



Petrochemical Corporation of Singapore (Private) Limited



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

RESPONSIBLE CARE® OBJECTIVES & TARGETS 2019

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

**Annual PCS-Contractors HSE Meeting 2019
21 January 2019**

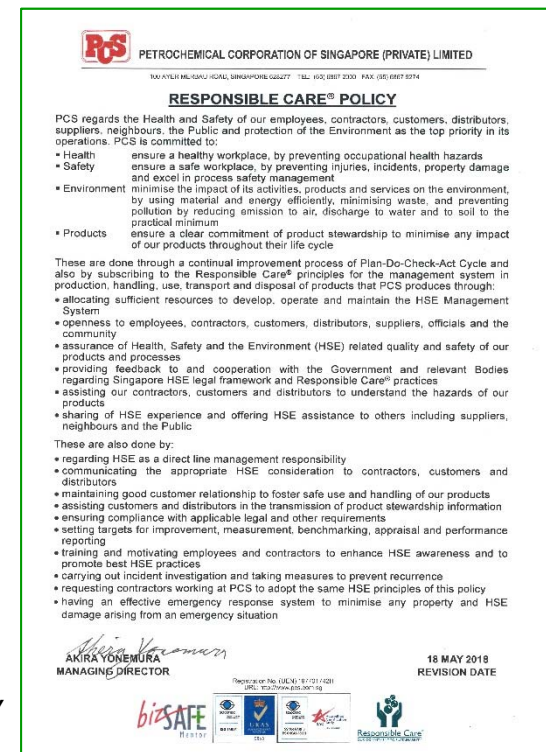


Responsible Care®



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®

Objectives & Targets



Responsible Care® -- HSE (Health, Safety & Environment) ??

- Responsible Care® launched in 1985 in Canada
- International Council of Chemical Associations (ICCA) is the Steward
 - world body representing chemical manufacturers and producers
 - initiative that drives continuous improvement in HSE performance
 - lead in promoting and implementing Responsible Care® initiatives
 - PCS' Responsible Care® Objectives and Targets encompass HSE objectives and targets
 - as signatory, PCS is committed to improve HSE performance through Responsible Care®



PCS PETROCHEMICAL CORPORATION OF SINGAPORE (PRIVATE) LIMITED
RESPONSIBLE CARE® OBJECTIVES AND TARGETS FOR 2019

Objectives	Targets
1. Maintain a Healthy, Safe Workplace and best in class Environment	1.1 Zero Lost Time Incident 1.2 Total Recordable Case Frequency < 1.4 (TRCF per million hours worked) 1.3 Zero Environmental Incident (RAM Consequence > Rating of 3) 1.4 Zero Hazardous Exposure leading to Occupational Disease 1.5 Zero Process Safety Incident (RAM Consequence > Rating of 3)
2. Maintain Good HSE Performance and Management System	2.1 Maintain zero major non-conformity in external and internal HSE audits 2.2 Promote Contractor Companies to SAFETY capacity building through PCS Maintenance Contractor HSE Committee (PCS) comparison as iSAFE Mentor 2.3 Ensure Safety Case written presentation as a live document and propagate its purpose as knowledge management and retention, and competency development 2.4 Ensure full compliance to company rules and regulations, including strict adherence to Permit-to-Work system 2.5 Embrace Vision Zero, centred on a belief that all work related injuries and ill health are preventable
3. Ensure a HSE competent Workforce	3.1 Entrench knowledge derived from originally intended work processes (Back to Basics); re-align structure and accountability, mitigate deviations 3.2 Review critical competency-based processes to determine / develop knowledge management framework for preservation and succession planning 3.3 Calibrate 'sense of urgency / chronic unrest' reinforcing industry incidents (process and occupational safety); analyse root cause to foresee and prevent similar incident 3.4 Develop framework for e-learning portal and knowledge retention; provide ample 'network attached storage' as common information repository, and ensure seamless and easy access for competency development 3.5 Entrench and sustain level of HSE participation and competency development across Commercial Functions
4. Strengthen Responsible Care® Practices	4.1 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 4.2 Active support and participation in national workplace health and safety initiatives 4.3 Improve manufacturing efficiency through equipment and process enhancements to further reduce energy consumption, adopt sustainable practices to reduce carbon emission 4.4 Build capability and readiness in managing security threats; align strategies with Responsible Care® Security Code and SIGSecure movement 4.5 Active outreach / sharing of HSE experience / expertise, within Complex, and through SCC / industry avenues
5. Ensure Compliance with Legal and Other Requirements	5.1 Ensure workplace health and safety awareness and compliance through regular site inspection; identify and control potential risk situations to eliminate injuries 5.2 Ensure contractor compliance to Globally Harmonised System requirements 5.3 Ensure Contractor Companies demonstrable commitment to, and competence in, the proper management of HSE, as an essential factor in their selection and continued participation 5.4 Ensure health and safety incorporated as integral part of work planning and execution 5.5 Continually improve the effectiveness of quality planning and management system
6. Achieve Safe and Successful Execution of Projects	6.1 Ensure safe execution and completion of rejuvenation projects, including small Capex projects 6.2 Ensure ongoing communication on HSE issues, coordination of activities and proper work interface 6.3 Ensure contractors / subcontractors possess adequate knowledge and competency levels through training and mentoring system

