

# SCOPE

**2nd Quarter 2022**  
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## 2 Singapore International Water Week - Industrial Water Solutions Forum 2022

## 3 Jurong Island Vision Zero Forum: Elevating WSH Standards for Lifting Work

## 4 Plant Walk by Managing Director to Olefin-I and Olefin-II Plants

## 6 Lessons Learnt from Report of the Inquiry Committee for the Accident at Stars Engrg Pte Ltd

## 7 Singapore World Water Day 2022 - Singapore's City Turns Blue Initiative

## 10 PRODUCT STEWARDSHIP HIGHLIGHTS DURING THE PANDEMIC

## 11 Jurong Island Vision Zero Forum #5 - Maintaining Confined Spaces and Mental Wellness

## 12 PCS Wellbeing-Health-Safety-Programmes

## 14 PEPS Sustainability Campaign

## 15 Temasek Polytechnic Staff Attachment

## 16 PCS ONLINE TALENT SHOW CONTEST

## 18 PCS Online Photography Challenge in Nature

## 20 EMPLOYEE NEWS



### SCOPE EDITORIAL COMMITTEE

• SK Sarkar • Lincoln Lee • Cerine Lim • Gerald Lim  
• Kew Jia Ming • Khoo Yi Hao • Calvin Neo





# Singapore International Water Week (SIWW) - Industrial Water Solutions Forum (IWSF) 2022



Francis Tan  
Technology & Optimization

Public Utilities Board (PUB), Singapore National Water Agency has been collaborating with the Industrial Water Users to continue to raise awareness on water conservation via water reuse project to further improve the water efficiencies of their operations. IWSF 2022 was curated in one of the Thematic Forum (TF) series under the SIWW 2022 which was held at Sands Expo and Convention Centre on 19 April 2022 where global thought leaders and IWS practitioners came together to share about water sustainability.

In the welcome address by Dr Pang Chee Meng, Chief Engineering and Technology Officer (CETO) of PUB, he briefly highlighted various benefits of water recycling such as sustainable water resource, positive impact to the environment besides reduce long term operation costs.

The non-domestic water users like essential chemicals plants and electronic sectors such as semi-conductors plants, being pillars of the Singapore manufacturing industries, including Data Centre were invited to IWSF which are also large water users. Hence, it is important for them to join in this water efficiency drive with continual support from PUB through technical and financial assistance, if they embark on water efficiency improvement project.



Figure 1 – CETO of PUB, Dr. Pang Chee Meng giving his welcome address

PCS, being an essential chemicals producer, continue to contribute by raising awareness on Singapore's Water Conservation Journey. Er Guo Kang Hui, Senior Engineer and Member of Working Group on Industrial Water Reuse, represented the Singapore Standards Council under Enterprise Singapore, presented on the industry perspectives of "Application of Singapore Standard SS 627 – Specification for different grades of industrial recycled water from refineries, petrochemical, chemical and utility plants". Er Guo also shared on how this standard can be applied to the essential chemicals industrial water users to further enhance any potential water conservation.

Large water users that consume more than 60,000 m<sup>3</sup>/annum are required to continue to monitor their water usage such in process units, cooling towers, canteen and toilets and report their water consumption under the Water Efficiency Management Plan (WEMP) since 2015.

In PCS, we have had implemented two water recycling projects namely the Demonstration Plant of Water Recycling of Treated Industrial Wastewater using Microfiltration/Reverse Osmosis and Activated Carbon Filter for process use and Conserving Freshwater from Existing Cooling Tower Water System Via Indirect Supplemental Seawater Cooling which were both commissioned in 2019. They were presented by PCS in SIWW 2021 (Online) and are available in 3Q2021 SCOPE Article.

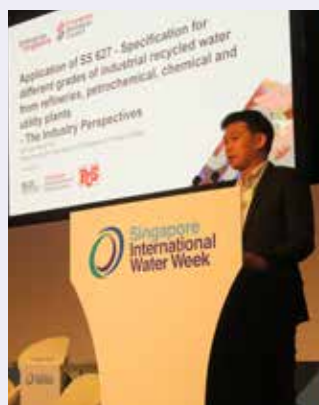


Figure 2 – Er Guo Kang Hui, speaking on application of SS 627

After the morning sessions, there was a panel discussion where participants interacted with the speakers from the essential chemicals, electronic sectors such as semi-conductor (AFPD Pte Ltd and Vanguard International Semiconductor Singapore Pte Ltd), hard disk (Seagate International Headquarters Pte Ltd) and data centre such as Amazon Web Services Singapore Pte Ltd.



Figure 3 – Panel discussion following presentation including speakers from the essential chemicals, electronic sectors and data centre

**Extreme left** – Moderator, Mr Christopher Gasson, Managing Director, Global Water Intelligence (GWI)  
**2nd from left** – Er Guo Kang Hui, Senior Engineer, PCS and representing Singapore Standards Council, Enterprise Singapore  
**3rd from left** – Mr Will Hewes, Global Lead (Water Sustainability), Amazon Web Services Singapore Pte Ltd  
**3rd from right** – Ms Boon Chia Hui, Senior Water Engineer, Vanguard International Semiconductor Singapore Pte Ltd  
**2nd from right** – Mr Ranjith Royar Susai Manickam, Staff Engineer, Seagate Singapore International Headquarters Pte Ltd  
**Extreme right** – Ms Chan Sin Zjade, Senior Engineer, AFPD Pte Ltd

To round up the forum, Deputy Director of PUB, Mr Kiran Kekre continued to highlight that greater water stewardship cannot be done alone and hence PUB can continue to help to fill up the gap. He further encourages Industrial Water Users to contact the PUB Industrial Water Solutions (IWS) Team for any assistance and queries that they might have on water conservation.



Figure 4 – Deputy Director of PUB, Mr Kiran Kekre giving his closing remarks

The IWSF 2022 ended with a site visit for successful pre-registered participants, to AFPD Pte Ltd where the Company had implemented a water reuse program of dilute hydrofluoric (HF) acid waste water recovery for re-use as Cooling Tower make-up.



