

A Quarterly Publication By The Singapore Chemical Industry Council Limited

# ChemDIGEST

Jul-Sep 2018



2018 ASEAN Chemical Industry  
Regulatory Cooperation Workshop



Responsible Care & Sustainability



Jurong Island Vision Zero Cluster



**SCIC**  
SINGAPORE CHEMICAL  
INDUSTRY COUNCIL

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Dow Chemical Pacific (Singapore) Pte Ltd

#### Directors

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Air Liquide Singapore Pte Ltd

**Mr Henri Nejade**  
Brenntag Pte Ltd

**Mr Paul Fong**  
Dow Chemical Pacific (Singapore) Pte Ltd

**Mr Leaw Tiew San**  
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# Appreciation of Contributions Rendered to SCIC Chairperson – Ms Suiniaty Basirun

The Board and Secretariat Office of SCIC would like to extend our heartfelt appreciation to Ms Suiniaty Basirun of Dow Chemical Pacific (Singapore) Pte Ltd for her dedicated support and contributions to SCIC over the last 6 years. Her leadership as well as her provision of guidance and resources to the secretariat office during her tenure as SCIC chairperson in the last 2 years have been most exemplary.

Her ceaseless support and commitment were evident in her active involvements in dialogues and discussions with the statutory agencies on various initiatives and advocacy issues related to the overall development of industry.

SCIC extends its best wishes to Ms Basirun in her future endeavours and look forward to her continued support to SCIC in her capacity as an honorary chairperson for the next 2 years.



*Presentation of an token of appreciation to Ms Suiniaty Basirun by Mr Wim Roles, Chairman of SCIC*

## New Members to SCIC Board of Directors

SCIC would like to extend a warm welcome to the following Directors to the Board of SCIC:



**Mr Ng Boon Hai**  
Managing Director  
Air Liquide Singapore Pte Ltd



**Mr Henri Nejade**  
President & CEO Asia Pacific  
Brenntag Pte Ltd



**Mr Paul Fong**  
Country Manager,  
Singapore & Malaysia  
Dow Chemical Pacific  
(Singapore) Pte Ltd



**Mr Andreas Krobjilowski**  
General Manager  
Shell Jurong Island



# Welcome New Committee Member

SCIC would like to extend a warm welcome to the following member of:

## Responsible Care Committee

**Mr Er David Kan**

Engineering Specialist (Process Safety and Regulatory Compliance) Infineum Singapore Pte Ltd

# Appreciation to Committee Member

SCIC would like to express its thanks to the following committee member for his contributions to SCIC during his tenure as a member of the following committee:

## Responsible Care Committee

**Mr Kalaivanan Krishnan**

Infineum Singapore Pte Ltd



**AT THE FOREFRONT OF THE PETROCHEMICAL INDUSTRY TODAY, AND THE FUTURE**



**Care for the Health, Safety and Environment. Share with our Community**



**Petrochemical Corporation of Singapore (Private) Limited**

100 Ayer Merbau Road, Singapore 628277 Tel: (65) 6867 2000 Fax: (65) 6867 9274  
Email: pcsapr@pcs-chem.com.sg Web: www.pcs.com.sg

# Seminar on Tank Management

As part of industry capability building, the SCIC's Process and Engineering Committee organised the Seminar on Tank Management on 18 September 2018. The seminar was well attended by 50 participants from refineries, oil storage facilities and petrochemical companies.

Invited speakers from Singapore Civil Defence Force shared the key requirements for fire safety of storage tank and emergency response to storage tank incidents.

The participants gained insights on the good practices of tank design, operation, inspection and maintenance as well as lightning protection for tank. The seminar included an interactive case study discussion which gave the participants the opportunity to share their thoughts on improvement of current tank management practices.





# SCIC-ASPRI Golf Tournament



The Singapore Chemical Industry Council (SCIC) and the Association of Process Industry (ASPRI) came together this year to co-organize the inaugural SCIC-ASPRI Golf Challenge and Networking Session 2018 on 7 September 2018. The event which took place at the Warren Golf & Country Club saw a mix of golfers from the both the chemical and process industry as well as government agencies. The golfers came together for a friendly round of putting against one another on the golf course despite the downpour on the day.

The 25 flights of participants were later treated to a networking dinner and a series of lucky draw prizes at Warren's Tee Garden. The event also provided an excellent opportunity for both SCIC and ASPRI members to get better acquainted with one another.