Akira Yongchura
Managing Director

01 December 2018

Objectives & Targets 2019 - 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) ** see slide 5*
- Zero Hazardous Exposure leading to Occupational Diseases
- Zero Process Safety** Incident
(RAM Consequence > Rating of 3) ***see slide 6*

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.

Process Safety



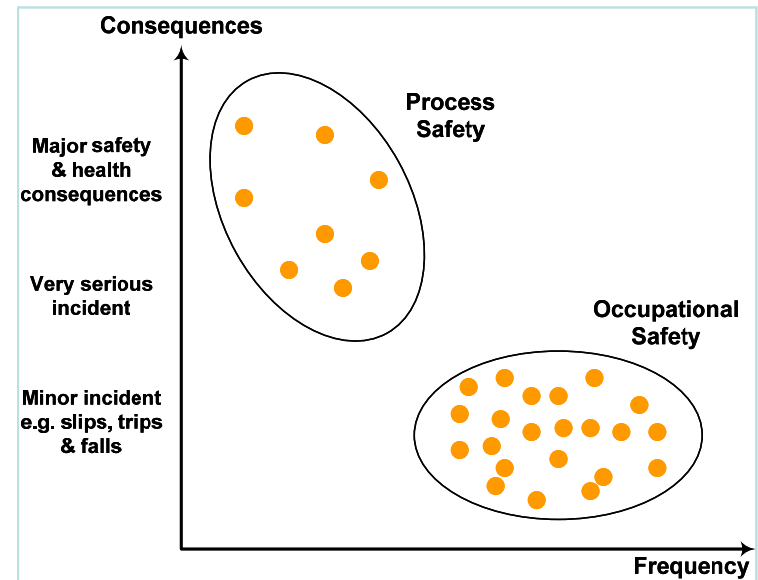
■ What

- engineering and management skills focused on preventing catastrophic accidents, associated with use of chemicals
- appropriate process technologies to manage hazards of chemical plant (processing activities) by elimination / control

■ distinction between personal (occupational) and process safety

- process safety hazards are those arising from processing activity
- personal safety hazards affect individuals but less impact to processing activity

■ promote Process Safety without sacrificing effort on personal safety



2. Maintain Good HSE Performance and Management System

- Maintain zero major non-conformity in external and internal HSE audits
- Promote 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

**see slides 9 & 10*

Objectives & Targets 2019 – 2b

2. Maintain Good HSE Performance and Management System

- Ensure full compliance to company rules and regulations, including strict adherence to Permit-to-Work system
- Embrace Vision Zero*, centred on a belief that all work related injuries and ill health are preventable

**see slides 11 & 12*

VISION
ZERO 

Safety Case



- MOM announced on 9 March 2015 that Singapore would introduce a Safety Case Regime for Major Hazard Installations (MHIs)
 - While likelihood of major accident is low for MHIs, complex operating environment and large volumes of highly hazardous chemicals mean that any accident can potentially result in catastrophic consequences
 - Core feature of Workplace Safety and Health (MHI) Regulations is Safety Case Regime
 - Under Safety Case Regime, MHIs are expected to:
 - ✓ take on greater responsibilities
 - ✓ proactively identify and manage Health, Safety and Environment (HSE) risks through integration of all HSE protocols
 - ✓ demonstrate to regulators that their risks are as low as reasonably practicable
-

Why Safety Case ?



