

# SCOPE

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# Top Management Workplace Health and Safety Ownership



Bernard Leong  
HSE

A committed Management dedicated to health and safety are among the key attributes of companies with sustainable excellent performance in workplace health and safety.

PCS Management firmly believe in upholding exemplary practices in health and safety, inculcating a culture and commitment to secure the health and safety of its workforce, through high visibility on the site and two-way open communication, with prompt and visible follow-up of feedback and suggestions.

PCS Management and the Board of Directors, underline this commitment through discussing health and safety issues as the first item on the agenda in Board meetings. Such dedication sets an example for the workforce and contractors to emulate, and PCS proudly shares this dedication to influence other companies to adopt.

Such a culture is evident, among them, through regular participation by shareholders representatives in PCS' health and safety programmes and activities. In the recently concluded SDM 2018, representatives from one of PCS' shareholders, Ms Lim Hon Ing and Mr Leslie Lim, who is also the current PCS Board Chairman, participated in a HSE site walk on 3 August 2018, together with PCS top management.



Shareholders' representatives, with PCS Management, participated in HSE site walk.



Welcoming Ms. Lim to the HSE site walk.



Mr. Leslie Lim observing an "opened" equipment.



Thumbs-up for the HSE site walk.

Aside from internal visibility, PCS Management sets about to influence industry peers. An example is the recent SDM Mass Tool Box Meeting. Setting an example for migrant and “new to PCS” workforce, and their management, to have a “first hand” feel of the prevailing company culture, and further underlining the strong partnership and bond with contractor companies. PCS Senior Management, along with contractors management, participated in all the four Mass Tool Box Meetings and three HSE site walks during the SDM. Indeed, PCS is the rarity, if not the only one, that treats its contractors as partners, and workers are afforded the same level of assurance against health, safety and security hazards.



GM(Plant) addressing workers at the Mass Tool Box meeting.



A panoramic view of the SDM village, where Mass Tool Box meetings were held.

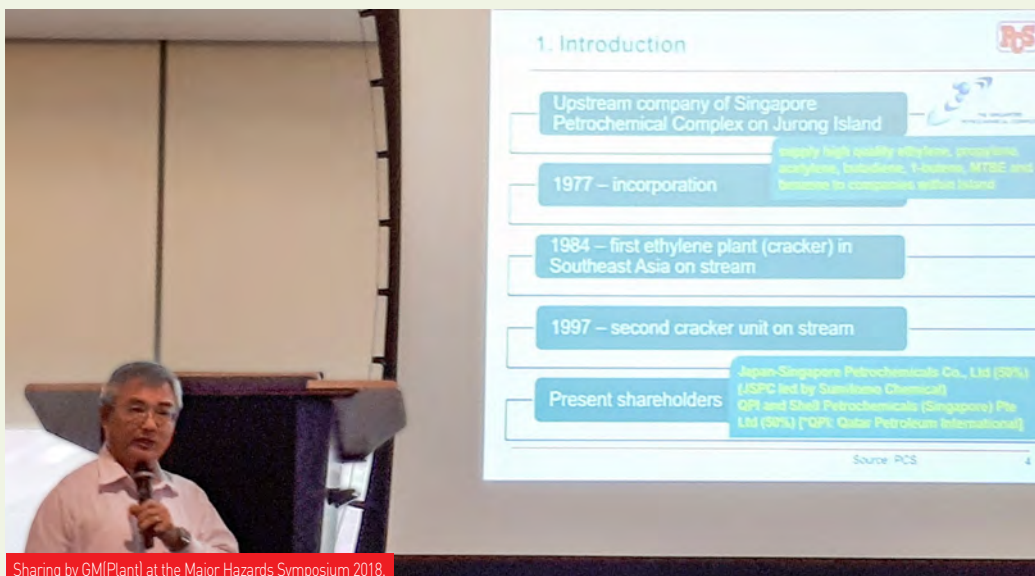


Mr. Ishitobi presenting the award to PCS.



Mr. Cheong presenting the award to PCS.

Upon achieving the 40 million hours worked without a Lost Time Incident, congratulatory messages were received from shareholders commending the contribution and effort of the workforce (including partnering contractors). Chairman of the Board of Sumitomo Chemical Co., Ltd., Mr Osamu Ishitobi, personally came to Singapore to present an “Award” to PCS Managing Director, Mr Akira Yonemura, on 17 August 2018, together with Mr Dennis Cheong, Ms Lim Hon Ing and Mr Leslie Lim.



Sharing by GM(Plant) at the Major Hazards Symposium 2018.

In further setting the desired culture, company representatives, including GM(Plant), Er Lucas Ng HK, regularly share the company's programmes and good practices at local and global conferences.

With all these efforts, we do not yearn or seek recognition from our peers or regulatory authorities. We are comforted by the fact and the self-realisation that what we are doing is practicable and effective to secure the health and safety of our workforce in achieving zero injury. For everyone to be able to return home healthy and safe is testament to the programmes and workplace culture ingrained in our workforce.

# Holistic Approach to HSE Activities for Shutdown Maintenance 2018 Realised Zero Incident



Lim Kian Huat  
MAI



A group photo with PCS Staff and the SDM Contractors Award recipients during the appreciation dinner on 15 August.