SCIC would like to thank ASPRI for proudly co-organizing this event and sponsors Air Liquide Singapore Pte Ltd and Pride-Chem Industries Pt Ltd for their generous support in making this event a success.





# Asia Petrochemical Industry Conference (APIC 2018, Kuala Lumpur, Malaysia)

The Asia Petrochemical Industry Conference (APIC) 2018 hosted by the Malaysian Petrochemicals Association (MPA) was held from 20-21 August in Kuala Lumpur, Malaysia.

APIC 2018 set a new record with 2,111 participants attending the conference. Out of which, more than 150 participants were from Singapore. The conference had been able to provide valuable and practical discussions as well as to develop mutual friendships and professional network all over the world.

Presentations given during the first day of the conference by IHS Markit, Nexant, Argus and Tecnon OrbiChem provided an update in conjunction with the APIC theme “Creating Value through Collaboration”.

As of the APIC tradition, the second day of conference opened with the Chairmen of the seven steering committee associations giving their opening addresses. This year



*Dr Ong Kian Ming, Deputy Minister, of International Trade & Industry, Malaysia gracing the APIC 2018*



*Mr Wim Roels, Chairman of SCIC giving an opening speech on Day 2*

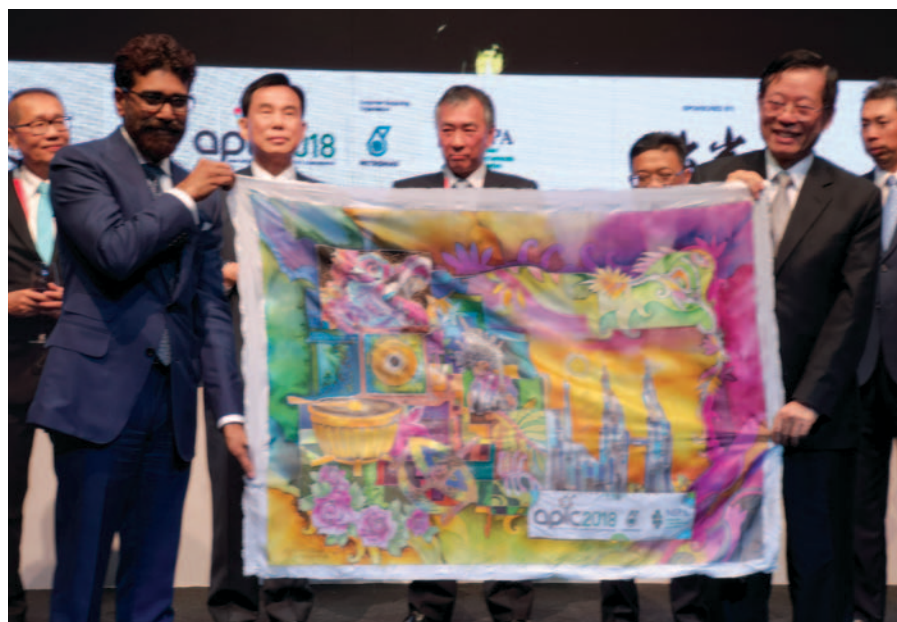
the event was graced by Dr Ong Kian Ming, Deputy Minister, of International Trade & Industry, Malaysia and Special Address by YBHG Tan Sri Wan Zulkiflee Wan Ariffin – President & Group CEO, Petronas. Below were the following sessions of the event:

- > Executive Forum Session: Creating Value Through Collaboration
- > Presentation By Mida – Gateway For Investment In The Petrochemical Industry

8 Breakout sessions were also conducted for interested participants from the various sub-sectors:

- General Matters and Raw Materials
- Polyolefins
- Styrenics
- PVC
- Synthetic Rubber
- Synthetic Fiber Raw Materials
- Chemicals
- Environmental Issues

The conference ended with a farewell party and with the tradition of APIC, the host of 2019 was announced during the party. Taiwan would be the proud host of the conference next year with the event.



*Mr Akbar Md Thayoob, President of MPA presenting hand drawn Batik painting to next APIC hosting Mr Lin Fu-Shen, Chairman of PIAT*



# Manufacturing Excellence – Maintenance and Reliability and Asset Management

Building on a similar mission of “promoting, actively collaborating and sharing of good practices for the industry to improve business outcomes” DuPont Sustainable Solutions (DSS) and SCIC conceptualized and organized an industry event on 9 July 2018 around the theme of “Manufacturing Excellence – Maintenance and Reliability and Asset Management”.