- argument why an activity is as safe as it needs to be
 - ✓ sufficiently rigorous and systematic process
 - ✓ link between measures taken and major accident scenario
 - ✓ evidence that necessary measures have been taken
- SC regime places onus on Owner to find ways of operating safely
 - ✓ simulates considerable thought
 - ✓ workforce involvement / participation; higher level of "ownership"
 - ✓ better workforce communication, understanding and co-operation on safety issues
- PCS submitted its Safety Case written presentation to MOM on 27 August 2018

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

Vision Zero



Pledges to uphold five key attributes

1. adopting **mindset that all incidents are preventable**, opposing to statistical occurrences
2. implementing **pre-emptive measures rather than just responding when incidents happen**
3. coming up with **comprehensive solutions** for prevention **besides looking at the root cause**
4. including all within the company's **supply chain in cultivating WSH culture**
5. **going beyond basic compliance with regulations**, for instance, to implement a holistic management system



Objectives & Targets 2019 – 3a



3. Ensure a HSE competent Workforce

- Entrench knowledge derived from originally intended work processes (Back to Basics*)
 - ✓ re-align structure and accountability **see slide 15*
 - ✓ mitigate deviations
- Review critical competency-based processes
 - ✓ determine / develop knowledge management framework
 - ✓ preservation and succession planning
- Cultivate “sense of vulnerability / chronic unease**” referencing industry incidents (process and occupational safety)
 - ✓ analyse root cause to foresee and prevent similar incident ***see slide 16*

Objectives & Targets 2019 – 3b

3. Ensure a HSE competent Workforce

- Develop framework for e-learning portal and knowledge retention
 - ✓ provide ample “network attached storage” as common information repository
 - ✓ ensure seamless and easy access for competency development
- Entrench and sustain level of HSE participation and competency development

Why Back to Basics ?



- recurring minor incidents, repeated near misses, violations
- complacency in regard to safety
- normalisation of deviation

“The gradual process through which unacceptable practice or standards become acceptable. As the deviant behavior is repeated without catastrophic results, it becomes the social norm for the organization.”

Dr. Diane Vaughan, NASA Challenger Launch Decision

- are we focusing on the right things ?
 - √ predominantly using reactive approach (“fire fighting”)
 - √ react by adding more training, systems tools (and hope)
 - √ push risk profile down, temporarily
 - **Need to go Back to Basics**
 - √ making sure everything is in order; documentation, follow SOP/SWP
 - √ doing due diligence; do it the safe way, do it the right way
 - √ making sure everything and everybody is “on the same page”
-

Chronic Unease

- Important state of mind – awareness of the situation for behavioural adjustment
- Preoccupation with failure
 - ✓ very mindful of risk
 - ✓ proactive to reduce risk
 - ✓ aware that small failures are signs that need to fix something to reduce risk

Being Chronically Unease means being sensitive to the risks and accidents that could happen, and always ready to manage all risks



Objectives & Targets 2019 – 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*
- *Improve manufacturing efficiency through equipment and process enhancements to further reduce energy consumption*
 - ✓ *adopt sustainable practices to reduce carbon emission**

**see slide 19*

Objectives & Targets 2019 – 4b

4. Strengthen Responsible Care[®] Practices

- Build capability and readiness in managing security threats
 - ✓ align strategies with Responsible Care[®] Security Code and SGSecure movement
- Active outreach / sharing of HSE experience / expertise, within Complex, and through SCIC / industry avenues

Carbon Footprint



- ways to reduce carbon emission at home and office
 - ✓ Upgrade your home / office
 - Switch to LED or other energy-saving light bulbs, setting ideal temperature (25°C) for cooling systems, buying Energy Star-rated equipment, etc*
 - ✓ Recycle “everything”
 - ✓ Switch off “everything” when not in use
 - ✓ Reduce water use / wastage (delivery, treatment)
 - ✓ Watch your paper usage
 - ✓ Workforce education / awareness / keep track of energy usage

9 SIMPLE STEPS TO REDUCE YOUR CARBON FOOTPRINT

You can play a key role in reducing greenhouse gas emissions. Here are small changes you can make at home, work and on the road to reduce your impact on the planet:

AT HOME ...

- Replace your 5 most frequently used lightbulbs with ENERGY STAR-qualified products. This can save \$70 a year on energy bills and use 75 percent less energy.
- Run your dishwasher only with a full load. This can save \$40 a year and will prevent 100 pounds of carbon dioxide from reaching the atmosphere.

