



Annual PCS-Contractors HSE Meeting 2021

Review of HSE Performance for 2020

Mr. Leonard Chong YM Olefin-II Manager

21 January 2021



Review of HSE Performance







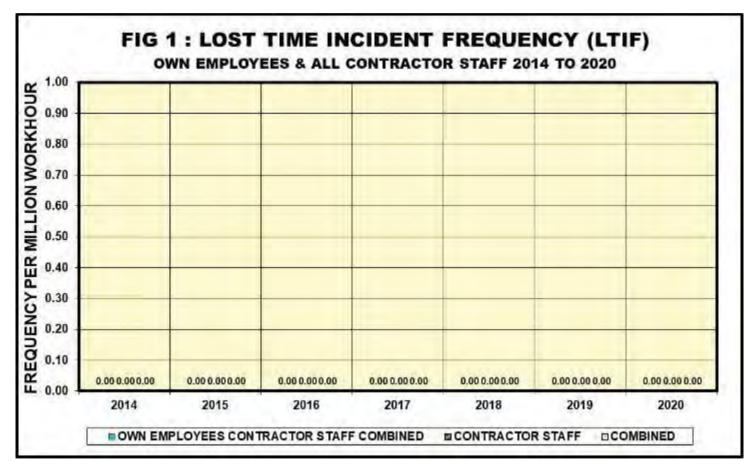
(a) Employees and Contractors Worked Hours in 2020







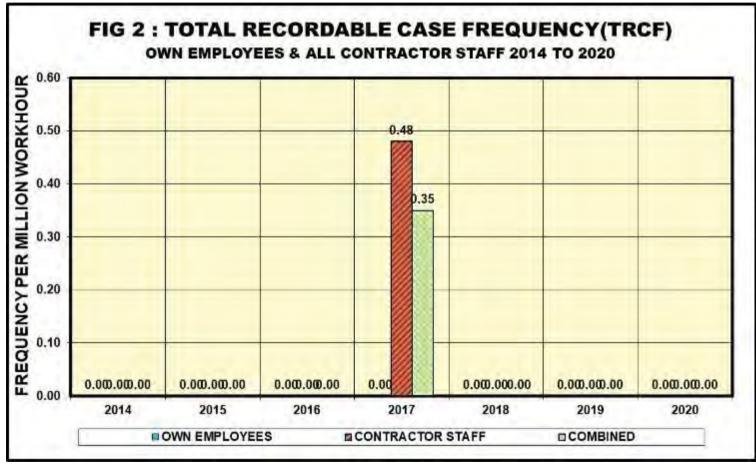
(b) Lost Time Incident Frequency [LTIF]





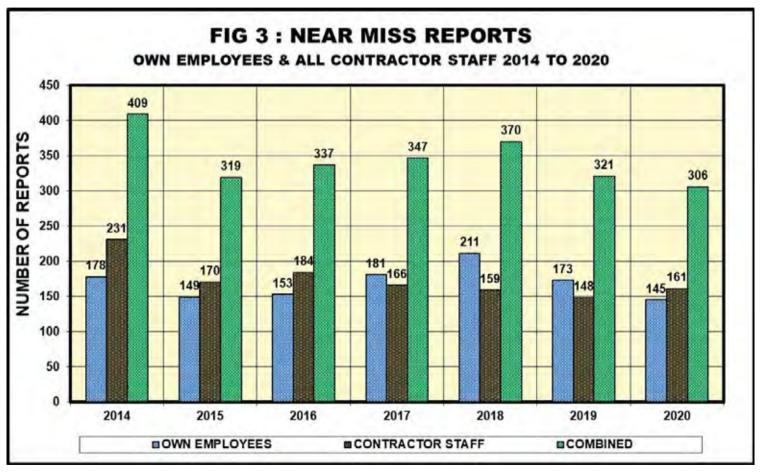


(c) Total Recordable Case Frequency [TRCF]





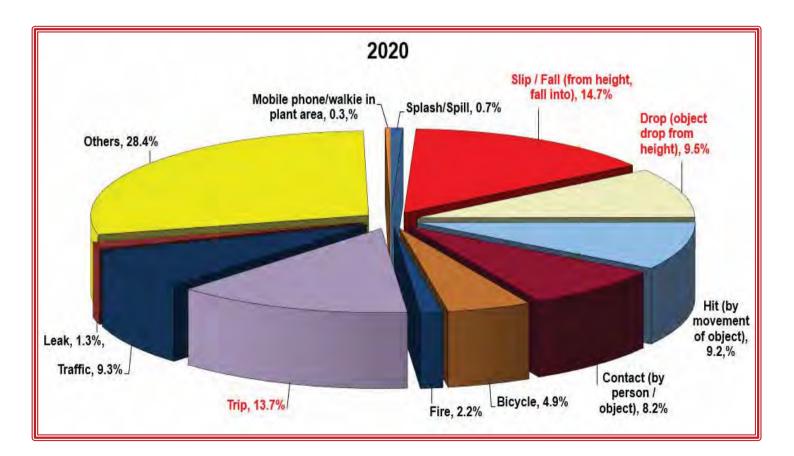
(d) Near Miss Reports [NMR]







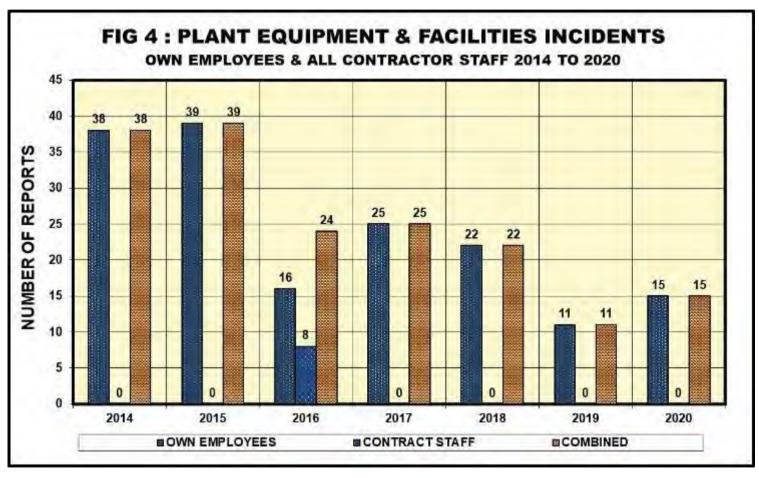
(e) Breakdown of Near Miss Reports [NMR]