# Jurong Island Vision Zero Forum: Elevating WSH Standards for Lifting Work



A John  
HSE



On 18 May 2022, the Singapore Chemical Industry Council, Association of Process Industry, and Workplace Safety and Health (WSH) Council jointly organised their sixth Jurong Island Vision Zero (JIVZ) Forum, which featured a theme of “Elevating WSH Standards for Lifting Work”.

In his opening speech, Er. Lucas Ng HK, Chairman of the JIVZ Group, brought attention to the spate of fatal accidents since the beginning of the year, and encouraged the industry to conduct a Safety Time-Out to review their WSH processes. He also highlighted how lifting is integral to several work processes in the process industry, and why it is important to maintain good WSH practices when doing lifting work.

A speaker from the Ministry of Manpower spoke on inspection findings and lessons learnt from past lifting incidents, while a representative of Shanghai Tunnel Engineering shared their organisational principles of safety and health, as well as their safe lifting practices. The final speaker from Liebherr Singapore gave recommendations on safe equipment use, and upkeep habits that help maintain equipment integrity.

The quarterly forum rounded off with a panel discussion, where the audience sought clarity about the installation of stability control systems for cranes and on complicated lifting manoeuvres.

Reference (Graphics):

<https://www.tal.sg/wshc/events/forum/2022/jurong-island-vision-zero-forum-elevating-wsh-standards-for-lifting-work>

Sharing of Best Lifting Safety Practices by Mr Thant Zaw, Corporate WSHE Manager from Shanghai Tunnel Engineering Co (Singapore) Pte Ltd



Daily lifting gears / lifting appliances check

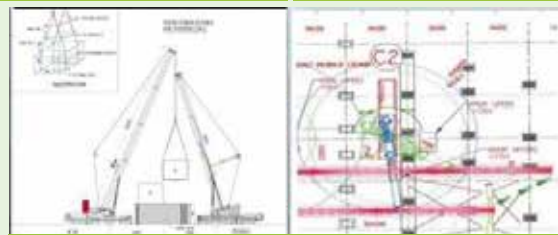
Operation area demarcation with signage



On-site safe lifting operation training



Appointment of competent personnel



Detailed lifting plans

## Machine

- Sizing of the lifting equipment
- maintenance of the lifting equipment

## Material

- Weight
- Centre of Gravity (CG)
- Method of rigging

## Medium

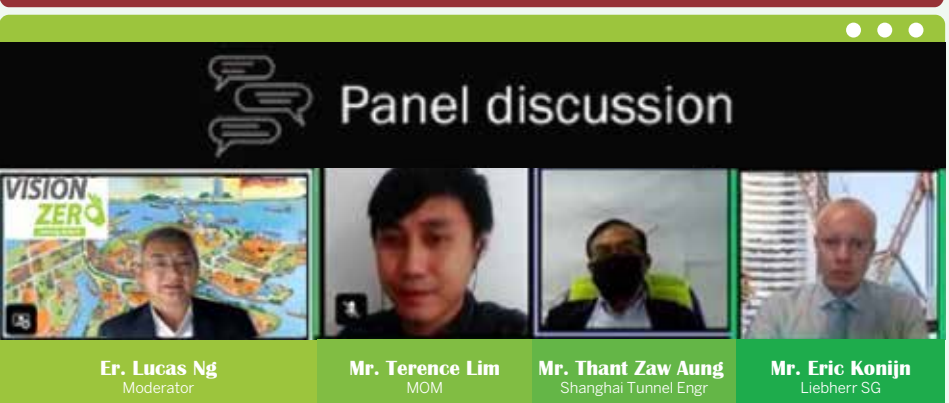
- Ground
- Obstacle
- Lighting
- Demarcation
- Environment

## Man

- Fit for duty
- Roles and responsibilities
- Communications

## Method

- Knowing the weight of the load & the load radius
- Securing the load using appropriate lifting gears
- Conducting a test lift
- Maintaining the centre of gravity (CG) of the load
- Stability of the suspended load
- Lowering / releasing of the suspended load





# Plant Walk by Managing Director to Olefin-I and Olefin-II Plants



Bernard Leong  
HSE

With an overcast morning on Tuesday, 21 June 2022, PCS Managing Director, Mr. Hisashi Shibayama, conducted his maiden walk to Olefin-I and Olefin-II Plants. The orientation walk, after the relaxation of COVID-19 Safe Management Measures (SMM), was led by General Manager (Plant), Er. Lucas Ng HK, and accompanied by Technology & Optimization Manager, Er. Ng Chee Wai, Olefin-I Manager, Er. Tan Henry, Olefin-II Manager, Mr. Leonard Chong, and Health, Safety & Environment Manager, Er. Bernard Leong LW.

**A**side from this being an introductory walk, the walk continues the tradition of Management Ownership, Visibility and Commitment on the ground. The monthly Management HSE Walk was suspended during the COVID-19 SMM period, with only General Manager (Plant) leading a small group.

The walk started on a brisk note with a walk up Olefin-I furnaces right to the top platform, along the way letting Shibayama-san having a look at the red-hot glowing furnace radiant tubes through a small peep door. It was a breezy morning right at the top of the furnaces.

Just as we reached ground level, the sky opened up, with a light drizzle. Drizzle turned to heavy rain soon after. Very timely, we made it to the compressor shed, sheltered from the rain. Undaunted, we continued a short walk to the Olefin-I Integrated Control Centre (ICC).



A point to note – umbrellas are not allowed in plant areas, due to the potential of hitting instruments with the pointed end of the umbrella as well as lightning hazard. Plant operators / workers are issued with raincoats.

We braved the rain without lightning to next walk around 3SB Plant, the latest addition to enhance flexibility in product operation.

With the rain abating, we made our way to the Naphtha Import Facilities, and showing Shibayama-san around Berth 6.



It is a requirement to don lifejacket at berth areas.