ON THE ROAD ...

- Take public transportation, carpool or walk or bike whenever possible. Leaving your car home just two days a week can reduce your greenhouse gas emissions by an average of 2 tons a year.
- Get regular tuneups for your car and check the tire pressure. Your car will have better fuel efficiency.

AT THE OFFICE ...

- Unplug your office equipment when it's not in use. This will reduce the energy output of idle electronics, equal to the annual output of 12 power plants.
- Reduce, reuse and recycle supplies, especially printing and copying. This will reduce pollution by minimizing waste and lowering emissions.

FOR THE KIDS ...

- Remember three words: TURN IT OFF. Turn off the tap when you brush your teeth. Turn off the lights when you're not in a room. Turn off your video games when you're not playing.
- Help your parent or guardian make a schedule to reduce car trips to activities at and outside of school.

GO ONLINE

- Visit www3.epa.gov/carbon-footprint-calculator/ to calculate your impact.

Source: EPA.gov
Heather Bremer | The Herald Bulletin

Objectives & Targets 2019 – 5a

5. Ensure Compliance with Legal and Other Requirements

- Ensure workplace health and safety awareness and compliance through regular site inspection* **see slide 22*
 - ✓ identify and control potential risk situations to eliminate injuries
- Ensure continued compliance to Globally Harmonised System requirements
- Ensure Contractor Companies demonstrable commitment to, and competence in, the proper management of HSE, as an essential factor in their selection and continued participation** ***see slide 23*

Objectives & Targets 2019 – 5b

5. Ensure Compliance with Legal and Other Requirements

- Ensure health and safety incorporated as integral part of work planning and execution
- Continually improve the effectiveness of quality planning and management system

Formal inspections



- **Monthly**
 - √ Management Team
 - √ Safety & Health Working Committee
 - √ PCS Maintenance Contractors HSE Committee (PCC)

- **Bi-weekly**
 - √ HSE Officer, support functions (T&O, MAI, 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

- 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 \geq 85%	Star	4 years
85% > Score \geq 75%	Passed	3 years
Score < 75% (Failed in 1 st attempt)	Failed	1 year

Objectives & Targets 2019 – 6



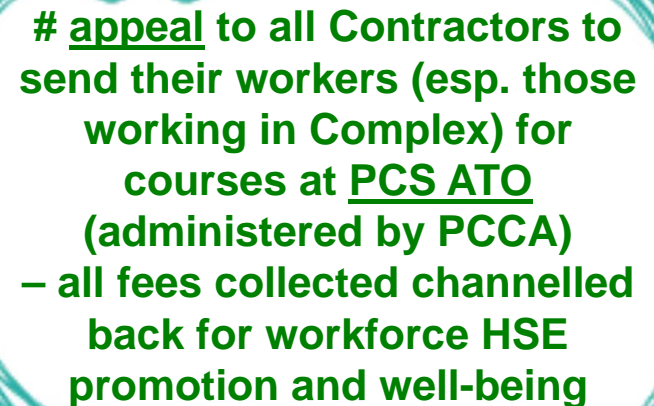
6. Achieve Safe and Successful Execution of Projects

- 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
- Ensure contractors / subcontractors possess adequate knowledge and competency levels through training and mentoring system*
**see slide 25*
- ✓ requirement of **bizSAFE Level 3** (minimum) for sub-contractors to be phased in

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
 - ✓ SOS, STAR, BBS

A large, hand-drawn style teal speech bubble graphic surrounds the text. It has a thick, irregular border and contains two teal quotation marks at the top and bottom.

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

Collaborative Partnership



RECOGNITION: SCIC RC Award 2017/2018



VISIBILITY: NWSH Carnival 2018

Collaborative Partnership



COMMITMENT: Safe and Successful SDM 2018



CELEBRATION: 40-mil no LTI

On-going HSE Initiatives



Open Communication/ Sharing

Speak Out for Safety (SOS) programme
Promote open communication channel on
occupational safety and process safety issues



Empowerment/ Intervention

STop And Report (STAR) programme
Intervene / Report on unsafe situation



Peer-to-Peer

Behaviour Based Safety (BBS) programme
Peer observation and feedback;
cultivate safe work behaviour



THANK YOU



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