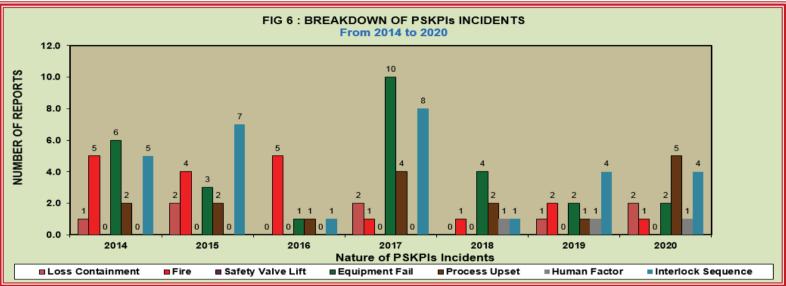


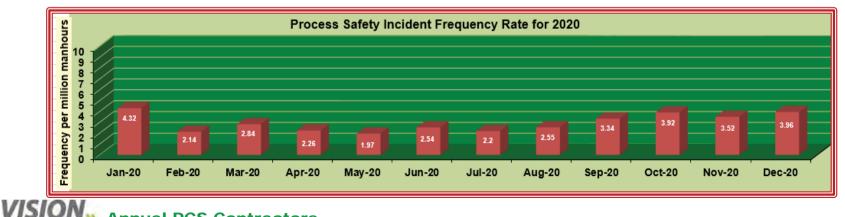
(f) Plant Equipment / Facilities Incidents [PEF]





(g) Process Safety Performance





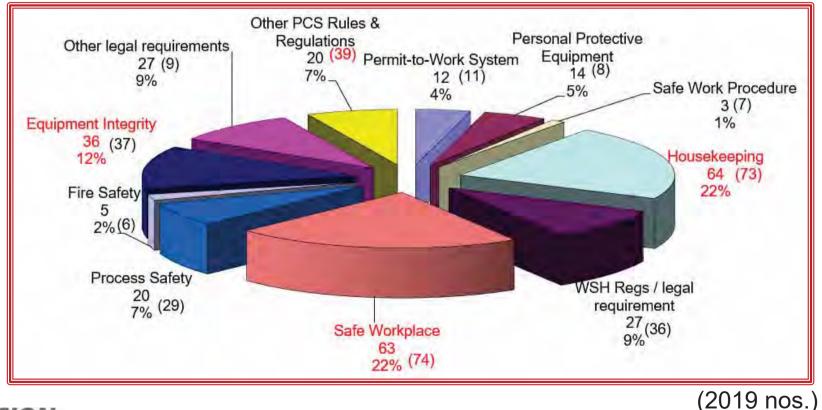
Annual PCS-Contractors

HSE meeting 2021



(h) Nature of Observations/Violation/Breaches - 2020 (HSEO site visit)

Total 291 observations (2019: 329)







(i) Environmental Performance

- > No major environmental incident in PCS
- Meeting National Environment Agency limits on air emissions and trade effluent discharge











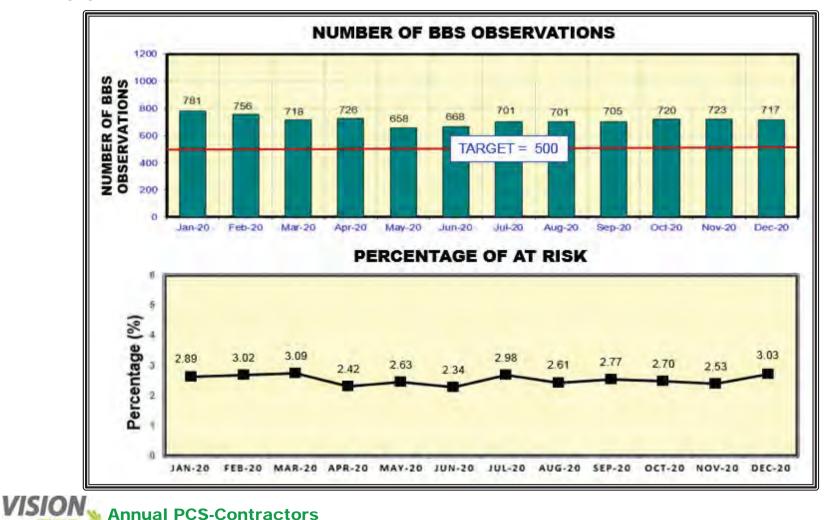
- a. BBS Observations
- b. Nature Of Behavioural Based Safety Observation
- c. Monthly Exemplary Safe Staff / Worker Role Model





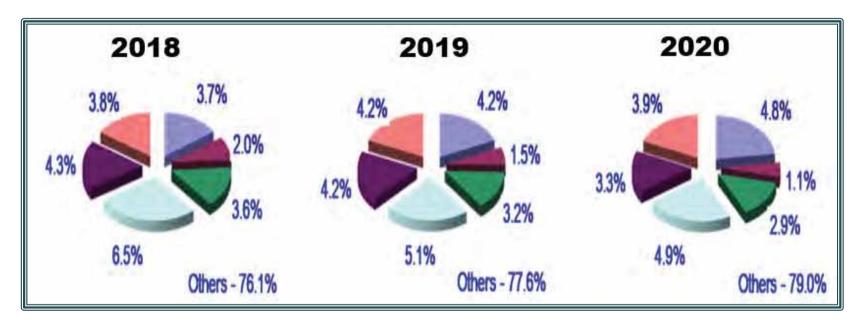
(a) BBS Observations

HSE meeting 2021





(b) Nature Of Behavioural Based Safety Observation









(c) Monthly Exemplary Safe Staff / Worker Role Models

- □ Started since June 2015
- Each month, a PCS staff and a contractor worker are selected by the BBS Steering Committee for demonstrating safe and good work behaviour and practices
- These role models will each receive a token appreciation of S\$50 and acknowledged accordingly on our notice boards and LCD media displays





