations to eliminate injuries
- Ensure alignment to WSH 2028 Vision (MOM Tripartite Strategies)
 - ✓ incorporate WSH 2028 strategies in programmes and activities
- Ensure Contractor Companies demonstrable commitment to, and competence in, the proper management of HSE** ***see slide 16*

Formal inspections



- Monthly
 - √ Management Team; COVID-19 in small group
 - √ Safety & Health Working Committee
 - √ PCS Maintenance Contractors HSE Committee (PCC)
- Bi-weekly
 - √ HSE Officer, support functions (Technology & Optimization, Maintenance, Contractor)

Evaluation, Selection, Audit



- Regulations for Evaluation & Selection of Contractors

- Procedure for conducting HSE Audits on Maintenance Contractors

PETROCHEMICAL CORPORATION OF SINGAPORE (PRIVATE) LIMITED RULES AND REGULATIONS (P-027) EVALUATION & SELECTION OF CONTRACTORS Effective Date : 16 August 2004			
03	01 Aug 2014		
02	20 Apr 2009		
01	5 Sep 2007		
REVISION	EFFECTIVE DATE	REVISION	EFFECTIVE DATE

Doc No. : MGP-36 PETROCHEMICAL CORPORATION OF SINGAPORE (PRIVATE) LIMITED PROCEDURE FOR CONDUCTING HSE AUDITS ON MAINTENANCE CONTRACTORS									
<<2>	Feb 2013	Krishnan	---						
<1>	Feb 2009	Krishnan	---	Chew T H					
<<0>	Sep 2007	Krishnan	---	Chew T H					
Rev.	Date	Prepared by	Reviewed by	Approved by	Rev.	Date	Prepared by	Reviewed by	Approved by

- 7.2 Contractors failing to achieve the minimum score of 75% may be subjected to one or more actions as given below, as decided by the Maintenance Manager –
- Re-audit within three months (only if there is reason to believe that the failure was due to administrative discrepancies and not due to inadequacy of their HSE Management System)
 - Eviction from PCS facilities (land, office or store)
 - Not considered for any new work under PCS Maintenance
 - Termination of contract and/or removal from the 'Approved contractor list' (this shall be on consultation with the Purchasing Manager)

Score in previous audit	Status	Audit
Score ≥ 85%	Star	4 years
85% > Score ≥ 75%	Passed	3 years
Score < 75% (Failed in 1 st attempt)	Failed	1 year

Objectives & Targets 2022 – 6



6. Achieve Safe and Successful Execution of Projects

- Ensure safe execution and completion of rejuvenation projects, including small Capex projects
- Ensure ongoing communication on HSE issues, coordination of activities and proper work interface
 - ✓ appropriate level of supervision and take prompt corrective actions
- Ensure contractors / subcontractors possess adequate knowledge and competency levels through training and mentoring system*
 - ✓ requirement of **bizSAFE Level 3** (minimum) for sub-contractors

**see slide 18*

Knowledge & Competency



- Apply Workplace Safety & Health in Process Plant (AWSHPP) #
- Complex Safety Induction Training (CSIT) [site specific safety and health awareness] #
- basic language/communication (conversational English)
- where applicable
 - ✓ Work-at-Height Course for Workers
 - ✓ Perform Work in Confined Space Operation #
- trade/skill-based training
- behavioural / culture assimilation
 - ✓ BBS, SOS, STAR

“
appeal to all Contractors to send their workers (esp. those working in Complex) for courses at **PCS ATO** (administered by PCCA) – all fees collected channelled back for workforce HSE promotion and well-being
”

Our CULTURE





THANK YOU



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