The main intent of these events was to trigger a dialogue and call to action through peer discussions, industry collaboration and creating an ecosystem for change. The topics and theme for these events focused



on relevant industry trends and needs being faced. The format of the event was a half-day session that focused on DuPont’s owner operator experience sharing on our Maintenance and Reliability (M&R) framework, followed by hands-on workshop activity “Frame-build exercise” to highlight the importance of optimization of resources for M&R strategy.

The feedback from the participants was resounding, they truly appreciated the

practical implementation sharing by DuPont, the opportunity to network with other industry organizations around challenges being faced (e.g. consistent implementation and sustainability) and hands-on event activity to take back and share with their organization. DSS and SCIC aim to foster this collaboration in 2019 and beyond and await to welcome you to our next event.

Contributed By: Deepti Rajendran Venkateswar, Dupont Singapore

# Accelerating Transformation through Innovation Management

Building on a similar mission of “promoting, actively collaborating and sharing of good practices for the industry to improve business outcomes” DuPont Sustainable Solutions (DSS) and SCIC conceptualized and organized an industry event on 24 September 2018 around the theme of “Accelerating Transformation through Innovation Management”.



The main intent of these events was to trigger a dialogue and call to action through peer discussions, industry collaboration and creating an ecosystem for change. The topics and theme for these events focused on relevant industry trends and needs being faced. The format of the event was a half-day session that focused on DuPont’s owner operator experience sharing on our innovation management framework, followed by hands-on workshop activity “Ideation session” to highlight the importance of cross-discipline collaboration for business growth.

The feedback from the participants was resounding, they truly appreciated the practical implementation sharing by DuPont, the opportunity to network with other industry organizations around challenges

being faced (e.g. consistent implementation and sustainability) and hands-on event activity to take back and share with their organization. DSS and SCIC aim to foster this collaboration in 2019 and beyond and await to welcome you to our next event.



Contributed By: Deepti Rajendran Venkateswar, Dupont Singapore



# 2018 ASEAN Chemical Industry Regulatory Cooperation Workshop



47 representatives from industry associations and key government authorities from 10 ASEAN member states (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam)

As part of a joint initiative from American Chemistry Council (ACC), the Japan Chemical Industry Association (JCIA) and Singapore Chemical Industry Council (SCIC) to advance chemical regulatory cooperation in the ASEAN region, the fourth ASEAN Regulatory Cooperation Project (ARCP) Workshop, was held in Philippines on 17 to 18 July 2018.

In the spirit of the ASEAN Economic Community (AEC), this project promotes the use of good regulatory practices to help establish regulatory environments that encourages free and open trade and investment while protecting human health and the environment.

The workshop focused on two key components which were identified as high priority items in the 2<sup>nd</sup> ARCP Workshop in Malaysia:

- Alignment of Globally Harmonised System (GHS) and Chemical Inventory Requirements in ASEAN
- Capacity building through learning and sharing session on GHS and Chemical Inventory

The Department of Trade and Industry in Philippines provided an overview of the ASEAN Economic Community and the importance

of the chemical sector in the economic development within ASEAN. The representatives from various ASEAN member states provided an update on their national policies and emerging regulations.

The Capacity Building session was focused on the learning and sharing of GHS and the chemical inventory. For the session on GHS, the speakers provided recommendations for GHS cut-off limits, building blocks and explained the difference in various GHS versions. For chemical inventory, the speakers kickstart the session with a global overview of chemical management followed by the protection of confidential business information and substance identity. The aim of the capacity building session is to enhance the understanding of the participants on GHS and chemical inventory in preparation for the respective breakout sessions.

The **Virtual Working Group (VWG) on GHS Alignment** discussed the following focus areas:

- UN purple book comparison
- SDS/Overall landscape
- Labelling
- Building blocks and cut-off



Some recommendations on the overall direction of GHS alignment efforts which was derived from the discussion during the workshop included:

- Adoption on UN GHS Ver 7 (2017)
- Consideration on One building block for One nation
- Prioritization of sectors for implementation with reasonable transition period
- Phases approaches
- Promotion of inter-agency dialogue
- Capacity building efforts for regulators and industries
- Regular and targeted training for users
- Formation of National Taskforce encompassing of leading agencies and relevant stakeholders
- Setting the implementation hierarchy
- Availability of hazardous chemicals list for substances and mixtures in accordance to GHS classification.
- Availability of GHS hazard communication (SDS/labels) for hazardous chemicals
- Review & Update of hazard classification & communication
- Container/packaging requirements



*Team members who have participated in the GHS Alignment VWG discussion.*

The **Virtual Working Group (VWG) on Chemical Inventory** prepared and discussed the technical document on the key elements of developing a chemical inventory. The scope and definitions, substance identity, CBI and Polymers were discussed. The Co-Chair also introduced the following topics for discussion: Regulatory impact, data requirements and mutual recognition. Sub-groups would be formed after the workshop to develop the respective section.