Shibayama-san having a look at the furnace tube.



Enjoying the lovely view and breeze at the top of the furnaces.



Looking at the compressors – in the background, the refrigerant compressor coated with a layer of ice.



A group photo at ICC.



We then made our way to Olefin-II Plants, beginning with a walk through the compressor shed, followed by 2SP Plant. The 2SP Plant, a metathesis plant, was an addition to the original Olefin-II Plants, to add flexibility in propylene production.

Our next stop, without fail, must be the showcase Olefin-II Central Control Centre (CCC), which was specifically designed as a showcase for visitors to the Company.

Last but not least, a visit to what being environmentally-friendly and sustainability encompass – Waste Water Treatment Plant, where plant waste water is biologically treated, prior to releasing to the sea or to the Treated Waste Water Recovery Plant, where water is purified (reverse osmosis process) and filtered before being reused (very much similar to NEWater).

By the end of the walk, the sun pierced through the clouds, signifying strength, power and value, with our new Managing Director leading the Company to greater heights.



A walk through the spacious 3SB Plant.



GM (Plant) and Olefin-II Manager emphasising the intricacies of 2SP Plant.



Walking out from Berth 6.



Final stop – the Treated Waste Water Recovery Plant.



One for the album, at the showcase CCC, flanked by key operations personnel.



# Lessons Learnt from Report of the Inquiry Committee for the Accident at Stars Engrg Pte Ltd



Tan Peck Luan  
HSE

On 24 February 2021, a large explosion occurred at Stars Engrg Pte Ltd's premises located at Tuas Ave 11. This tragic accident resulted in three deaths, five major injuries, two minor injuries, and severe property damage.

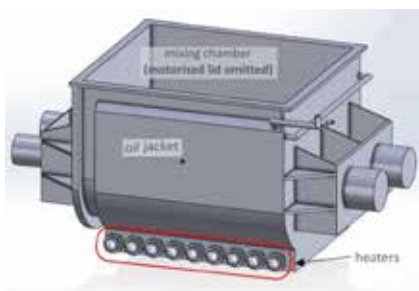
In view of the severity of the incident, an Inquiry Committee was appointed to inquire into the causes and circumstances that led to the explosion, in accordance with the Workplace Safety and Health (WSH) Act Section 26. PCS General Manager (Plant), Er. Lucas Ng HK, was one of the assessors of the Inquiry Committee.

The report of the Inquiry Committee was released on 25 March 2022. Many lessons with regards to the safe use of machinery, safe use of combustible dust, as well as gaps in competency and knowledge can be learnt from it.

## Background:

Stars Engrg Pte Ltd's worksite was used to manufacture fire-retardant wraps, or "fire wrap". One of the main work processes involved using a heated mixer machine to make "fire clay" which was a main component of the fire wrap.

The mixer machine came with an external oil jacket for heat transfer fluid and built-in heaters for heating of the contents. A key ingredient for the "fire clay" was potato starch powder. Workers were required to use the mixer machine to first heat up water in its mixing chamber, then mix potato starch and other ingredients with the heated water until they achieve a pasty consistency otherwise known as "fire clay". This fire clay will then be wrapped with other components within aluminium sheets to form the end product, "fire wrap".



Rear view of mixer machine

## How the Explosion Occurred:

The explosion occurred across two steps:

- Over-pressure in the mixer machine's oil jacket causing mechanical failure and fracture of the welds
- Liquid thermic oil was forced out and aerosolised into an oil mist / fine droplets, which were then ignited and led to the explosion

Accumulated potato starch powders suspended in the air were then ignited, resulting in subsequent flash fires.



Deformed heating elements seen through the rupture on the oil jacket, rear of machine



Dark stain on oil jacket, circled in red

## Main Causes of Explosion:

Unsafe use of mixer machine

- Temperature within oil jacket not monitored
- Insufficient oil used in oil jacket causing inefficient heat transfer and overheating
- Mixer machine used as closed system resulting in over-pressurization (machine was designed to be operated as an opened system)
- Repeated heating and cooling cycle that weakened the mechanical strength of the oil jacket



## Other Gaps:

- Accumulation of potato starch powder at the site
- Lack of competent personnel to operate the mixer machine
- Inadequate risk assessment for operation of machine
- Numerous warning signs and red flag events not adequately understood and dealt with
- Lack of a comprehensive emergency response plan
- Not providing or ensuring the donning of suitable PPE



## Key Learning Points:

### Safe Use of Machines

- Purchase industry machinery and equipment certified to Singapore Standard SS 537-1 (Code of practice for the safe use of machinery)
- Operate industry machinery as intended by the manufacturer / supplier
- Maintenance and/or modification of any industrial machinery need to follow sound engineering principles and practices

### Safe Use of Combustible Dust

- Identify activities that may generate dust
- Communicate hazards of combustible dust to all workers
- Emphasise good housekeeping in areas prone to dust accumulation
- Incorporate Singapore Standard SS 667 (Code of practice for handling, storage and processing of combustible dust) into work processes



### Competency and Knowledge

- Ensure workers are aware and able to identify hazards at the workplace
- Train workers on safe use of machinery
- Investigate causes of red flags and near-misses timely
- Ensure that comprehensive emergency response plan is in place
- Ensure compliance, availability and quality of PPE

This extensive Inquiry Committee Report contains many valuable lessons which all employers and workers can learn from. PCS has shared the lessons learnt from it with our employees and contractors. Gap analysis has also been performed by individual Functions to identify any shortcomings that we have so that they can be addressed accordingly.



Full report:

<https://www.mom.gov.sg/-/media/mom/documents/safety-health/report-s-stats/stars-engrg-inquiry-committee-report-part-1.pdf>

# Singapore World Water Day 2022 – Singapore's City Turns Blue Initiative



Francis Tan  
Technology & Optimization

Public Utilities Board, Singapore National Water Agency has been collaborating with the community partners to commemorate World Water Day on 22 March 2022 and raise awareness on water conservation. World Water Day was designated by the United Nations in 1993 as a reminder that water is a critical resource that should be cherished and protected. [1]

One of the main commemoration highlights in Singapore on this day is the light up of selected iconic landmarks and buildings in the "City Turns Blue Initiative". In total, a record 56 landmarks and buildings participated in this initiative.