In preparation for the Singapore Petrochemical Complex's Shutdown Maintenance (SDM) 2018, the theme for the Complex HSE Campaign 2018, was "Safety Rules – Your Best Tools for SDM". With this theme in mind, PCS rolled out a series of HSE activities way before the commencement of SDM 2018.

After 34 years of continuous service with good reliability from our 3 main compressors C-300, C-600 and C-650 in No.1 ethylene plant, a challenging task to replace them with new high efficiency compressors during the SDM resulting in a 6-day extension of hot work period from the usual 21 days.

With holistic approach to planned HSE activities, and with the active participation of both employees and contractors, once again we achieved zero recordable incidents for the third time in SDM.

Prior to the SDM, kick off meetings, Complex Safety Induction Training (CSIT) for all SDM workers, small group briefings for trade specific Scaffold erectors, Insulation workers, Crane operators and Hydro jet workers were conducted. Safety, Security, logistic and SDM work procedures briefings

were also conducted for supervisory staff from PCS and Contractors.

Oil-cut on 12 July 2018 was followed by the first day of hot work on the 17 July 2018 after plant operators carried de-inventory and hydrocarbon freeing of plants.

The established comprehensive HSE program was to ensure positive safety behaviours, adequate supervision and high HSE and work standards from our SDM workers supported by PCS Staff throughout the 27 days of hot work (17 July to 12 August). Many equipment were dismantled, inspected, cleaned, renewed, re-assembled, tested and all commissioned successfully without incident.

Morning and evening SDM meetings amongst PCS and Contractors' site managers were held to ensure that all



PCS GMP Er Lucas Ng witnessed the handing over of O&E to Maintenance Manager on 16 July 2018.

maintenance activities were co-ordinated and carried out safely and as scheduled. Daily Tool Box Meeting (TBM), weekly mass TBM, High Intensity Behaviour Trust Observation (HIBTO), Daily HSE patrols and meetings, weekly Management HSE walk, strange eyes patrol, BBS role models award, spot the safe workers and safety quizzes were conducted.



Miss Lim Hon Ing, Mr Leslie Lim, Miss Tan Wang Tiang, Miss Felicia Ng with PCS MD Mr Yonemura, DMD Mr Lim Wee Chiong, GMP Er Lucas Ng, representatives from SDM Contractors and PCS Staff attended the HSE Walk on 3 August.

Representatives from one of PCS' shareholders, Ms Lim Hon Ing, Mr Leslie Lim, Ms Tan Wang Tiang and Ms Felicia Ng participated in one of the SDM Management HSE Walks on 3 August 2018, walking through the SDM sites together with PCS MD Mr Akira Yonemura, DMD Mr Lim Wee Chiong, GMP Er Lucas Ng, and PEC CEO Mr Robert Dompeling, Sankyu Singapore MD Mr Isao Shimomura and Singapore Takada MD Mr Keisuke Hamasaki. We thanked them for their positive comments, constructive and valuable feedback from their observations during the site visit despite their busy schedules.



BBS SDM Role Models received their award from PCS GMP Er Lucas Ng.

The plant was handed back from Maintenance to Operations staff during the last evening meeting on 12 August 2018, the last day of the 27-day Hot Work Period.



Manager, Mechanical - Timmy Lim handing over the SDM Plant equipment & facilities back to Ole-II Manager Leonard Chong on 12 August.



Safety messages were delivered by GMP, PCS Managers, HSE Promotion Committee Chairman & Contractors' representatives during the 4 Mass Tool Box Meetings.



An appreciation dinner was organised to thank all the SDM Contractors, Suppliers, Vendors and Staff on 15 August 2018. About 270 Staff and Contractors attended the event.

PCS GMP Er Lucas Ng delivering the SDM First Mass TBM opening address on 18 Jul 2018.



Daily HSE Patrol, Meeting, Follow up, Promotion activities, BBSO and housekeeping were implemented throughout the hot work period from 17 Jul to 12 August.

# Workplace Safety and Health (Performance) Award



Bernard Leong  
HSE



The annual Workplace Safety and Health (WSH) Awards recognise companies and individuals whom have upheld high safety and health standards at their workplaces. This year, 158 companies and individuals were honoured at the WSH Awards 2018 gala dinner on 31 July 2018. The Guest of Honour was Minister for Manpower and Second Minister for Home Affairs, Mrs Josephine Teo.

This year, PCS was conferred the WSH Performance (Gold) Award, which was proudly received by our Managing Director, Mr Akira Yonemura, from Minister of State for National Development and Manpower, Mr Zaqy Mohamad.

In her opening speech, she mentioned that a committed management, dedication to WSH and having excellent WSH systems are some of the attributes that exhibited strong ownership of WSH by the Awards recipients. She highlighted programmes by two companies, one is that, "Everyone is empowered to stop any unsafe work", and the other, on sharing of near-miss incidents for the purposes of cross-learning. There

is also the need for WSH ownership to be driven from the top. If the senior management of companies are committed to WSH, they will naturally set the tone for the rest of the company to follow.