Overall, it was a successful workshop with 47 participants from the 10 ASEAN member states attending the workshop. Positive feedback was received from the participants and there were requests for three-day workshop as the discussion was very fruitful and there was insufficient time to complete the discussion.

The next workshop is planned on 6 – 8 November 2018 and the location would be in Jakarta, Indonesia. The 10 ASEAN member states would be invited and an additional day for risk assessment workshop is planned. The team hope to continue

collaboration between regulators and industry representatives on the development of regulations in a structured and coordinated manner for better regulatory coherence to ultimately achieve sound chemical management in ASEAN region.

More information on the ASEAN Regulatory Cooperation Project can be found on SCIC's website: <http://www.scic.sg/asean/>



*Virtual Working Group on Chemical Inventory Breakout Discussion*



# CCPS Asia Pacific Regional Technical Steering Committee Meeting

The Center for Chemical Process Safety (CCPS) held its Asia Pacific Regional Technical Steering Committee (TSC) Meeting at Singapore, on Tuesday, 2 October 2018 at Carlton Hotel, Singapore.

At such TSC meetings, CCPS pursues the following objectives to support its members in the best way:

- To share the knowledge and experience among CCPS member companies
- To provide updates on CCPS activities in the region and worldwide
- To collect inputs and feedback from member companies on future course of action in Asia Pacific region
- To trigger new Process Safety Management (PSM) initiatives in the Asia Pacific region
- To collect inputs on future CCPS meetings and conferences, conduct of CCPS public training programmes and workshops to be held in the region



The meeting was sponsored by CCPS member company, Petrochemical Corporation of Singapore (Private) Limited, PCS, and the Singapore Chemical Industry Council Limited (SCIC). This collaboration between SCIC and CCPS was one of the basis points under the Memorandum of Understanding (MoU) signed between SCIC and CCPS on 1 July 2017.

The high level MoU established a strategic collaboration between SCIC and CCPS, among the objectives:

- Technology transfer and sharing through Short Courses, Certificate and Train-the-Trainers Programme
- Joint services on short courses, hands-on training, incident investigation, Process Safety tools development, etc
- Joint event hosting and assistance for scientific forums, conferences, workshops, etc
- Joint publicity and marketing through news releases, advertising, websites, etc
- Exchange of information, including scientific and scholarly publications, reference materials, etc



The TSC meeting was facilitated by CCPS Executive Director, Mr Shakeel Kadri, with the opening remarks by Er Lucas Ng HK, General Manager of Plant, PCS. Lucas noted great process safety performance can be achieved through many organisations working together to advance process safety around the world, with CCPS as one such unique organisation that brings together manufacturers, government agencies, consultants, academia and insurers to lead the way in improving process safety. He shared that PCS has engaged CCPS in conducting in-house custom training for their core staff, Process Safety Boot Camp, annually, for the past five years, and are now working with CCPS for a custom refresher course, on the 20 elements of RBPS, and recent case studies and lessons learnt. Further, he enthused that he is an advocate of open sharing of programmes, practices, and incidents as he feels that in learning from an internal incident, we can only see from a single perspective, whereas if that incident is shared and discussed, there could be alternative views or measures that were not initially apparent from within.



The inaugural address for this meeting was by Mr Terence Koh, Executive Director, SCIC. Terence was more than happy to see the response to the meeting, exceeding initial estimates, which further underlines the importance placed on process safety. He saw this as an opportunity to share and learn from each other how we can further secure the safety of our processes as well as safety and health of our workforce. He also spoke on areas where he sees potential collaboration with CCPS in levelling up, especially on the fundamentals of process safety management.





Incidentally, a separate MoU was signed between SCIC and CCPS on 1 October 2018, to jointly organise the “5<sup>th</sup> CCPS Global Summit on Process Safety” to be held in Singapore on 22 and 23 October 2019.