It is interesting to note that there are 16 new participants this year including the Sentosa's newest tourist attraction, SkyHelix open-air ride.

It is with this sense of excitement that I ventured across Singapore to bring and share with SCOPE's readers, photos of such buildings, weaving some historical account with some fun fact!

## Category 1: The heart of Singapore Financial Centre along Singapore River



Figure 1 – One Raffles Place Tower and OCBC Centre

At this historic site where Sir Stamford Raffles was assumed to have landed in 1819, one cannot miss the eight-foot bronze statue that depicts the founder of modern Singapore, standing with arms folded beside the Singapore River.

One Raffles Place and OCBC Centre, two skyscraper buildings for banking and financial corporations also joined to support Singapore Water Conservation message.



## Category 2: Bridges at the mouth of Singapore River [2]

The Singapore River has been the focal point of trading activities. Hence, the bridges that link the North and South bank of Singapore River continue to have historical significance in Singapore History.

In total, there are fourteen bridges along the Singapore River. Here, I would like to share on three historic bridges namely, Elgin, Cavenagh and Anderson. These were added to the list of Singapore's national monument. The oldest bridge in Singapore is called Cavenagh which was built in 1869. It is the City's only suspension bridge.

Anderson Bridge which was completed in 1910, recently became famous as part of F1 Singapore street circuit.

Elgin Bridge in its present concrete form, date back to as early as 1819 when Sir Stamford Raffles arrived in Singapore, started as a wooden bridge, making it one of the oldest bridges in Singapore.



Figure 2 – Cavenagh Bridge



Figure 3 – Anderson Bridge



Figure 4 – Elgin Bridge

## Category 3: Marina South and Marina Centre [3]



Figure 5 - Gardens by the Bay, Marina Bay Sands and Singapore Flyer

### Marina South

Marina Bay Sands (MBS) "integrated resort" located in Marina South. Behind MBS is Gardens by the Bays. Both were completed in 2010. In addition, the completion of Marina Barrage in 2008, bridged Marina East and Marina South and transformed Marina Bay into Singapore's 15th reservoir.



#### Marina Centre

The formation of Marina Centre in the mid-1980s resulted in famous Marina Square Complex with a string of hotels in the vicinity. It was then followed by development of Millenia Walk, Suntec City and Singapore Flyer.



Figure 6 - Millenia Walk & Suntec City



Figure 7 - Suntec City with water fountain at JW Marriot Hotel, Singapore South Beach

### Category 4: Sentosa – Resort World Sentosa (RWS) Hotel and SkyHelix [4]

Let's head to the next iconic attraction, i.e. Sentosa. I was amazed that RWS Hotel roof top was decked in blue. If one has no fear of heights, you can try the newest tourist attraction in Sentosa, Skyhelix, a gondola open-air panoramic ride to 79 metres above sea level, offering stunning view stretching from Sentosa to the Keppel Bay area and Southern Islands. As a takeaway souvenir, there is a 10% merchandise discount as part of "Let's #GoBlue4SG" promotion if one come dress in some shade of blue colour attire!

#### Funfact:

SkyHelix got its name from its vertical helix-like structure



Figure 8 - Resort World Sentosa Crocford's Tower Roof Top – Decked in Blue



Figure 9 - SkyHelix Sentosa



Figure 10 - SkyHelix Sentosa – High up in the sky



Figure 11 - Let's #GoBlue4SG merchandise for SWWD2022

I sincerely hope that these vivid photos of buildings decked in blue, some standing on land reclamation around the body of water in Marina Bay, and those far flung in famous tourist island of Sentosa, will continue to rally us to conserve water and **make every drop of water counts!**

#### References

- [1] Singapore Straits Time (18 March 2022)
- [2] TimeOut – Interesting stories behind the bridges along the Singapore River – Written by Cam Khalid (8 Feb 2021)
- [3] Singapore infopedia – Marina Bay – Written by Justin Zhuang
- [4] Iconic Sights – SkyHelix Sentosa – Sentosa website



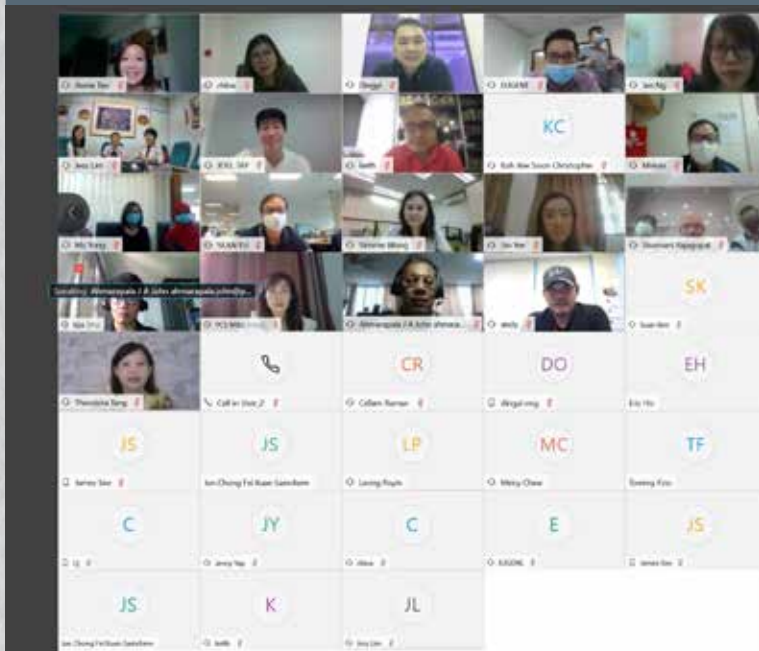
# PRODUCT STEWARDSHIP HIGHLIGHTS DURING THE PANDEMIC



Joyce Lee  
Marketing & Sales

Product Stewardship (“PDS”) primary role is the engagement of employees, customers, distributors and other business partners on the health, safety and environmental protection of our products during their life cycle, especially during the distribution and storage phases. PDS has been organising Outreach programmes (onsite and external/offsite) regularly to ensure our customers/distributors adopt good HSE practices in line with PCS’s and industry standards. However, due to the COVID-19 pandemic, we have been unable to conduct any site visits for more than two years. Our last site outreach was to our Butadiene customer, Synthomer Sdn Bhd, in Malaysia in November 2019.