(c) Monthly Exemplary Safe Staff / Worker Role Models

Carried out monthly since <u>Jun 2015</u>





(c) Monthly Exemplary Safe Staff / Worker Role Models





(c) Monthly Exemplary Safe Staff / Worker Role Models





MR KELVIN ONG YONG SIN MR NYEIN CHAN LIN LEAD TECHNICIAN SUPERVISOR A SAHI KOKU SAI TECHNEION OLEFIN-II (S) PTE LTD

Oct 2020



MR MAK KUOK HWA SUPERVISOR (IN STRUMENT & SYSTEM) MAINTENANCE

MR SARDAR MD ZIKUL SCAFFOLDER HAI LECK ENGINEERING PTE LTD

Nov 2020



R

MS WAHEDAH AHMAD LEAD TECHNICIAN QUALITY CONTROLL

MR KUMAR SUDHIR INSULATION WORKER FOSTER ASIA PACIFIC PTE LTD

Dec 2020

Sep 2020



MR ALBERT ANG LAI HOCK SENIOR LEADING FIREMAN FIRE & SECURITY



MR ARASAN VAIRAMUTHU INSULATION WORKER MEISEI INTERNATIONAL PRIVATE LIMITED



MS JANET NG SENIOR ADMIN ASSISTANT HR AND ADMIN



MR MATALI BIN MAHSIN FITTER SINGAPORE TAKADA INDUSTRIES PTE LTD



MR MUHD KAIRUL B SARI TECHNICIAN OLEFIN-I



MR WIN THAN NAING ELECTRICIAN Showa Denki (Singapore) Co. Pte Ltd.





(d) Behaviour Based Safety (BBS)

Champion Award for 2019/2020

In recognition of the best effort of our 15 BBS Champions, the BBS Steering Committee had since 2014 selected the most outstanding Champion for the Quality BBS Submission (QBS) award.







Mr Awyong Kit Hoong PCS Maintenance BBS Champion 2019/2020





(a) Combined PCS Employees / Contractors Set Target (CPST)

- Award is given when PCS employees and contractors meet the <u>Total Recordable Case</u> <u>Frequency</u> set and maintain a <u>Lost Time Incident</u> <u>free</u> period for the <u>quarter</u>
- PCS Employees and Contractors Achieved the Quarterly Set Target for all <u>4 Quarters</u> in 2020
- Contractor workers received vouchers totalling <u>\$\$17,500</u> for the achievement in each quarter





(b) Contractors Safety Set Target (CSST)

- Award is given to the Direct Contractor Company which achieved a <u>One Year Lost</u> <u>Time Incident Free</u> record while working in PCS
- Bonus Award given for achieving consecutive 3rd, 5th, 7th, 9th, 12th and every 3-yearly thereafter
- Commemorative plaques and monetary rewards given for the achievement





Contractor Companies awarded Commemorative Certificate in 2020

S/N	Company	S/N	Company
1	Petrochemical Complex Contractors Association	15	Prowess Engineering Design and Services
2	A+ Engineering Pte. Ltd.	16	PSM Aircon & Engineering Pte. Ltd.
3	AETOS Security Management Pte. Ltd.	17	Sankyu (Singapore) Pte Ltd
4	Archiplast Engrg Services & Modelling	18	Setsco Services Pte Ltd
5	Asahi Kokusai Techneion Singapore Pte. Ltd.	19	Showa Denki (Singapore) Co. Pte. Ltd.
6	ComfortDelGro Bus Pte. Ltd.	20	Singapore Takada Industries Private Limited
7	Foster Asia Pacific Pte Ltd	21	TechGems Engineering & Construction Pte. Ltd.
8	Hai Leck Engineering (Private) Limited	22	The Wok People Pte. Ltd.
9	Holcam Construction Pte Ltd	23	Trident Hydro Jetting Pte Ltd
10	Ikari Services Pte Ltd	24	Vancam Construction Pte. Ltd.
11	Kurihara Kogyo Co., Ltd.	25	Veolia ES Singapore Industrial Pte. Ltd.
12	KYC Scaffolding Pte. Ltd.	26	VinDes Engineering Pte Ltd
13	Loh Kim Chay Marine Service	27	Yokogawa Engineering Asia Pte Ltd
14	Meisei International Private Limited		





Contractor Companies awarded Commemorative Certificate in 2020







Contractor Companies awarded CSST Bonus Award in 2020

	Singapore Takada Industries Private Limited	Hai Leck Engineering (Private) Limited	Yokogawa Engineering Asia Pte Ltd	A+ Engineering Pte. Ltd.
Award	COLD	GOLD	GOLD	SILVEB 3
Category	1	1	2	1
Years worked without LTI	21	18	18	5

Category 1 – monthly workhour exceeding 6,000 hours
 Category 2 – monthly workhour exceeding 1,000 hours but less than 6,000 hours
 Category 3 – monthly workhour less than 1,000 hours



Contractor Companies awarded CSST Bonus Award in 2020





Long Service Award



Mr Asbullah Bin Yahya Singapore Takada Industries Private Limited 10 years of dedicated service in 2020

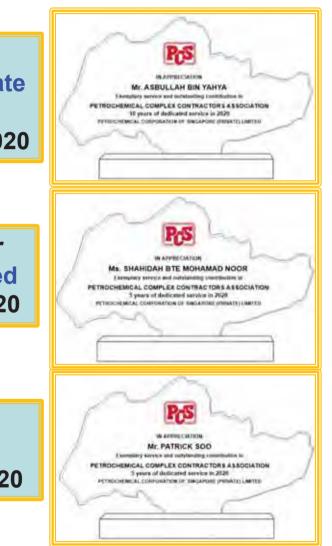


Ms Shahidah Bte Mohamad Noor Meisei International Private Limited 5 years of dedicated service in 2020



Mr Patrick Soo Foster Asia Pacific Pte Ltd 5 years of dedicated service in 2020



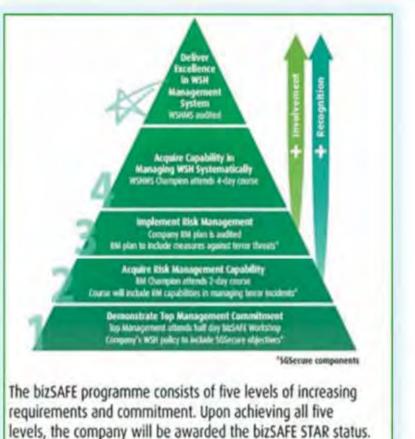






- PCS was one of the pioneering companies to become bizSAFE Mentor since 2011
- PCS status as bizSAFE Mentor has been successfully renewed until 28 Sep 2022
- All contractor companies to be certified to at least *bizSAFE Level 3* before allowed to work in PCS
- Most of our in-house contractor companies are at Level Star, while three of them are bizSAFE Partners





levels, the company will be awarded the bizSAFE STAR status. Companies can proudly display the bizSAFE accreditation logo on their business collaterals as a reflection of their commitment to safety. 4. WSHC bissAFE Programme