The TSC meeting focused on lessons learnt from recent past incidents related to Process Safety. Speakers from leading companies from Asia Pacific region shared their experiences and views.

- Ms Sulo Belawan, General Manager, Process Safety, Petronas, presented “Adapting and Applying Process Safety Management in Fuel/NGV Retails Station”
- Mr Bala Raman, Regional Process Safety Manager-Asia Pacific Ecolab Ltd., shared “Our Process Safety Metrics and the learning journey”
- Mr Haris Farooqi, Asia Global Operations Director, Air Products Singapore, shared their experience on “O2 related accidents/incidents in gas industry”
- Ms Annie Nguyen, Director, PSRG Asia Pacific Pte. Ltd., shared their information researched on “Global Process Safety Regulation with Incidents and Lesson Learned (US, UK, China, India and Singapore)”

Post-lunch session started with a facilitated workshop by Mr Palaniappan Chidambaram, Principal Operations Risk Management Practice, DuPont Sustainable Solutions, with a short interactive session on “Perspective on Operational Risk Management and dive into specific of certain aspects”. This was then followed by Mr Sudhakar Kabirdoss, Global Process Safety Senior Engineer, Micron Technology Inc., on “Big Data Analytics in Process Safety Management”.



The final session was shared by Er Bernard Leong LW, HSE Manager, PCS, on “Six Senses for Process Safety”.

With the meeting coming to a close at the end of a warm exchange and informative day, a thank you note and closing were jointly done by Er. Lucas Ng HK of PCS and Mr. Shakeel Kadri of CCPS.

The meeting was very well attended by over 65 delegates from over eight countries of the Asia Pacific Region. It was a diverse group of industry delegates participating including Berkshire Hathaway Specialty Insurance, IRESC, JXTG Nippon Oil & Energy, Mitsubishi Chemical, Mitsui Chemicals, Nghi Son Refinery & Petrochemical, PTT Energy, and many others too long to mention. There were an interesting mix of Chemical, Petrochemical, Energy, Insurance and Consultant companies.

The feedback from attendees was positive and encouraging to have such meetings in Singapore on a frequent basis. There were ample networking opportunities during coffee breaks and lunch.

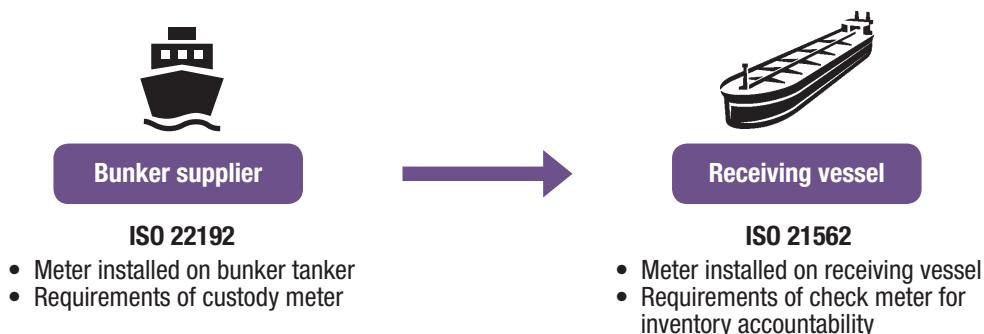


Photographs of the meeting can be viewed at <https://scicccps.shutterfly.com> while event information can be accessed at <https://www.aiche.org/ccps/resources/conferences/events/ccps-tsc-meeting/2018-10-02>



# Contribution of Singapore's experience in bunker mass flow metering (TR 48) to the global maritime and bunkering community through development of ISO Standards