Pic 1: Product Risks sharing with Toluene and Xylene distributors on 27 Aug 2020

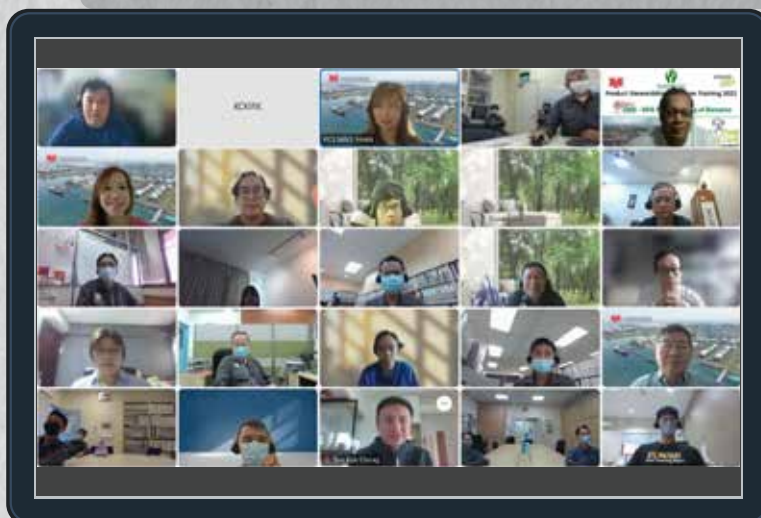


**D**uring the COVID-19 pandemic, PCS pivoted to split team arrangements, with Work-From-Home arrangements for some non-site essential staff. We embraced the new norm of having virtual meetings via various digital platforms since physical meetings, trainings and large scale events were not allowed due to safe distancing considerations.

It was thus very challenging to continue the PDS modus operandi and we had to embrace technology to resume some realm of normalcy. Besides the usual online product support that we provide to our customers, we carried out our first virtual Joint Product Stewardship and Distribution Codes’ Toluene/Xylene Outreach on 27 August 2020 with our Singapore and Malaysia-based distributors, focusing on storage, handling, transportation, earthing/bonding and classification of FIBC (Flexible Intermediate Bulk Containers).

The following year, we decided to engage our Benzene pipeline customers on Jurong Island regarding the importance of Pipe Leak Isolation and Emergency Response. Together with OLE-I, OLE-II, F&S and T&O, we organized an online session for 18 representatives from Mitsui Phenols Singapore Pte Ltd, Keppel Energy Nexus Pte Ltd and Shell Seraya Chemicals Pte Ltd. The key SDS information regarding Benzene, a hazardous chemical, was also shared by HSE.

Pic 2: Pipe Leak Isolation and Emergency Response Sharing with Benzene customers on 11 Nov 2021



Pic 3: Product Stewardship Employee Training on 10 March 2022



After adapting to the new normal of virtual training during COVID-19 pandemic, PCS employees became well-equipped to carry out online training. Therefore, PDS decided to roll out the Product Stewardship Employee Training on 10 March 2022 for 62 employees virtually. The training aims to give our employees a better understanding of our products with regard to their hazards, product risks, proper handling, storage and transportation. It was the 6th PDS training and 228 employees had attended to-date.

In order to make this virtual training more interesting and engaging, we tried to inject some fun, such as awarding prizes to lucky winners who took part in the online quizzes.

In the spirit of Responsible Care®, Product Stewardship will continue to engage our employees, customers and business partners to promote better understanding and insights into the hazards of the products manufactured by PCS, for the betterment of the industry. We certainly look forward to the

government's relaxation of measures, and more support and active participation for Product Stewardship programmes from fellow PCSians!



## Jurong Island Vision Zero Forum #5

### - Maintaining Confined Spaces and Mental Wellness



Tan Bok Koon  
HSE

The Jurong Island Vision Zero (JIVZ) forum was held on 21 February 2022. Jointly organised by the Singapore Chemical Industry Council, the Association of Process Industry and the Workplace Safety and Health (WSH) Council, the forum took on the theme of Maintaining Confined Spaces and Mental Wellness. It was well attended with over 340 participants, the highest participation thus far in this series of JIVZ forums.



**E**r. Lucas Ng HK, Chairman of JIVZ Group, opened the forum by highlighting how confined spaces are one of the most common work environments in this sector, and maintaining the confined spaces involves several processes from planning to execution.

There was a good mix of invited speakers with representation from industry, regulator and a counsellor which gives a good mix of perspective of the topics. All the three topics are very well selected as they are highly relevant to Oil and Gas industry, especially when we are in the midst of pandemic and are vulnerable to stress.

ExxonMobil shared the various hazards inherent in work activities associated with

confined spaces, and the safety measures undertaken to mitigate those risks. These hazards can arise from inadequate ventilation, presence of residual materials, and even noise and ergonomic concerns.

The Ministry of Manpower spoke about the importance of looking at Fitness-For-Work (FFW) and Permit-To-Work (PTW), which are two key components of a WSH management system. FFW refers to the matching of job requirements with a worker's health capacity so that the tasks can be performed with minimal risk to the worker. PTW helps to ensure the safe execution of specific work activities while providing a means of hazard communication between stakeholders (i.e. plant occupier, PTW authority and PTW user).