These programmes echo well with what PCS have been practising, as well as the requirement that contractors have at least bizSAFE Level 3 certification.

The last time we were awarded Gold (Excellence) was in 2014. The award is due recognition for each and every one of us, including our contractors. It also goes to show that what we have been doing is on the right track, practicable and effective to secure the health and safety of our workforce in achieving zero injury.

Let's continue to uphold this workplace culture, and the belief that all injuries are preventable.

# Ayer Merbau SSWG Cluster Wins Outstanding Cluster Award



Christopher Heng  
Fire & Security

Congratulations to the Ayer Merbau SSWG Cluster, represented by Petrochemical Corporation of Singapore (Private) Limited (PCS), Shell Eastern Petroleum (Pte) Ltd (SEPL) Production Unit No.3 and Chevron Philips Singapore (Private) Limited (CPSC), for receiving the Outstanding Cluster Award at the National Safety and Security Watch Group Award Ceremony 2018, held at Orchard Hotel on 28 September 2018.



Recipients of Outstanding Cluster Award (Ayer Merbau SSWG Cluster) starting from left: Mr. William Lee (CPSC), Mr. Amrin Amin (GOH), Er. Ng Chee Wai (PCS), Mr. Alex Lam (SEPL).

This prestigious award, given biennially, recognises cluster members' efforts in implementing security measures to protect their personnel and buildings. In his speech, Guest of Honour (GOH), Mr Amrin Amin, Senior Parliamentary Secretary, Ministry of Home Affairs and Ministry of Health, highlighted how Ayer Merbau SSWG Cluster was a positive role model for others to emulate. A video montage with a segment featuring the Singapore Petrochemical Complex security was showcased at the ceremony before the keynote address by the GOH. The main stream Chinese press, Lianhe Wanbao, published the exclusive interview with Er Ng Chee Wai on PCS receiving this award. Well done to every members from the Ayer Merbau SSWG Cluster!



Er. Ng Chee Wai receiving the award from GOH Mr. Amrin Amin.

## Multi-Phase Approach to Building a Safer Ayer Merbau Cluster Community

The award is an important recognition by the Singapore government for our implementation of the Safety and Security Watch Group scheme (SSWG). The initiative, started in 2003, to strengthen private-public partnership between

building owners and Home Team agencies against vulnerabilities within premises has expanded to include contingency planning and training. Today, the national SSWG scheme covers 1,400 buildings in 170 clusters.

### Phase 1 Activities – Creating Awareness

The Ayer Merbau SSWG Cluster formulated a 3-phase SGSecure Action Plan in 2017 to create awareness of SGSecure in the workforce. During the Singapore Petrochemical Complex HSE Campaign Month 2017, roadshow booths featuring SGSecure themes from Ministry of Manpower, Singapore Police Force and Singapore Civil Defence Force were set-up to further promote the importance of SGSecure knowledge. The event also offered opportunities for workers to learn practical hands-on skills such as SGSecure's Improvised First Aid Skills (IFAS) and "Run Hide and Tell" during terror attacks. Over 1,000 Staff and Contractors attended the roadshow.



Mdm Nur Azlin Mohamed Yasin, Associate Research Fellow lecturer from S Rajaratnam School of International Studies giving a talk on "Radicalisation".

Talks by Management, Fire & Security Officers and professional academics were also organised to spread SGSecure awareness in the Complex.



Exhibition booths set up by SPF, MOM & SCDF during the Complex Safety month.

To further communicate and reinforce the importance of being vigilant and on the lookout for suspicious persons, pamphlets

were distributed to the Complex and banners were placed in prominent places. SGSecure videos were broadcast in PCS Media and CDs were also distributed to all Complex Companies to promote SGSecure knowledge in their workplaces.

### Phase 2 Activities - Capacity Building

Phase 2 focused on Capacity Building. Way back on 1 Nov 2016, GMP Er. Lucas Ng was invited to speak at the 1st National SGSecure SSWG Counter-Terrorism Seminar for Chemical Industry. He spoke on 'Never Neglect Security in Chemical Industry' to more than 250 participants from various chemical industries. We started to co-organise our own SGSecure Active Responder training with Singapore Police Force (SPF) for our Cluster since 24 May 2017. During the training sessions, Officers from SPF lead the security training while F&S conducted IFAS, CPR & AED trainings.



In-house SGSecure Active Responder training.

We deployed SGSecure First Aid Kits equipped with several rapid deployment mobile first aid bags at large crowd areas such as the Commuter Entrance and Temporary Guardhouse. We also implemented additional physical security measures such as installing additional CCTVS and card access controls during this phase.

### Phase 3 Activities – Vigilance Test

Lastly in Phase 3, we conducted the exercise, known as "Exercise Merbau" to enhance awareness and strengthen our capabilities on responses during emergencies.



Complex Security Exercise with participation from more than 200 participants, ground deployment of troops/police/rescuers to neutralise attackers.

Thanks to the comprehensive security training conducted, our staff have become attuned to look out for abnormalities at work. This was clearly demonstrated by one of our staff whom alerted security to a container of sensitive chemicals that was left outside the company's premises. It was later established that it was accidentally left behind by a contractor.