Enhance trust, transparency and productivity in bunker transactions

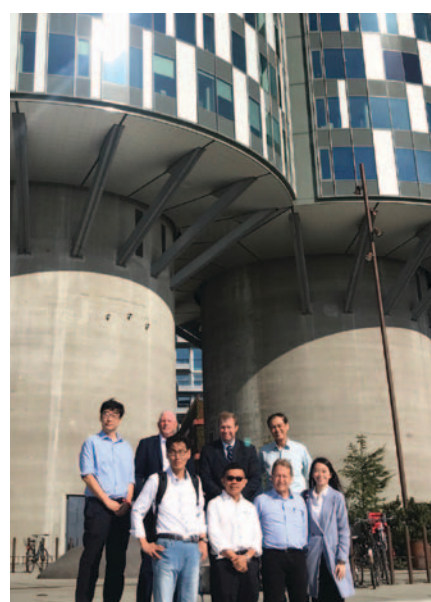


	ISO 22192 Bunkering of marine fuel using the Coriolis mass flow meter (MFM) system	ISO 21562 Bunker fuel mass flow meters – Requirements
ISO Committee	ISO/TC 28/SC 2/WG 13 Measurement of petroleum and related products – Bulk transfer accountability	ISO/TC 8/SC 3 Ships and marine technology – Piping and Machinery
Scope of Standard	<ul style="list-style-type: none"> <li>Covers process leading to approval of MFM system installed on bunker tankers and post-approval bunkering operation</li> <li>Covers terminology, specifications, requirements and procedures on metrology, system integrity, metering system selection and installation, acceptance test, bunker delivery and dispute handling</li> </ul>	<ul style="list-style-type: none"> <li>Requirements for the design and testing of mass flow meters to be installed on and used by ships for accurate measurement of bunker fuels received.</li> <li>Does not cover mass flow meters for custody transfer</li> </ul>

The above two ISO standards projects are being developed with the leadership from Singapore and the expertise from other member countries. In September 2018, the Singapore Delegation Team attended the 3<sup>rd</sup> ISO 21562 meeting and the 2<sup>nd</sup> ISO 22192 meeting held in Copenhagen and Philadelphia respectively.



ISO 22192 Members – 2<sup>nd</sup> meeting held in Philadelphia, 24 to 25 September 2018



ISO 21562 Members – 3<sup>rd</sup> meeting held in Copenhagen, 18 to 19 September 2018



# Young Professional Standards Awareness Workshop – Unleash your potential: “Shaping the future chemical industry through standards”

A Young Professional Standards Awareness Workshop was held on 24 August 2018 to create awareness of the standardisation work under the Chemical Standards Committee to the Young Professionals. The workshop attracted about 36 participants from 10 enterprises.

The workshop provided a general overview of Chemical Standards Committee and its areas of interest. A presentation on Introduction to the Singapore Standardisation Programme & National Young Professional Programme was also shared where attendees gained knowledge on how Singapore Standards are developed and possible ways which the Young Professionals can play a role, in the transformation of the industry and bring about innovation and advancement of the chemical and related industries.

The workshop also showcased insights



*Young Professionals who attended the workshop on 24 August 2018*

from the perspectives of the regulator and industry on the importance of voluntary and mandatory standards and how they impact the chemical industry in the aspect of health and safety.

Industry speakers from TÜV SÜD PSB, NUS Centre for Advanced 2D Materials,

and Metcore International also shared on the key elements of Testing, Inspection and Certifications services, how standards support the commercialisation of research and development and ways the industry can create new market opportunities by leveraging on international standardisation to access overseas markets respectively.



*Invited speakers for the Young Professional Awareness Workshop held on 24 August 2018*



# Briefing Session on Responsible Care Security Code



As part of our efforts to help signatory companies in Singapore to be prepared for their Security code submission starting from the submission cycle in 2019, two briefing sessions on the interpretation of the implementation guiding principles in the Security code have been organised by the SCIC Responsible Care Committee on 20 July and 5 September.

Since the incorporation of the 7<sup>th</sup> code on Security into Singapore's Responsible Care programme last year, a set of self-evaluation guidelines on security practices has been developed. These fit-for-purpose guidelines aim to encourage companies to achieve continuous improvements in security performances through a risk-based approach.

More briefing sessions will be planned in 2019 to help signatory companies build capability, including training on performing security risk assessment.

For more information on the Responsible Care's security code, please contact the RC co-ordinator [agmerlee@scic.sg](mailto:agmerlee@scic.sg).

- 
- 1 Leadership commitment
  - 2 Risk Analysis
  - 3 Implementation of Security Measures
  - 4 Training, Guidance and Information
  - 5 Communication, Dialogue and Information Exchange
  - 6 Response to Security Threats and Incidents
  - 7 Audits, Verification and Continuous Improvement
  - 8 Information Security





# Responsible Care & Sustainability



The International Council of Chemical Associations (ICCA) Board has approved the formation of a cross-Leadership Groups Taskforce – the ICCA Sustainability Task Force to take lead in the development of an ICCA strategy and position for sustainability. The connection of

Responsible Care and sound chemicals management will set the foundation for the global chemical industry's contributions to sustainability.