Wong Fong Academy gave tips on how to spot signs of mental distress and render assistance in such situations – in creating an inclusive work environment. It also stressed that administering self-help to modify one's behaviour and lifestyle could bring significant improvements to mental health.

The forum was rounded off with a Q&A session, the usage of chat box for questions makes asking questions easy and minimised inhibition from some participants. Some participants also gave feedback that they found the tips on "building a company culture that advocates mental well-being" helpful and readily actionable and the participants can all learn from it.



# PCS Wellbeing-Health-Safety-Programmes



Kira Chng  
HSE

Having a robust HSE programme not only helps to cultivate the health and safety mindset of the employees and contractors, it also enables PCS to cultivate a health and safety culture and maintaining our excellent health and safety record. With the aims of refreshing the memories of employees and contractors on HSE programmes, HSE came out with a banner and it was displayed in various locations. With this, let us run through the various HSE programmes in PCS.



## STop-And-Report (STAR) Programme

STAR empowers everyone in the workforce, in any level, to intervene and report any unsafe act or condition by stopping any ongoing unsafe activity and report to their superior.

Everyone is EMPOWERED (given the authority to intervene)



Hand (Stop) participation from employees and contractors from all levels, including manager, engineer, supervisor, operator and worker.

STAR can be seen in the centre of the logo.

## Behaviour Based Safety (BBS)

BBS programme is a behavioural observation and feedback process which employee(s)/contractor(s) observes their fellow peers performing task, documents the safe and unsafe behaviour(s) observed, provides positive feedback on safe behaviours, non-threatening feedback on unsafe behaviours and suggestions on correcting unsafe behaviours.

Through BBS, observer will be able to identify possibility for injuries, communicate the risks to their fellow peers and help identify safer solutions.

Most IMPORTANTLY, BBS Observation is No Name, No Blame.

**TRuST** is the Acronym for BBS which stands for:



You have trust in me because you know I care



I respect our work together and I am going to watch your work to give you behaviour-based feedback



We trust, respect and coach each other. This is about Us



The truth of this behaviour based safety is Trust, Respect and Unity

## Speak Out for Safety (SOS) Programme



SOS fosters a stress-free working environment by creating a casual atmosphere of friendly advice or chat. All employees and contractors can **Talk Freely, Fearlessly** and in a **Friendly** manner on health and safety. All workers can speak out and take action in potentially dangerous situation(s) or if they suspect co-worker may endanger himself or others.



## Near Miss Reporting



Near Miss incident is an event which has a potential for personal injury or property damage, but where there was no such consequence. Near

Miss incidents are further grouped into two types; namely, normal near misses and those involving violation or non-conformity of procedures or rules and regulations.

PCS strongly encourages all employees and contractors to submit Near Miss report as such cases are valuable for sharing, case study and learning lessons. We can prevent similar incident from happening again by learning from past incidents. Near Miss incident can be reported by any person.

Reporting of Near Miss incident involving violation or non-conformity of procedures or rules and regulations is mandatory. Any employee or contractor who comes across such incident must make a Near Miss incident report. A follow up investigation shall also be carried out to determine the circumstances of the incident and the appropriate actions to be taken.

## Suggestion Scheme



PCS suggestion scheme can be divided into two categories namely PCS Employees Participation Scheme (PEPS) and FIND Scheme.



PCS Employees Participation Scheme encourages each and every individual employees to contribute suggestions to not only improve the nett saving/revenue, work productivity, but most importantly it also provides a platform for employees to contribute suggestions to improve the Health, Safety and Environment, Plant Reliability and Sustainability in PCS.

PCS FIND Scheme encourage employees to carry out their task meticulously in order to observe the fine details to prevent any unfavourable condition and take corrective actions to prevent potential failure.

It aims to create employees' awareness, cultivate employees' habit of finding and reporting abnormalities and hazardous / critical situation and encourages them to look out for more abnormalities or unsafe condition at the workplace.

## Jurong Island Vision Zero (JIVZ)

Jurong Island Vision Zero Working Group was formed in January 2018 under the Workplace Safety and Health Council (Chemical Industries) Committee with the aims to inculcate a mindset that all injuries and ill health at work are preventable and a belief that zero harm is possible. JIVZ Working Group is led by industry, with our GM(Plant) Er. Lucas Ng HK chairing the Group and more than 60 companies have joined the Jurong Island Vision Zero Movement on Jurong Island.

JIVZ Cluster targets for companies on Jurong Island to have a unified culture for Workplace Safety and Health (WSH). Leadership and commitment are keys to creating a robust WSH culture.

### There are five key attributes to JIVZ which are:

#### 1 Preventive mindset

adopting mindset that all incidents are preventable, as opposed to statistical occurrences

#### 2 Proactive

implementing pre-emptive measures rather than just responding when incidents happen

#### 3 Solution oriented

coming up with multi-pronged and comprehensive solutions for prevention besides looking at the root cause

#### 4 Encourage collective ownership

encourage key stakeholders within the company's supply chain to take ownership and cultivate WSH culture

#### 5 Go beyond compliance

going beyond basic compliance with regulations, for instance, to implement a holistic management system



JIVZ Cluster also organises Jurong Island Vision Zero Forum periodically and invite speakers from various industries and Ministry of Manpower (MOM) to share on their WSH practices and accidents that happened so that participants can learn from them and prevent similar incidents from happening.

The latest Jurong Island Vision Zero Forum was held on 18 May 2022 on the topic 'Elevating WSH Standards for Lifting Work'. This sharing session definitely benefitted the participants as they can learn from others on how to perform lifting work safely.

After running through all the HSE programmes in PCS, let us faithfully embrace them and work closely together with our contractors in maintaining our excellent safety records and work together towards our next safety milestone of 55 million hours worked without Lost Time Incident.