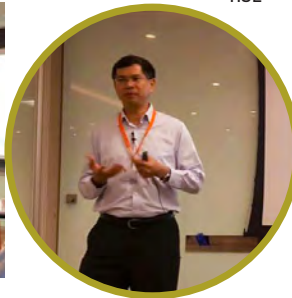
### ONE Ayer Merbau Community

It is important for us to build on this foundation of success and enhance our capabilities as one Ayer Merbau SSWG community. Congratulations once again to the leadership team and everyone in our cluster.

# Sharing of Good Practices with SEPL/Shell Chemicals



Bernard Leong  
HSE



PCS HSE Manager, Er. Bernard Leong, shared PCS good practices in health and safety at the Shell Eastern Petroleum (Pte) Ltd (SEPL) HSSE Learnings from Ventures session on 25 July 2018.

Shell regularly hold lunchtime talks for employees at its Metropolis office, likened as “lunch and learn” sessions, where a simple packed lunch is provided, and employees get together to listen and learn from selected speakers sharing their experience on good practices.

The session was opened by Ms Lim Hon Ing, General Manager Ventures. PCS shared, among others, our health and safety

framework, management ownership and leadership, and our three core programmes (SOS, STAR, BBS), anchored by strong partnership with our contractors.

It was an engaging session, drawing many questions from the audience, including how PCS manages its migrant workforce and challenges in the job. Many were intrigued how PCS was able to draw on the strength from its last LTI incident.

Ms Lim went on to highlight her experience participating in HSE walks in PCS, praising its contractor management and workforce, especially the culture of intervening in unsafe situations regardless of rank or level, when she was stopped crossing into a barricaded area. She also added the presentation slides were succinct, focusing on keywords, without being too wordy.

Lunchtime talks offer food for thought, and learning from one of our shareholders, we will consider such programme to be held on a regular basis. Aside from talks organised by SSRCC/HRA, HSE also organises similar sessions monthly. These “Learning Incident Lessons” sessions aim to share, and elicit discussion, on recent internal and external incidents, including near misses. Relevant safety videos, process safety sharing (eg. CCPS Process Safety Beacon and SCIC Pre-Digest) and incidents shared by Sumitomo Chemical, are discussed at these monthly sessions attended by both employees and contractors.

One of the benefits of such sessions is our belief that, without open discussion, we only see from a single perspective, however, if an incident or practice is shared and discussed, there could be alternative views or measures that were not initially apparent. It is for this reason that PCS Management is an advocate of open sharing of programmes, practices and incidents, with the industry.

## Team Excellence Assessment



Chong Hon Yeng  
T&O, Plant Services

PCS PEPS workgroup has achieved it again – two honorable ‘Star’ Awards in a roll!

Olefin-II PEPS workgroup ‘Utiliman’ clinched the top ‘Star’ Award for their presentation – PCS-I Air Compressors Revamp (see box) – in the Team Excellence Assessment, organized by the Singapore Productivity Association on 5 Sep 2018.

The Team Excellence Assessment is a technical professional assessment platform which allows teams from various organisations to present their Team Excellence projects to a panel of judges. Through this assessment, they will be awarded either Star, Gold, Silver, Bronze or

Certificate, according to their presentation and project report.

PCS has been participating in the assessment since 1999. Through the years, numerous PCS PEPS workgroups have grabbed seven Gold, five Silver, four Bronze and two ‘Star’ awards consecutively – last year and this year.

Utiliman workgroup consists of Yew Kam Chiew (Team Leader), Soo Wing Teen, Adrian Quek and Chandrasuriyan, with support from T&O Engineer Sim Kai Sheng. The



Getting ready for the presentation  
From left: Sim Kai Sheng, Chandrasuriyan (standing), Adrian Quek, Soo Wing Teen and Team Leader Yew Kam Chiew

workgroup worked diligently and fervently from July this year – from the preparation of assessment report and presentation slides to the numerous practices and rehearsals. It was especially challenging for the workgroup as some members were immensely involved in SDM 2018. In one of the rehearsal sessions, Olefin-II Manager Leonard Chong initiated the workgroup with a pep talk and pointers on doing an effective presentation for this competition. All efforts were well worth when they received the ‘Star’ Award. Well done, Utiliman!

### PCS-I Air Compressors Revamp

The air compressors unit was designed and constructed to produce service air (AS) and instrument air (AI). For service air, atmospheric air is directed through suction filters of air compressors and pressure is gradually stepped up through a series of compression stages in the air compressors. Service air is mainly used

for decoking of ethylene furnace, purging equipment and pipeline.

On the other hand, instrument air is used for instrument and control system. Moisture in compressed air is removed through pressure swing dryers in parallel before being supplied to the AI header and a small quantity of dry air will return back to the dryer unit for

regeneration of dryer that is on standby. Dry air is necessary for equipment, especially instrument, as moisture in the system can cause rust and increase wear of moving parts in production equipment as it washes away lubrication.