The Sustainability Task Force will coordinate an ICCA inventory, positioning, strategy and communications plan for sustainability-related issues. Through the Responsible

Care Leadership Group (RCLG), the Task Force will also oversee the development and implementation of the Responsible Care Maturity Model. It is aimed at harmonizing a global view of Responsible Care vis-à-vis sustainability which is a unifying effort as regions progress toward greater Responsible Care and sustainability convergence.

The Responsible Care Leadership Group is part of the International Council of Chemical Associations (ICCA), which is the world-wide voice of the chemical industry, representing chemical manufacturers and producers all over the world, to lead and oversee the implementation and promotion of the Responsible Care programme globally.

For more information on the ICCA and Responsible Care, please visit [www.icca-chem.org](http://www.icca-chem.org)

## LET'S USE THE POWER OF IDEAS TO CHANGE THE GAME.

A new type of floodlit pitch is having a positive impact on the people of a Brazilian favela. How it's powered could help generate renewable energy elsewhere. Laurence Kemball-Cook, a winner of Shell's LiveWIRE scheme, developed technology that creates power from a combination of kinetic energy from the players' footsteps and solar power. We believe today's ingenuity could answer tomorrow's energy challenges. Search #makethefuture on Google.





# Singapore launches the Networked Trade Platform to digitalise and streamline end-to-end trade processes

Traders, logistics service providers, carriers and banks can now look forward to a new one-stop trade platform that will serve as the trade info ecosystem to help digitalise and streamline their trade processes. The Networked Trade Platform (NTP) will connect players in the trade value chain in Singapore and onward to their counterparts abroad.

It aims to provide the foundation for Singapore to be a leading trade, supply chain and trade financing hub.

Minister for Finance, Mr Heng Swee Keat, launched the platform on 26 September 2018 at an event attended by close to 700 representatives from the trade, logistics, trade finance industries, and the Government sector.

“NTP is a transformational platform, which will take us from a traditional national single window which gives traders a one-stop interface for all trade related regulatory transactions, to a one-stop interface that will enable them to interact with all business partners, stakeholders and regulators on trade related transactions,” said Mr Heng in his keynote speech at the Official Launch of NTP. “This will help companies raise productivity, boost competitiveness, and uncover new opportunities.”

By bringing players across the trade value chain onto a single platform, the NTP enables end-to-end digital trade. Traders can tap on a range of trade-related value-added services (VAS) such as cargo freight booking, trade financing, cargo insurance, customs declarations and payment reconciliation. These services will allow them to arrange shipments easily, improve cash flow, and better manage trade compliance, all on one platform.

Besides linking “digital islands”, the NTP also aims to help traders achieve greater



*Minister for Finance, Mr Heng Swee Keat, launched the Networked Trade Platform – a new one-stop trade platform that will help to digitalise and streamline trade processes – on 26 September 2018.*

operational efficiency through digitalisation. One such way is through the sharing of key digital documents, such as, invoices and permits, to facilitate the application for trade financing and cargo insurance. By going completely paperless in their trade transactions, it helps traders save time and cost and improve data accuracy.

Trade is by nature cross-border, and the NTP serves as a key node for digital trade connectivity to rest of the world. Several initiatives are underway to strengthen trade linkages of the NTP internationally. For instance, Singapore Customs is in discussion with China Customs to link up our single window systems to facilitate trade declarations and smoothen trade flow for businesses, and the Customs Administration of the Netherlands to explore ways to achieve greater connectivity in trade regulatory processes by leveraging on technology. Besides collaboration on the government-to-government front, the NTP is also in collaboration with MUFG Bank and NTT Data Corporation on a Proof-of-Concept platform using blockchain technology with

the NTP, to facilitate secure and efficient crossborder trade data flows.

Mr Heng said that going forward, we must work towards greater connectivity, especially with our trading partners around the world. Our vision is for this to be a truly global network, so that all parties can work together to facilitate trade.

During the launch event, Mr Heng also presented certificates to three NTP working groups and 34 VAS providers for their support for the NTP. The working groups, which comprise representatives from government agencies and companies, lent their expertise to the NTP in areas such as understanding the challenges associated with the Electronic Bill of Lading and the factors required for mass adoption, identifying process improvements on Goods and Services Tax reconciliation, and identifying areas for innovation in trade finance.