# PEPS Sustainability Campaign

In line with the PCS Sustainability Team announced on 25 Jan 2022, PEPS Steering Committee launched a PEPS Sustainability Campaign from April to December 2022. The purpose of this campaign is to raise awareness and to encourage workgroup members to submit suggestions on the following criteria:

- To reduce carbon footprint and carbon intensity
- To identify carbon abatement (carbon reduction), carbon capture, storage, and utilization technologies
- To continue our effort on energy efficiency improvement drive and waste reduction
- To support and promote the use of green chemicals and renewable energy



Chong Hon Yeng  
IT & Plant Services

A poster design contest was held to complement the campaign. Judging of the 33 entries was carried out by all Function PEPS facilitators.

The following members were the top three winners:

Ten other entries received the consolation award and five for participation.

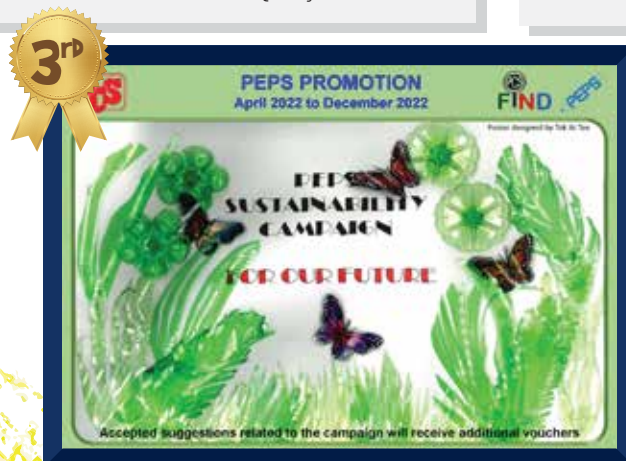
These posters are currently displaying on the partition board in our canteen.



**For a clean and green environment.**  
Rosmadi Bin Mohd Taib – Quality Control



**The letter S symbolizes the road to SUSTAINABILITY.**  
Sim Bee Hoe – Olefin-II



**The 3D motifs were created from the cut-out of PET bottles.**  
Tok Ai Tee – Quality Control



# Temasek Polytechnic Staff Attachment

PCS hosted two Temasek Polytechnic (TP) lecturers from 28 Feb 2022 to 29 Mar 2022. The purpose of their attachment is:



Chong Hon Yeng  
IT & Plant Services

- ✓ To gain exposure to a real petrochemical plant
- ✓ To better understand water treatment systems and equipment, and to explore possible areas of improvement and research
- ✓ To improve knowledge on Petrochemical Technology

**T**he lecturers were:

- **Dr Miao Huang, PhD:** Course Chair of Diploma in Chemical Engineering, School of Applied Science
- **Christopher Chor:** Lecturer in Water Technology Domain, School of Applied Science.

These were the reflections of their attachment in PCS:

**Dr Miao Huang:** I am part of the teaching team from Diploma in Chemical Engineering, School of Applied Science. In TP, we are encouraged to take on industrial attachment to learn from industry and apply our learning back to education to better equip our students with industry-relevant skills. Many thanks to PCS for this valuable opportunity given to me to be attached to Technology & Optimization (T&O) Function, and to learn from the warm and dedicated members of the team.

During the attachment, I had the privilege to attend the morning meeting of Olefin-II Function. From the reporting of the daily plant operation, and the maintenance work schedule, I learnt that the plant is only running smoothly because of the meticulous planning, diligent follow-up, great team work with effective communications, and the thoughtful stewardship behind the scene.

From the systematic training I received from the T&O Engineers, I learnt that sustainability features, such as energy efficiency is built into the plant as early as the design stage, and the team has been constantly striving to improve sustainability in every process.

From the site visit to the top platform of the Furnace or at the aeration tank in the Waste Water Treatment Plant, I learnt that every detail matters and is meaningful for the plant's successful operation.

I have no prior experience in the petrochemical industry, hence this attachment is an eye-opener for me. I now

have a much better understanding of the various processes in the Ethylene Plant. I will apply the valuable learning from PCS, into guiding our students and also the preparation of our new chemical pilot plant to convert waste cooking oil to biodiesel.

Although the internship duration is short, I felt strongly of the **Passion, Communication and Support** from the PCS team. I know I have more friends in PCS after the attachment, and to my PCS teachers, you have more friends in TP too. Thank you!

**Christopher Chor:** Dr Miao Huang and I would like to thank all PCS staff for your warm welcome and kind hospitality during our short stay here in PCS.

We have enjoyed your very friendly and informative training sessions and the walkabouts in the plant.

All our instructors have all made us felt very welcome and were also very patient with us and our questions.

Thank you so much for opening our eyes to the plant. There are so many things to learn in PCS, be it HSE, Ethylene plant, Furnace, Boiler and Steam network, Compressed Air, Pure Water, Cooling Water, Sea Water, Biological Waste Water Treatment plant and Treated Waste Water Recovery plant.

There is a whole world of insightful & valuable knowledge and years of experience which time is never enough to fully learn each and every aspect.

We will cherish our short and wonderful experience here and take it back with us with fond memories.



From left: Dr Miao Huang and Christopher Chor



On the top platform of the Furnace in Olefin-II Plant



# PCS ONLINE TALENT SHOW CONTEST



Kew Jia Ming  
Marketing & Sales

The famous United States of America writer/scientist/statesman Benjamin Franklin once said, "Hide not your talent, they for use were made. What's a sundial in the shade?"

**H**ere in PCS, we also believe that all our employees are talented in their own ways, across different areas like music, sports, arts, and culture. Hence, the Scope, Sports, Recreation and Canteen Committee (SSRCC) 2022 committee proudly launched the 2nd virtual event for the year "PCS Online Talent Show Contest" from 15th April 2022 to 31st May 2022 for all our PCS employees to showcase their talents.

At the end of the contest, the SSRCC would like to thank our participants for showing us their talents and the judging committee consisting of SK Sarkar, Vincent Woo, Tan Kian Boon, Khoo Yi Hao and myself are proud to present the top 4 winners in the contest.