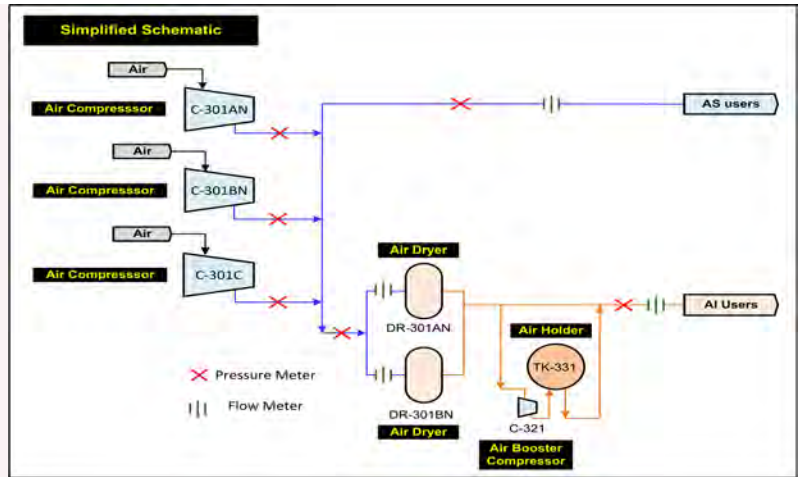
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Depending on users' demand, two compressors were usually required to be in operation. However, with the decrease in AI/AS pressure, it required three compressors to be running most of the time to maintain the system pressure and flow. This resulted in high electricity consumption for the unit.

Members from Operation, Maintenance and Process & Operation Technology brainstormed for ideas and went through the selection process systematically to arrive at various solutions. The solutions, amongst others, include erosion resistance coating for air compressors' casings.

The revamp of the AI Compressors reduces electricity consumption, provides operational cost savings, improves operating flexibility and enhances process reliability.



# ALL IN A DAY OF DRAGON BOAT TRAINING



Ngai Jia Ming  
T&O

After rowing for about an hour, the team takes a break to enjoy the scenery and to hydrate ourselves adequately with water and isotonic drinks.

The training continues with a few sets of team rowing by the whole boat to enforce our coordination which is of upmost importance. During a race, it is easy to lose our focus as we tend to be distracted by our competitors. When this happens, the out of synchronization of our strokes may cause the boat to lose paddling synergy and worse still, may cause our paddles to clash against one another.

At the 1 hour and 45 minutes mark, members have sweated it out and whole body exhausted. We then make our way back to land but surprising or not, this is when members tend to get most "energetic".

As we approach the shore, rowers are safely guided out of the boat.

All those who have rowed with PCS Spitfire before will know that this part marks the toughest part of the training, where we have to shift the boat onto land and bring it into a designated storage area. This is then the part where we show our "never say die" spirit as we worked together once more to ensure that the boat is properly and safely kept.

PCS Spitfire has come a long way since its inception and the team continues to grow stronger by investing in the future generation. By constantly welcoming new rowers and encouraging them, we hope to continue building stronger bonds in the company and to show that we are ONE PCS. To anyone interested to give this sport a try, do feel free to approach any PCS dragon boat members!



Showing our happy faces as we head back to shore.



Jagathesh showing his excitement for the training.

30<sup>th</sup> of June 2018 marked the last training session of 2Q 2018 for the PCS dragon boat team, PCS Spitfire, as members gear up in preparation for Olefin-I Shutdown Maintenance (SDM) 2018. During this session, the team was joined by 5 new employees from Olefin-I and Olefin-II who were trying out this sport for the first time. Our trainings are regularly carried out at Kallang which stretches out to scenic areas of Singapore like Gardens by the Bay, Marina Barrage and Singapore Flyer etc.

As the session begins, the new rowers were clearly unaware of what to expect... but we were certainly glad to see their positive energy and attitude.

A typical session starts with the launching of a 12-crew boat. This consists of 10 rowers, 1 steersperson (ie. our coach) and 1 drummer (drummer for race only, not required during training). The rowing begins with a stretch of warm up rowing lasting 20 minutes. This is followed by rowing as an individual or

as a pair where the proper techniques are enforced in each rower. During this time, the 5 new rowers were taught the basics of rowing by our coach.

Seasoned members also share our experiences in dragon boating with the new rowers and to provide encouragement to them. As we all have been through picking up a new sport before, we know that the beginning is always the toughest.



Start of the training session saw many energetic faces against Gardens by the Bay.



Veteran rower Hon Yeng provides advice to Sheng Kai and as Kang Choon listens attentively.



Rowers putting in their last bit of strength to keep the boat.



# WARRIORS OF PCS

The inaugural PCS Paintball match was conducted on 22<sup>nd</sup> of September 2018, at a large playing field away from the typical busy life of Singapore, located in the sub-urban West Coast Road. The company operating the Paintball field is "Hyperforce". A total of 27 participants turned up, including 3 brave ladies!



Ngai Jia Ming  
T&O

The game marshals from Hyperforce then briefed us on the rules of engagement followed by the safety aspect of Paintball, such as the importance of a mask in the playing field and how to protect ourselves in the case our mask accidentally falls off. We were also briefed on the safe use of a Paintball marker (not termed as a gun because a gun kills).