PCS Maintenance Contractors bizSAFE Certification							
S/N	Company	bizSAFE level	Expiry date	S/N	Company	bizSAFE level	Expiry date
1	Hai Leck Engineering (Private) Limited	Partner	02 Nov 2022	10	Prowess Engineering Design and Services	Level Star	20 Jun 2022
2	Kurihara Kogyo Co., Ltd.	Partner	17 May 2021	11	PSM Aircon & Engineering Pte. Ltd.	Level Star	07 Nov 2021
3	Sankyu (Singapore) Pte Ltd	Partner	27 Jun 2021	12	Setsco Services Pte Ltd	Level Star	11 Mar 2021
4	A+ Engineering Pte. Ltd.	Level Star	06 Feb 2021	13	Showa Denki (Singapore) Co. Pte. Ltd.	Level Star	11 Mar 2021
5	Asahi Kokusai Techneion Singapore Pte. Ltd.	Level Star	12 Sep 2023	14	Singapore Takada Industries Private Limited	Level Star	22 Feb 2023
6	Foster Asia Pacific Pte Ltd	Level Star	11 Mar 2021	15	TechGems Engineering & Construction Pte. Ltd.	Level Star	27 Jul 2023
7	Holcam Construction Pte Ltd	Level Star	07 Sep 2022	16	Trident Hydro Jetting Pte Ltd	Level Star	15 Mar 2022
8	KYC Scaffolding Pte. Ltd.	Level Star	06 Dec 2022	17	VinDes Engineering Pte Ltd	Level star	10 May 2022
9	Meisei International Private Limited	Level Star	04 Aug 2022	18	Yokogawa Engineering Asia Pte Ltd	Level Star	16 Jun 2023

* PCS Maintenance Sub-Contractors also must be at least bizSAFE level 3 Certification.







Service Contractors bizSAFE Certification							
S/N	Company	Function in-charge	bizSAFE level	Expiry date			
1	AETOS Security Management Pte. Ltd.	Fire & Security	Level Star	10 Mar 2023			
2	Archiplast Engrg Services & Modelling	Engineering	Level Star	10 Feb 2023			
3	ComfortDelGro Bus Pte. Ltd.	HR & Admin	Level Star	11 Mar 2021			
4	Ikari Services Pte Ltd	HR & Admin	Level Star	10 Dec 2022			
5	Loh Kim Chay Marine Service	Olefin-I	Level Star	08 Aug 2021			
6	The Wok People Pte. Ltd.	HR & Admin	Level Star	20 Mar 2022			
7	Vancam Construction Pte. Ltd.	HR & Admin	Level star	11 Mar 2021			
8	Veolia ES Singapore Industrial Pte. Ltd.	HR & Admin	Level Star	19 Apr 2022			

* PCS Maintenance Sub-Contractors also must be at least bizSAFE level 3 Certification.





(a) Combined 45 million hours worked without LTI - 27 Jan 2020







(a) Combined 45 million hours worked without LTI - 27 Jan 2020

Workers were also given awards in the form of <u>EZ-Link cards</u> with a value of S\$200. In addition, these workers were also given reusable face masks in September 2020.







- (b) Integrated Management System (IMS) Recertification and Migration to SS 651 during COVID-19 Pandemic Situation
- PCS recertified to ISO 14001:2015 and had successfully migrated to ISO 45001:2018 and SS 651:2019 during COVID-19 Circuit Breaker period
- PCS was the first enterprise to achieve certification to Singapore Standard SS 506:Part 3, accredited by Singapore Accreditation Council (SAC) in December 2009
- In further cementing its commitment, on 19 June 2020, it again became the first enterprise to achieve certification to SS 651:2019, the new standard replacing SS 506:Part 3







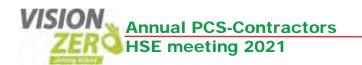


(c) Workplace Safety & Health Performance Award

PCS was awarded the prestigious *Workplace Safety and Health Performance (Gold) Award 2020.* This is the third consecutive year the Company has been conferred this Award.

- Due to the COVID-19 pandemic, there was no physical awards event
- Instead, only Excellence and Gold Award recipients received the trophies in a small event on 9 Nov 2020 morning
- GM(Plant), Er. Lucas Ng HK, represented PCS to receive the award







(c) Workplace Safety & Health Performance Award







(d) PCS Sustainability and Environmental Efforts

PCS GM(P) Er. Lucas Ng HK was privileged to be invited by *Tembusu Asia Consulting (TAC)* to be one of the Webinar's panellists, to share industry's continual efforts on managing *GHG emissions*. The Webinar attracted close to 60 participants including some overseas participants which was held on *29 July 2020 at 1600 hours.*





(d) PCS Sustainability and Environmental Efforts

PCS GM(P) Er. Lucas Ng presentation was on Leverage on Technology with Creative Innovation to Sustainable Energy.

The sharing illustrated PCS's integration of sustainability consideration and contribution in its manufacturing operations to achieving 2030 aspirations.







(d) PCS Sustainability and Environmental Efforts PCS's contribution to achieving 2030 aspirations in areas such as:

Er. Lucas Ng highlighted that PCS leveraged on four (4) basic strategies in formulating energy efficiency improvement plans (EEIPs) as follows:

Process Optimisation and Control – Harnessing technology to improve its operations efficiency such as installation of Operator Training Simulators (OTS) to sharpen operators' response.

Another example was using Advanced Process Control (APC) for product value optimisation. Energy consumption in distillation column operation was optimised by controlling product compositions at both ends of the column.







(d) PCS Sustainability and Environmental Efforts

Water conservation projects

Climate action has to include managing and saving water. Saving water means saving the energy that would have to be used to produce the water. Hence saving energy means reducing GHG emissions.



Er. Ng's presentation included sharing on two Demonstration Plants in PCS, on Water Conservation Projects that use water resources more efficiently namely:





(d) PCS Sustainability and Environmental Efforts

Project A

Supplemental Indirect Seawater Cooling (SISC)

It involved installation of supplementary plate heat exchangers to remove substantial amount of returned heat through using indirect seawater cooling thus reducing the heat duty on existing Cooling Water tower thus saving **approximately 700 m³/day** of fresh water make-up.