**We present the top 4 winners' talents below and took the opportunity to ask them a couple questions**

1. How did you discover your passion in this talent?
2. Why do you enjoy doing this?

1<sup>st</sup>

1st Prize of \$100 vouchers were awarded to Lean Chin Hee from QC

2<sup>nd</sup>

2nd Prize of \$80 vouchers were awarded to Lim Hui Qin from BDP

3<sup>rd</sup>

3rd Prize of \$60 vouchers each was awarded to Viclaus Yip from PUR and Ngai Jia Ming from OLE-I (Tied 3rd)

Consolation of \$10 vouchers was awarded to the other participants.

1.

I started drawing and colouring when I was in primary school and from then on, I feel excited and inspired every time there is an opportunity for me to create an artwork. Till today, I still love art and painting.

2.

I get a feeling of fulfillment and satisfaction during the process of painting and when making the artwork I had made.

1<sup>st</sup>



Lean Chin Hee  
Quality Control  
Talent: Painting



2<sup>nd</sup>



**Lim Hui Qin**  
Business Development & Planning  
Talent: Singing

1.

Similar to my peers, singing has always been a part of my adolescent years, where we learned how to sing nursery rhymes from pre-school or primary school and children's TV shows. Later on, when I was 11, I was also encouraged by my teacher to join the choir as a CCA in primary school, where I gained a wider exposure to songs and music of various genres and found a liking for music in general.

2.

I enjoy singing because it is intriguing that we can produce music with our vocal cords without needing any instruments, and music is such a universal form of expression that you will be able to relate to the music even if you don't understand the lyrics such as K-Pop. Singing is also a fun stress-relief activity for me!

1.

Like most of my peers, I started lifting weights when I was 18 out of curiosity and in preparation for the physical demands of National Service. I stumbled upon Powerlifting, which was a novel sport then, via YouTube and decided to try it out to become physically stronger. Over time, I discovered that this is an activity that I enjoy doing regularly.

2.

I enjoy powerlifting due to the inherent need in the sport to progressively overload and improve the body's athletic performance. It is also a healthy outlet for stress relief via physical exertion.

3<sup>rd</sup>



**Viclaus Yip**  
Purchasing  
Talent: Powerlifting

1.

I first picked up the saxophone at the age of 13 in school when we were made to choose an extra-curriculum activity (ECA) to join. However, I was not immediately interested in the activity. It wasn't until I met like-minded peers in the university band that my passion got ignited.

2.

I enjoy playing the saxophone because it allows for creative expression, otherwise not available in our daily lives.

3<sup>rd</sup>



**Ngai Jia Ming**  
Olefin-I  
Talent: Playing the saxophone



# PCS Online Photography Challenge in Nature



Calvin Neo  
Technology & Optimization



Gerald Lim  
HR & Admin

Due to the COVID-19 restrictions on company mass gatherings and events, the SSRCC 2022 committee proudly launched the virtual event “PCS Online Photography Challenge in Nature” from 15th March 2022 to 14th April 2022 for all PCS employees.

**P**CS Online Photography Challenge in Nature is a photography challenge for individual(s) to capture their best moments while participating in a physical activity, sport, or workout in Nature. This challenge aims to encourage PCS employees to continue keeping fit and promote team or family bonding while complying with COVID-19 restrictions and measures. The winners of this challenge were selected based on Quality, Creativity, and Team or Family Bonding in their photograph submissions.

SSRCC had received a total of 30 quality submissions by PCS employees in this challenge. The judging committee, consisting of Calvin Neo – T&O, Gerald Lim – HRA, Jumali Bin Anwar – F&S, Kelvin Teo – OLE-II and Wahedah Bte Ahmad – QC, was proud to present the top three winners in this challenge:

1st prize of \$100 voucher was awarded to Eugene Koh from MAI

2nd prize of \$80 voucher was awarded to Ismail B Jaafar from OLE-I

3rd prize of \$60 voucher was awarded to Mohd Bhashir Bin Selamat from OLE-I

Consolation of \$10 vouchers was awarded to the other participants.

The SSRCC would like to thank everyone for your active participation and hope to have your strong support again in future events. The photograph submissions in this challenge are presented in the next page:

1<sup>st</sup>



Enjoying the simplest pleasure in life  
Eugene Koh – MAI

2<sup>nd</sup>



It's not how many miles you walk, it's how many smiles you share.  
Ismail B Jaafar – OLE-I

3<sup>rd</sup>



Time spent amongst trees is never wasted time.  
Mohd Bhashir Bin Selamat – OLE-I









# EMPLOYEE NEWS



## marriage

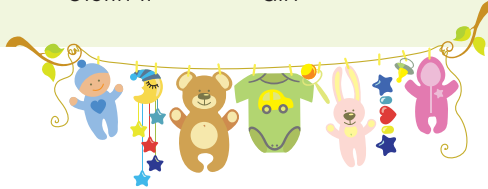


NAME	FUNCTION	SPOUSE
Rajmohan Rajadurai	Olefin-II	Nithyakalyani Krishnan

## births



NAME	FUNCTION	NEW BORN
Muhd Irfaan bin Azahari	Olefin-II	Girl



## LONG SERVICE

Award Recipients for  
Apr-Jun 2022



### 5-Year

Cerine Lim	HR & Admin
Leong Wan Tian	IT & Plant Services
Low Kah Yi	Maintenance

### 10-Year

Chen Yizhang	Olefin-I
Ngai Jia Ming	Olefin-I
Muhammad Sirajuddin bin Ghazali	Olefin-I

## NEW EMPLOYEE



### Ms Ser Xiu Ling

Confidential Senior Admin Assistant,  
Business Development & Planning  
Joined - 23 May 2022  
Hobbies : Cycling, Reading,  
Listening to Music



### Mr Wu Chong Wai Roy

Engineer, Technology & Optimization  
Joined - 23 May 2022  
Hobbies : Exercising



### Mr Tng Shun Li

Engineer, Technology & Optimization  
Joined - 13 June 2022  
Hobbies : Running, Badminton, Soccer