As the morning sun shone above our heads, the first game kicked off with Team 1 attacking the objective which was to raise the flag at a designated point. The role of Team 2 as the defenders was then to prevent the attackers from raising the flag. During the 7 minutes of gameplay, many of our players became "trigger happy" and immersed in the situation that their 100 pellets were quickly used up, rendering them helpless for the rest of the gameplay. At the 5th minute, the attackers managed to raise a flag, giving Team 1 a point against Team 2. After an intense 7 minutes, the first round finally ended.

Participants took a 15 minutes break to catch their breath, get hydrated and for a respite from the hot sun. After a good rest, participants then proceeded back to the playing field. This time, the roles are reversed for Team 1 and Team 2 where Team 2 is now the attacker while Team 1 is the defender. The match similarly lasted for an intense 7 minutes but Team 2 was unfortunately unable to score a point to equalize the earlier score by Team 1.

During the debrief, Hyperforce marshals picked out the 3 Most Valuable Players (MVPs) who made great efforts towards the objective of their respective teams and in the process, inevitably got hit many times by the pellets flying all over the field. These 3 were then awarded with a token from PCS SSRCC. Coincidentally or not, all 3 players came from Fire and Security function, namely, Irwan (Team 1), Nasri (Team 1) and Jumali (Team 2).

Despite the hot sun, muddy grounds and getting hit by pellets, everyone enjoyed a good game of Paintball and certainly displayed good teamwork and camaraderie when working with each other. Many participants were observed showing off their bruises from the game and with a big smile while recalling how they got hit. The euphoria and adrenaline from the game certainly did well to mask the pain from getting hit by the pellets. As with all SSRCC activities, the session finally ended with good food and fortunately, no "casualty" and no Lost Time Incident (LTI).



Satisfied participants of the inaugural PCS Paintball event.

Since the start of the session, the question constantly lingering on everyone's mind, ladies and gentlemen alike, was, how painful was it going to be at the moment the Paintball pellet strikes our body? Well, read on to find out.

For those who served NS with the civil defence, they certainly did not miss out on the fun! At the same time, it makes you wonder if the army or civil defence was a better vocation to prepare you for Paintball.



Participants from QC function gathering before the start of the session.

As the participants arrived, we chatted with one another and stared anxiously asking those who had played Paintball before, about their experience and whether it was painful. It was as though anticipating the pain could somehow ease the actual pain to come. One such experience was shared by Faizal who wore a netting around his neck and explained that, "it is very painful when the pellet hits the neck".



Dennis feeling proud of his firemen.

Event organizer, Jia Ming split the participants into 2 groups of 14 pax (Team 1) and 13 pax (Team 2). Team 1 was led by appointed Team Captain, Hari Rueban, while Team 2 was led by appointed Team Captain, Harrison. Both immediately accepted and stepped up into their role, displaying their leadership qualities much needed in the battlefield.



Johnny explaining his strategy while Faizal is fully geared up to his neck (in view of his past experience with Paintball).



Team 1 members.



Team 2 members.



Event organizer giving out prizes to the MVPs, (from left to right) Irwan, Nasri and Jumali.

As the participants geared up, many of the male participants who had served National Service (NS) with the army could be seen reminiscing their NS days as they had worn their camouflage uniform for the event.

# SPRING IN CENTRAL EUROPE



Dominic Chee  
T&O, Plant Services

The day we touched down at Munich was officially the first day of Spring! So said our Trafalgar Tour Guide Kevin Swartz. And the weather for the next 10 days was perfect, swinging between 5°C and 15°C. The sun could be out but we never felt the heat.

Our itinerary had us hopping through seven cities across five countries. Our first stop from Munich was at Regensburg in south-east Germany. Then on to Prague (Czech Republic), Bratislava (Slovakia), to Budapest (Hungary), then to Vienna and Salzburg (Austria). From Salzburg, we climbed the Bavarian Alps and enjoyed the spectacular and panoramic views of the surrounding countryside before returning to Munich. We travelled almost 1600 kilometres across these cities and although the journeys were long, we had plenty of city walking tours to stretch our legs - whether at Marienplatz in Munich, or the Old Town square in Prague, or the Schonbrunn area in Vienna.

A very enjoyable tour indeed; the sights were beautiful, the people friendly, and the food good!

## Munich

Munich is the capital and the most populated city in the German state of Bavaria. It is also the third largest city in Germany, after Berlin and Hamburg, and the 12th largest city in the European Union, with a population of around 1.5 million. The city is modern and thriving, being a major centre of art, technology, finance, publishing, culture, innovation, education, business, and tourism in Germany and Europe. Munich is also squeaky clean, with a very high standard and quality of living.



Schnitzel - a delightful pork cutlet meal usually served with potato slices and a touch of lemon



Pork Knuckle. You cannot visit Europe without indulging in this magnificent feast. And of course you have to burn the calories away once back in Singapore.



The staple beverage in Europe - Paulaner beer.



Marienplatz in Munich which is the central square where you find the Gothic Neues Rathaus (town hall), and the famously popular Glockenspiel.



Viktualienmarkt in Munich - The Maypole at the right carries figurines displaying the trades and crafts of this part of Munich.