This novel installation also avoided any negative impacts of sea water associated with substituting freshwater make-up in a cooling tower with seawater.

Project B

Treated Wastewater Recovery Project (TWWP)

By applying membrane water technology, this project was able to recover **approximately 600 m³/day** fresh water savings by recycling the treated industrial waste water instead of returning to the sea.

PCS would like to thank TAC for giving PCS and Micron Technology the opportunity to share their industry's perspectives in managing GHG emissions yet improving the quality of life of society amidst Climate Change.





(e) Jurong Island Vision Zero

What is 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."



The launch of the Cluster on **23** *November* **2018** signifies the collective commitment stakeholders have towards a Vision Zero mindset.



Leadership and commitment are key to creating a robust WSH culture. Cluster companies pledged to uphold five key attribute:

- Adopting mindset that all incidents are preventable, opposing to statistical occurrences
- Implementing pre-emptive measures rather than just responding when incidents happen
- Coming up with comprehensive solutions for prevention besides looking at the root cause of incidents
- Including all within the company's supply chain in cultivating WSH culture
- going beyond basic compliance with regulations, for instance, to implement a holistic management system



Jurong Island Vision Zero Cluster e-forum

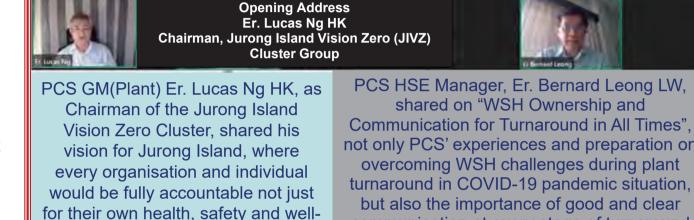
being, but also that of their co-

workers and peers.

Taking WSH Ownership and Communication held on 5 Nov 2020

This e-forum was focused on overcoming workplace safety and health (WSH) challenges and common pitfalls faced during plant turnaround (or as we know it as shutdown maintenance).

Majority of the questions from the lively discussion were centred around how or what companies could look out for during plant turnaround.



not only PCS' experiences and preparation on overcoming WSH challenges during plant turnaround in COVID-19 pandemic situation, but also the importance of good and clear communication at every stage of turnaround activity. He proudly shared PCS' unique "Onestop SDM Centre" concept.





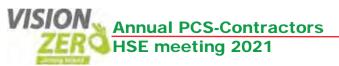


(f) Responsible Care®

- Excellence Award in all six RC Codes
- SCIC Responsible Care[®] Leadership Award (6th time)



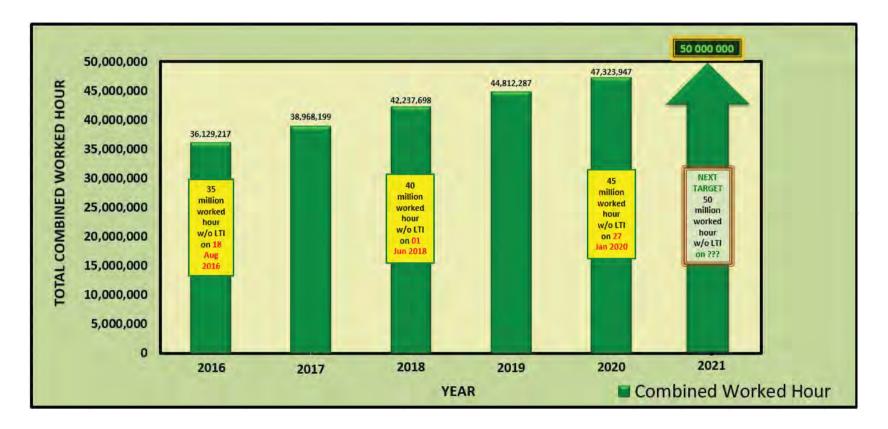
PCS was informed by SCIC on **2** January 2020 that it has been awarded the Leadership Award for 2019. This is the sixth successive award. Due to the COVID-19 pandemic situation, the Awards ceremony was cancelled.





6. Target for 2021

Next Safety Performance Target : 50 million Hours Worked without LTI and beyond ...







6. Target for 2021

Workers Consultation & Participation Programmes



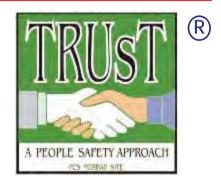
Open Communication with Sharing Speak Out for Safety (SOS) programme

Promote open communication channel on occupational safety and process safety issues



Empowerment for intervention Stop And Report (STAR) programme

Intervene / Report on unsafe situation



Peer-to-Peer Support Behaviour Based Safety (BBS) programme

Peer observation and feedback; Cultivate safe work behaviour







Review of HSE Performance for 2020



THANK YOU



Annual PCS-Contractors

HSE meeting 2021



Petrochemical Corporation of Singapore (Private) Limited



SECURING THE HEALTH AND SAFETY OF OUR WORKFORCE SAFEGUARDING OUR COMMUNITY



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

Annual PCS-Contractors HSE Meeting 2021 21 January 2021







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
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Objectives & Targets 2021 - 1

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

- Zero Lost Time Incident
- \blacktriangleright Total Recordable Case Frequency ≤ 1.4 (TRCF per million hours worked)
- Zero Environmental Incident (RAM* Consequence > Rating of 3)
- Zero Hazardous Exposure leading to Occupational Diseases
- Zero Process Safety Incident (RAM Consequence > Rating of 3)
- **Ensure compliance and adherence to COVID-19 Safe** Management Measures (SMM); continued vigilance as key to keeping ourselves and communities healthy and safe

* see slide 4



Risk Assessment Matrix



					Probability of Occurrence								
Potential Consequence			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	E Routine Occurred several times						
aurig	1. O.M. 1	111112		and sources	100 (100			per year in PCS	per year in PCS				
0	No	No damage	No effect	No									
t	Slight Injury	Slight damage	Slight effect	Slight									
2	Minor injury	Minor damage	Minor effect	Limited impact		1							
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									
			ZON	IES -	LOW RISK		EDIUM RISK	HIG	H RISK				
PA	TING	_			HARM TO F	SCRIPTION							
	0	No injury or h	ealth effect.										
	1	Slight injury or health effect (including First Aid and Medical Treatment cases) - not affecting work performance or causing disability.											
					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.								
	2	Minor injury o	or health effect -	affecting work p	erformance, such a	s restriction on activ	vities (Restricted Wo	orkday Case). Limite	d health effect,				
	2 3	Minor injury of which is reve Major injury of	or health effect - rsible, eg. skin i or health effect -	affecting work p rritation, food po affecting work p	erformance, such a soning.	s Lost Time Injury, o		orkday Case). Limite few days to recover.					
	_	Minor injury of which is reve Major injury of health damag	or health effect - rsible, eg. skin i or health effect - ge without loss o	affecting work p mitation, food poi affecting work p of life, eg. noise in	erformance, such a soning. erformance, such a nduced deafness, c	s Lost Time Injury, o hronic back injury.	or a need to take a t	A STATE AND A STATE	Irreversible				