## Regensburg

Picturesque Regensburg is a city in south-east Germany and is the 4th largest city in the State of Bavaria after Munich, Nuremberg and Augsburg. In 2014, Regensburg was among the top sights and travel attractions in Germany. The medieval centre of the city is a UNESCO World Heritage Site. The stone bridge, built 1135-1146, is a highlight of medieval bridge building. The knights of the 2nd and 3rd crusade used it to cross the Danube on their way to the Holy Land.



When in Regensburg, a must try is this famous sandwich consisting of two pork sausages sandwiched between crispy white bread and with lots of sauerkraut. For 3 euros each, this is a delightful lunch snack.

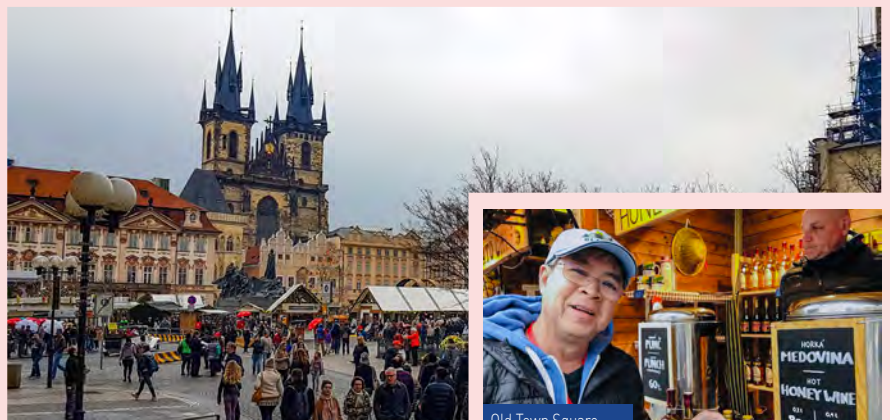


Quiet and serene Regensburg with its 13th century Cathedral in the background.

## Prague

Prague is the capital and largest city of the Czech Republic and sits along the Vltava River. It is the 5th most visited European city after London, Paris, Istanbul and Rome. Its Old Town Square, the heart of its historic core, is lined with many baroque buildings, Gothic churches and the famous medieval Astronomical Clock.

When in Prague, a must do is the night walking tour through the little streets around the Old Town Square, with all the buildings brightly lit up. You will end up crossing over the Vltava River on the pedestrian Charles Bridge, which is lined with many statues of Catholic saints. The bridge is also featured in the final scene of the spy movie xXx (Triple X) starring American actor Vin Diesel.



Old Town Square in Prague is surrounded by many small shopping streets. Wandering through these streets, one can easily lose track of time and get lost there.



Old Town Square in Prague. Anyone fancy a hot honey wine? ☺☺

## Budapest

Budapest, Hungary's capital, is divided into two parts; Buda which is hilly and houses the old buildings and Pest which is flat. The 19<sup>th</sup>-century Chain Bridge across the Danube River connects the two districts of Buda and Pest.

Trinity Square is home to 13th-century Matthias Church and the turrets of the Fishermen's Bastion, which offer sweeping views of the Pest area.

A highly recommended tour to take when visiting Budapest is the evening cruise along Danube River. With a sumptuous buffet spread of local Hungarian delicacies, the cool refreshing spring breeze and the sight of many beautiful lit buildings along the banks, this cruise ranks among the best in the world, in the opinion of tour guide Kevin.

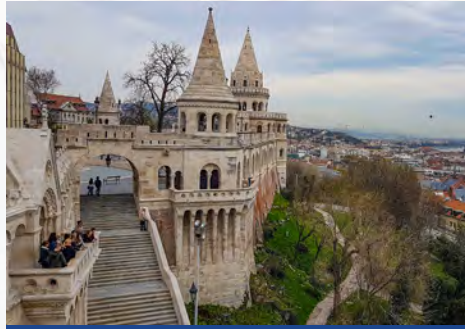
Budapest, as with Prague, has come a long way since the fall of communism in Eastern and Central Europe in November 1989. Both these cities have modernized and have many interesting places to visit. And the streets are surprisingly very clean.



The majestic Margaret Bridge in Budapest is one of the eight bridges spanning the Danube River connecting hilly Buda and flat Pest.



Beautifully lit buildings along the Danube River. One of the highlights of the tour is the splendid night River Cruise experience in Budapest, rated one of the best night cruises in Europe and in the world!



Good view of flat Pest from the Fishermen's Bastion at Trinity Square in Budapest.



Farmers' market in Budapest where one can find groceries and foods of all kind.

## Vienna

Vienna is the federal capital and largest city of Austria with a population of about 1.8 million and is Austria's cultural, economic, and political centre. It is the 7th-largest city by population within city limits in the European Union. Vienna is host to many major international organizations, including the United Nations and OPEC. In 2001, the city centre was designated a UNESCO World Heritage Site.



Heldenplatz (Heroes' Square) in Vienna. A good place to start the city walking tour. The premier walking and shopping street in the city of Vienna.



One for the ladies – the sexiest butt in Vienna.



The premier walking and shopping street in the city of Vienna.



The Bavarian Alps offering splendid panoramic views of the countryside of Austria.