Objectives & Targets 2021 – 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
 *see slide 7
 - propagate its purpose as knowledge management and retention
 - ✓ competency development

Objectives & Targets 2021 – 2b

- 2. Maintain Good HSE Performance and Management System
 - Promote technology-enabled HSE
 - create possibilities for workplace HSE management, and HSE training where it is shown effective
 - Propagate Vision Zero*, centred on a belief that all work related injuries and ill health are preventable



*see slide 8

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 (ALARP)

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 2021 – 3 👫

3. Ensure a HSE competent Workforce

- Refine framework for e-learning portal and knowledge retention
 - ensure seamless and easy access for competency development beyond HSE
- Strategise to increase human interaction with process to reduce transient operations human error*
 - review competency-based training and knowledge transfer
 *see slide 10
- Emphasise empowerment and nurture ownership in health and safety, as an inherent value in workplace culture

10

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]

Objectives & Targets 2021 – 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 2021 – 4b

4. Strengthen Responsible Care[®] Practices

- Improve manufacturing efficiency through equipment and process enhancements to further reduce energy consumption
 - explore energy efficiency opportunities through assessment approach
- Active outreach / sharing of HSE experience / expertise, within Complex, and through SCIC / industry avenues

Objectives & Targets 2021 – 5 📧

- 5. Ensure Compliance with Legal and Other Requirements
 - Ensure workplace health and safety awareness and compliance through regular site inspection* *see slide 14
 - ✓ identify and control potential risk situations to eliminate injuries
 - Ensure alignment to WSH 2028 Vision; incorporate WSH 2028 strategies in programmes and activities
 - Ensure Contractor Companies demonstrable commitment to, and competence in, the proper management of HSE
 - essential factor in selection and continued **see slide 15 participation**

Formal inspections



- Monthly
 - $\sqrt{Management Team}$
 - $\sqrt{\rm Safety}$ & Health Working Committee
 - \sqrt{PCS} Maintenance Contractors HSE Committee (PCC)
- Bi-weekly

 $\sqrt{\rm HSE}$ Officer, support functions (Technology & Optimisation, Maintenance, Contractor)

Evaluation, Selection, Audit

Dee Mo

MCD 36



Regulations for Evaluation & Selection of Contractors

 Procedure for conducting HSE Audits on Maintenance Contractors

										Doc N	o.: MG	GP-36
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ALC: NO. 1	134.887				Prepared	Reviewed	Approved			Prepared	Reviewed	Approved

- 7.2 Contractors failing to achieve the minimum score of 75% may be subjected to <u>one or more actions</u> 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# attempt)	Failed	1 year	

Objectives & Targets 2021 – 6 1

- 6. Achieve Safe and Successful Execution of Projects and SDM 2021
 - Ensure safe execution and completion of rejuvenation projects, including small Capex projects
 - Execute Shutdown Maintenance (SDM) 2021 safely and successfully
 - maintain "one-stop SDM Centre" communication despite COVID-19 SMM
 - ✓ Total Recordable Case \leq 1 for SDM 2021
 - 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*
 - ✓ requirement of bizSAFE Level 3 (minimum) for subcontractors

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

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

In-situ Risk Assessment



13. IN-SITU RISK ASSESSMENT (IRA)

Kiken Yochi Training (KYT) [Japanese 危険予知訓練]

Hazard prediction training K: kiken – hazard Y: yochi – prediction T: training

- Prior to performing work, discuss in small group, hazardous factors in workplace and work conditions (unsafe conditions and unsafe behaviour that may lead to incidents)
- Discuss, think about, and understand (or ask yourself) type of incidents that may arise
- 3. Determine danger points and kind of action to take, confirming these with pointing and calling

KYT 4-Round Method ("Finger Pointing")

- Round 1: What are the hidden hazards? (understand the situation) Round 2: These are the danger points (investigate the
- Round 2 These are the danger points (investigate the reality)
- Round 3: What would you do? (establish countermeasures) Round 4: These are the danger points (set targets)



Sa Contractors Health & Sofety Culde

In-situ Risk Assessment (iRA)

Recent news and concerns



Serious traffic accident on Jurong Island on 6 Dec 2020

22 people taken to hospital after accident between bus and car on Jurong Island Highway



A screengrab of a video circulating on social media showing a bus toppled on its side and the front of the car crushed after an accident on Jurong Island Highway. (Photo: Facebook/Adrian Tan)

SINGAPORE: Twenty-two people were taken to the hospital after a car and a bus collided on Jurong Island Highway on Sunday (Dec 6) morning.

- strongly encourage companies to remind employees and contractors
 - ✓ observe speed limit, safety measures
 - ✓ vigilance
 - ✓ defensive driving
 - ✓ PATIENCE

Recent news and concerns



- Despite much publicity, there are still violations of speed limit observed, for example
 - ➢ 16 Dec 2020 (Wed), ~1250 h, around SRC to JI checkpoint
 - "My vehicle was on cruise control at 68~69 km/h, a mini-bus sped all the way, slowed down at speed camera, continued speeding again."
 - Purely violation of traffic rules; thinking no one was watching
- $\sqrt{}$ Similar weight and focus in managing process operations towards achieving zero incidents; mindful of road safety
 - $\checkmark\,$ frequent and mass transportation of workers, chemicals and hazardous substances



6 Dec 2020 incident

WHAT IF involve vehicle transporting hazardous / flammable material ?



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





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OVERVIEW OF PCC / PCCA ACTIVITIES FOR THE YEAR

2020

OVERVIEW OF PCC / PCCA HSE ACTIVITIES IN YEAR 2020

ATO Courses	Attendees in 2019	Attendees in 2020	Remarks
AWSHPP (Apply Workplace Safety and Health in Process Plant)	637	516	ţ
PCS CSIT (Complex Safety Induction Training)	1505	1124	Ļ
PWCSO (Perform Work in Confined Space Operation)	60	21	Ļ
Activities	Submission in 2019	Submission in 2020	2019/2020 Target
NEAR MISS	151 = 125.8%	161 = 115%	120/140
BBSO	1567 = 156.7%	1389 = 138.9%	1000 / 1000

PCC/PCCA ACTIVITIES CONT'D....

1ST Q 2020

- a. ANNUAL PCS CONTRACTORS HSE MEETING
- b. ERECTION OF TEMPORARY SHELTER TO INCREASE THE REST SHELTER AREA CAPACITY
- C. PCS / PCC MANAGEMENT IN IMPLEMENTING MEASURES TO MITIGATE COVID-19 TRANSMISSION
- d. MONTHLY PCS IN-HOUSE TRAINING/LESSON LEARNT/COMPLEX TRAINING

PCS / PCC Management in Implementing Measures to Mitigate COVID-19 Transmission Pre CB Phase 1



Marking of Tables and Benches



Posters of Tighter Measures on Safe Distancing in 4 Languages are posted in Prominent Location



Workers Practicing Safe Distancing during Breaks and TBM





In Order to Create More Spaces, to Accommodate and Encourage more Workers to Practice Safe Distancing

PCS Sponsored the Erection of Temporary Tentage Facility just Opposite the Contractor Rest Shelter Area



For Contractors Having 3 or More Office, they are Encourage to as much as Possible, to Separate their Staff and their Offices following the Team A and Team B set up, with the Capability for Both Office to Function Equally in terms of Office Equipment, Supplies, Service, etc.



Team "A" Office

Team "B" Office





Monthly Supply of 5L Hand Sanitizer are Provided to PCCA Contractors



8 pcs of Disposable Mask was given to Each PCCA Contractors to be used in case their staff and workers are not feeling well

1 x 250ml Dettol Provided to PCCA Contractors to Served as Disinfectant



Work permit station set up outside control room ICC / CCC eliminate the need for contractors, contract supervisors / foreman to enter the ICC / CCC.

Manual Soap Dispensers are Installed from the Contractor Rest Shelter Area, Instruction on How to Wash Your Properly is Posted



Technical Group Chat was Activated for Timely and On the Spot Feedback / Action on the Current Covid-19 Issues

10:42 . .

PCC Technical Group A+, Edwin Chang, HCPL, Kab, PCC

PCC Nay Lin - Meiser



New Covid-19 cluster at Westlite Toh Guan dormitory; CGH housekeeper www.straitstimes.com

SI 50 1 60% #

25

Coronavirus: New Covid-19 cluster at Westlite Toh Guan dormitory linked to 5 cases; Indian national who works as housekeeper at CGH among the 47 new cases https://www.straitstimes.com /singapore/health/coronavirus -new-covid-19-cluster-at-westlite -toh-guan-dormitory-linked-to-5 -cases?xtor=CS3-18&utm_source =STiPhone&utm_medium=strare &utm_term=2020-03-31%2021 %3A03%3A44

Pen Chew Thierri Head

Noted. The companies (Meisei, Holcam/Vancam, Trident) who have workers staying there please get clearance letter from Dormitory management and send to PCS before you allow your workers to return to PCS.





Daily temperature reading before work and after lunch implemented for all staff and workers. PCC/PCCA Activities cont'd....

2nd Q 2020

PCC COVID-19 Safe Re-start, Enhance Measures in Mitigating the Risk of Transmission

- a. Regular COVID-19 Updates via Short Discussion with PCS and MAI Key Contractors Site Management
- b. PCCA Annual General Meeting
- c. Monthly PCS In-house Training/Lesson Learnt/Complex

PCC COVID-19 Safe Re-start, Enhance Measures in Mitigating the Risk of Transmission CB Phase-1

Benches Marked Diagonally, Table Divider Installed Regular Disinfection of the Contractors Rest Shelter Area was Implemented





PCC CONTRACTORS STAGGERED BREAKS DURING CB PHASE 1 WAS IMPLEMENTED



Rest Shelter Area Scenario @1130 hrs



Rest Shelter Area Scenario @1200 hrs



Rest Shelter Area Scenario @1145 hrs



Rest Shelter Area Scenario @1230 hrs

PCC Contractors Implementation of Safe Entry QR Scanning







PCC Contractors Toilet Wash Basin, Toilet Urinals, and Rest Shelter Area Wash Basin was Temporary Closed Down to Heightened Safe Distancing Measures







PCC/PCCA Activities cont'd....

3rd Q 2020

- a. Regular COVID-19 Updates via Short Discussion with PCS and MAI Key Contractors Site Management
- b. Monthly PCS In-house Training/Lesson Learnt/Complex Training
- c. 45M w/o LTI PCS Appreciation Gift, Distribution of EZ Link Card and Re-Usable Mask to WorkersPCC/PCCA First Aid Training
- d. Distribution of Disposable Mask to PCC Contractors
- e. PCC Contractors Monthly Bicycle Checking and Contractors Bicycle Cross Checking
- f. Introduction of PCCA / PCC New Staff







PCC MONTHLY DISPOSABLE MASK DISTRIBUTION TO CONTRACTORS

45M w/o LTI PCS Appreciation Gift, Distribution of EZ Link Card w/ \$200.00 Top Up and Distribution of Re-Usable Mask to Workers







PCC CONTRACTORS MONTHLY BICYCLE CHECKING AND CROSS CHECKING WITH OTHER CONTRACTORS









PCC/PCCA Activities cont'd....