## Salzburg

Salzburg is the 4<sup>th</sup> largest city in Austria. Its historic centre is internationally renowned for its baroque architecture and it is one of the best-preserved city centres north of the Alps. It was listed as a UNESCO World Heritage Site in 1997. Tourists also visit Salzburg to tour the nearby salt mines with the intention of buying salt rocks as souvenirs. The nearby beautiful snow-capped mountains of the Alpine Alps is also a must to visit.



Salzburg – here is the famous gazebo featured in the film *The Sound of Music*, where Liesl & Rolf sang *Sixteen Going on Seventeen*.

But many will know that Salzburg is famous as the location setting for the 1985 musical film *The Sound of Music*. Many of the scenes in the movie were shot in and around Salzburg, including the famous gazebo where the song in the film *Sixteen Going On Seventeen* was performed.

# Reflection on My Internship

Before the industrial attachment, while I had industrial visits to learn a little about the industry, I did not have the opportunity to actually be in the industry to work and learn outside of the classroom setting. I was very apprehensive at first, not knowing what an actual engineer's job would entail.



**Chua Ming Xuan**  
3<sup>rd</sup> Year Undergraduate  
National University of Singapore  
Chemical Engineering



On the first day in PCS, I was briefed on the various practices of the company, with strong emphasis on safety. Besides the safety briefings, I also attended the Apply Workplace Safety and Health in Process Plant (AWSHPP) course, which enabled me to understand the various hazards and protections required of personnel working in a chemical plant. All these briefings and trainings has been useful and allowed me to further contribute in upholding PCS strong safety record.

After the orientation, I was assigned to Technology and Optimization (T&O) in Olefin-II and mentored by Senior Engineer Kang Hui. I was taught on the various processes and operations of the No. 2 Ethylene Plant. For my project, I was tasked to generate possible optimization plans for the Ethylene Fractionation system. The journey was daunting to me because it was the first time I am



working on a project based on a real plant. To walk me through the project, my mentor started with the engineering fundamentals, such as mass balances and applying the distillation concepts from school, which reinforced the knowledge obtained from academics.

I also had the opportunity to learn the various engineering tools used in PCS, such as PCOS, PRO/II and Instrucalc. These tools would prove to be very useful for all future chemical engineers, and I am glad to have learnt it early during the attachment. Simulation was also a challenge to me, as it was

something I did not worked with before. However, my mentor taught me the basics and the important things to verify and look out for when using it for modelling, which eased the learning process. Obtaining results from simulation was not easy, but I am glad I did overcome this difficulty and obtained several results.

Besides the project, I also had the opportunity to do a couple of site visits and see the various operation units that I would not have exposure to otherwise. This allowed me to understand plant operation in greater detail, compared to just having pictures in textbooks. I also got to attend technical discussions, where the various engineering related discussions further enhanced my understanding of engineering in an actual plant.

I ended off my industrial attachment stint with a presentation on my project,

'Optimization Ideas for Ethylene Fractionator', to PCS management. The preparations leading up to the presentation has improved my communication skills, which is very important for the engineering profession, especially when trying to convey technical content to the audience. The various feedbacks from GMP and various managers has allowed me to gain clarity on what are the key considerations that engineers should focus on when conveying suggestions and recommendations to the management. These are communication skills that would greatly help during the remainder of my education and future career path.

My industrial attachment in PCS has been a fulfilling one, enlightening my understanding of the key roles and responsibilities of a chemical engineer. I am glad to have the opportunity to sit among the engineers and to interact and work with them during the course of the attachment. I would like to show my appreciation to PCS management for giving me the opportunity to join PCS for this Industrial Attachment, as well as to my mentor and office friends, whom I have gained countless invaluable knowledge that will definitely help in my future endeavors. All the best to everyone in PCS!

## Employee News

### births

NAME	FUNCTION	NEW BORN
Kew Jia Ming	Marketing & Sales	Boy
Muhd Haiqal b Masri	Olefin I	Boy
Teo Beng Yiang Benny	Olefin I	Boy
Chan Kah Wai	Olefin II	Twin Girls
Mohd Naim bin Mohd Wahid	Olefin II	Boy
Ho Jia Quan	Maintenance	Boy
Toh Jin Jin Colin	Maintenance	Girl

### NEW EMPLOYEES



**Mr Tan Lip Wee**  
Fire & Security Officer,  
Fire & Security  
Joined 1 August 2018  
Hobbies: Basketball,  
Soccer



**Mr Sufian bin Sulaiman**  
Leading Fireman,  
Fire & Security  
Joined 1 August 2018  
Hobbies: Soccer,  
Running



**Mr Nantha Kumar s/o Kumarasamy**  
Technician, Olefin I  
Joined 1 August 2018  
Hobbies: Soccer, Fishing



**Mr Tan Jia Jun**  
Technician, Olefin I  
Joined 1 August 2018  
Hobbies: Gym, Basketball



**Mr Muhammad Sufi bin Sukiantor**  
Technician, Olefin I  
Joined 3 September 2018  
Hobbies: Jogging



**Mr Toh Jin Jin Colin**  
Engineer, Maintenance  
Joined 3 September 2018  
Hobbies: Tennis,  
Swimming, Golf