4th Q 2020

- a. 4th Q PCS Contractors Quarterly Dialogue (Online)
- b. Monthly PCS In-house Training/Lesson Learnt/Complex Training
- c. Regular COVID-19 Updates via Short Discussion with PCS and MAI Key Contractors Site Management
- d. Monthly Distribution of Disposable Mask to PCC Contractors
- e. Climate Change & Energy Conservation Awareness
- f. Briefing with PCC Contractor, on the Measure Proposed of Eliminating / Preventing Bicycle Incidents
- g. Singapore WSH Conference 2020
- h. Jurong Island Vision Zero's E-Forum
- i. Mechanisation Outreach Session in PCS
- j. Call for Safety Time Out
- PCS Appreciation to Contractors. (Distribution of Goodie Bags to Workers)

PCC MONTHLY DISPOSABLE MASK DISTRIBUTION TO CONTRACTORS







PCS Appreciation to Contractors. (Distribution of Goodie Bags to Workers)

PCC HSE PERFORMANCE 2020 SUMMARY

SN	DESCRIPTION	SUMMARY
1	Work Hours	1397909
2	Lost Time Incident	0
3	Restricted Work Day	0
4	Medical Treatment Case	0
5	First Aid Case	0
6	Plant Equipment Failure	0
7	Traffic Violation	5
8	Safety Violation	7
9	Security Violation	0
10	LTIF	0
11	TRCF	0
12	Near Miss Report (Received)	161
13	Near Miss Report (Target)	140
14	BBS Submission(Received)	1389
15	BBS Submission (Target)	1000

WORKPLACE SAFETY, HEALTH AND ENVIRONMENTAL

ACTION PLAN, YEAR 2021

PCS MAINTENANCE CONTRACTORS' WSH&E COMMITTEE (PCC)

INTRODUCTION

Year 2020 is a very challenging time for each and one of us, current PCC HSE Objectives and Action Plan may not be realized effectively without the cooperation of each one of its contractors during this time of pandemic. Currently we are at the post circuit breaker stage, what we are practicing now from our own SMM like, our BCP, Safe Distancing, Wearing of Mask, and etc., in sustaining our COVID-19 free environment, this will be temporarily our new normal, it is truly a great challenge especially when it is PCS SDM year. Planning a safe workplace & and Maintaining a Safe, Healthy and COVID-19 Free Workplace for Contractors with guidelines in accordance with PCS Responsible Care® Objectives & Targets for Year 2021 is our Key Reference for our Action Plan. It outlines key objectives on Workplace Safety, Health & Environmental aspects as well as on how to maintain COVID-19 free workplace for all contractors and their sub-contractors working in PCS site

Its objectives are as follows:

ITS OBJECTIVES ARE AS FOLLOWS:

- TO MAINTAIN A HEALTHY SAFE WORKPLACE AND BEST IN CLASS ENVIRONMENT
- > TO MAINTAIN GOOD HSE PERFORMANCE & MANAGEMENT SYSTEM
- ➤ TO ENSURE HSE COMPETENT WORKFORCE
- > TO STRENGTHEN RESPONSIBLE CARE PRACTICES WORKFORCE
- ➤ TO ENSURE COMPLIANCE WITH LEGAL AND OTHER REQUIREMENTS
- TO ACHIEVE A SAFE AND SUCCESSFUL EXECUTION OF PROJECTS AND SDM 2021

1. <u>Maintain a Healthy, Safe Workplace and best in class</u> <u>Environment</u>

Ensure compliance and adherence to COVID-19 Safe Management Measure (SMM)

- Ensure Contractors SMM is aligned to PCS SMM
- Ensure Contractors SMM is adhered at all times
- Ensure contractor adhered COVID-19 Gov't Regulations
- Monitor Site personnel good hygiene practice, safe distancing, wearing mask and etc

2. Maintain Good HSE Performance and Management System

- PCC to continue, Bicycle Safety by PCC Contractors monthly checking and quarterly cross checking
- PCC to Implement Safe Bike, Safe Cyclist Program
- Ensure PCC Contractors support and participation in all Vision Zero JI Cluster Programmes and Initiatives
- Ensure PCC Contractors support and participation to PCS in promoting technology enabled HSE and other programmes and initiatives.

3. Ensure a HSE Competent Workforce

- Continue to participate and support PCS with their training programs like IMS, ISO, etc
- Continue to ensure contractors are productivity certificated by equipping them with relevant training like Activity Analysis, etc.
- PCC to ensure exploring the possibility of migrating of mandatory trainings from classroom base to e-learning as to adopt with the current new normal of less physical interaction between people
- PCC to launch PCCA-PCC Website for basic information of all on going an upcoming PCC HSE Activity, and also training schedule

4. Strengthen Responsible Care Practices

Continue to actively partner and support PCS on all outreach, SCIC Activities like

training, conference, symposium, etc.

5. Ensure Compliance to Legal and Other Requirements

PCC to ensure active participation to all PCS HSE Initiatives, programmes, and campaign that are relevant to WSH 2028 Vision

6. <u>ACHIEVE A SAFE AND SUCCESSFUL EXECUTION OF</u> <u>PCS-2 SDM AND CAPEX WORKS 2021</u>

Ensuring SDM 2021 TRCF ≤ 1

- PCC to continue to promote safety by means of productive and safe workers award and other programmes as prescribed by PCS
- Ensure compliance and adherence to COVID-19 Safe Management Measure (SMM)
 - Ensure SDM Contractors SMM is aligned to PCS SMM
 - Ensure SDM Contractors SMM is adhered at all times
 - Ensure SDM contractor adhered COVID-19 Gov't Regulations
 - Ensure SDM Contractors Monitor Site personnel good hygiene practice, safe

distancing, wearing mask and etc

CONCLUSION

The Workplace Safety, Health and Environmental Action Plan are the outline of PCC Commitment to PCS HSE plan to achieve its targets and objectives for year 2021

- It requires every contractor company to participate, support and to take all reasonable practicable measures necessary to ensure the safety and health of their workers working in PCS.
- Ensure PCS and Government mandatory rules and regulations are adhered and safe work procedures are followed.
- > Contractors Top Management Commitment to PCS and PCC Set Targets and Objectives is Essential.
- Most importantly imparting awareness and understanding at all levels of organization that safety is everybody's responsibility, that Staff and Workers embracing safety as their own personal responsibility.
- Ownership and Partnership. We wanted all contractors under PCS and PCC partnership to have ownership in everything they do, from the smallest details of their work to the grandest
- Ensure PCS PCC Contractors and SDM 2021 Contractors adhered and aligned their COVID-19 SMM to PCS SMM, and ensure there is enough SMO / SDO Monitoring the site but also the workers conditions in their field
- In order to maintain and achieved milestones, PCC / PCCA as much as possible will try to assist in improving contractors workforce Attitude and Behaviour gearing towards the right Character (workforce ABC). Because we believe that having the right character is the way forward on a mindset that all incidents/accidents are preventable.

PCC will continue to support and partner with PCS in programs that enhances workers safety awareness such as:

Speak Out for Safety

Stop And Report

►In-Situ Risk Assessment

➢ Post job inspection

Behavior Based Safety Observation

Back to Basics

► Near Miss Reporting

➢Vision Zero

COVID-19 SMM

THANK YOU