Mr Heng also visited the exhibition of the VAS providers set up at the launch event, where he was briefed on the services they are offering on the NTP. To date, close to 800 companies from various industries including wholesale trade and logistics, have signed up as NTP users.

The NTP is developed by Singapore Customs and the Government Technology Agency of Singapore (GovTech), with the support of over 20 other ministries, government agencies and working groups.

Singapore Customs will continue to work closely with the industry and government agencies to grow the network of partners on the NTP ecosystem, to provide further opportunities for businesses and to ensure that Singapore remains competitive in the fast-changing global economy.

Source: Singapore Customs



# Jurong Island Vision Zero Cluster



The Jurong Island Vision Zero Cluster is an initiative by the WSH Council, supported by the Ministry of Manpower, Singapore Chemical Industry Council, Association of Process Industry, and United Workers of Petroleum Industry. Through this, we hope to build a strong safety and health culture within Jurong Island, where there is a unified belief that all injuries and ill-health at work can be prevented.

It is envisioned that every company and every worker in Jurong Island embrace the same mind-set; that all work-related injuries and ill-health can be prevented. To achieve this vision, it is important for companies to demonstrate care for their workers' safety, health and wellbeing. In return, employees would trust employers to have their best interests and to look out for them. The Vision Zero Movement on Jurong Island is led by a group of WSH

Champions who have stepped forward to proactively advocate safety and health at work on Jurong Island.

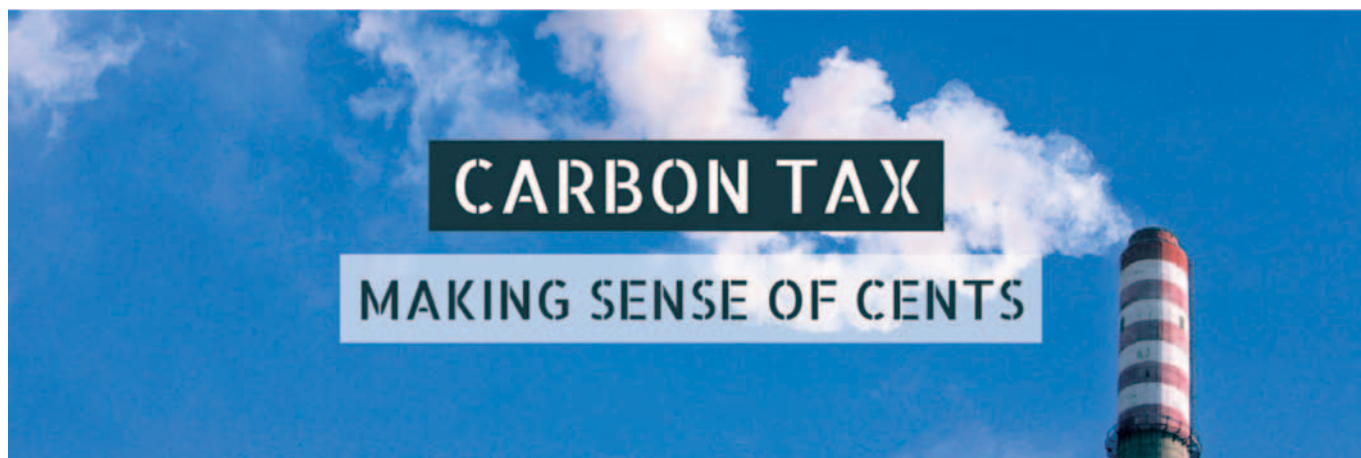
Having a culture of care, trust and prevention is key to fostering a zero-harm work environment. In this Jurong Island Vision Zero cluster, companies can exchange WSH best practices with each other, and collaboratively raise WSH standards on Jurong Island. These efforts taken in building a robust culture will only further reinforce employee confidence.

Visit the website [www.wshc.sg/jurongislandvisionzero](http://www.wshc.sg/jurongislandvisionzero) for more info.

Source: Workplace Safety and Health Council



# What does Carbon Tax in Singapore mean to you?



It was announced during Budget 2018 that all facilities producing 25,000 tonnes or more of Green House Gas (GHG) emissions in a year will have to pay a carbon tax from 2020. The carbon tax will initially be \$5 per tonne of greenhouse gas emissions from 2019 to 2023. However, the Government will review the carbon tax rate by 2023, with plans to increase it to between \$10 and \$15 per tonne of emissions by 2030.

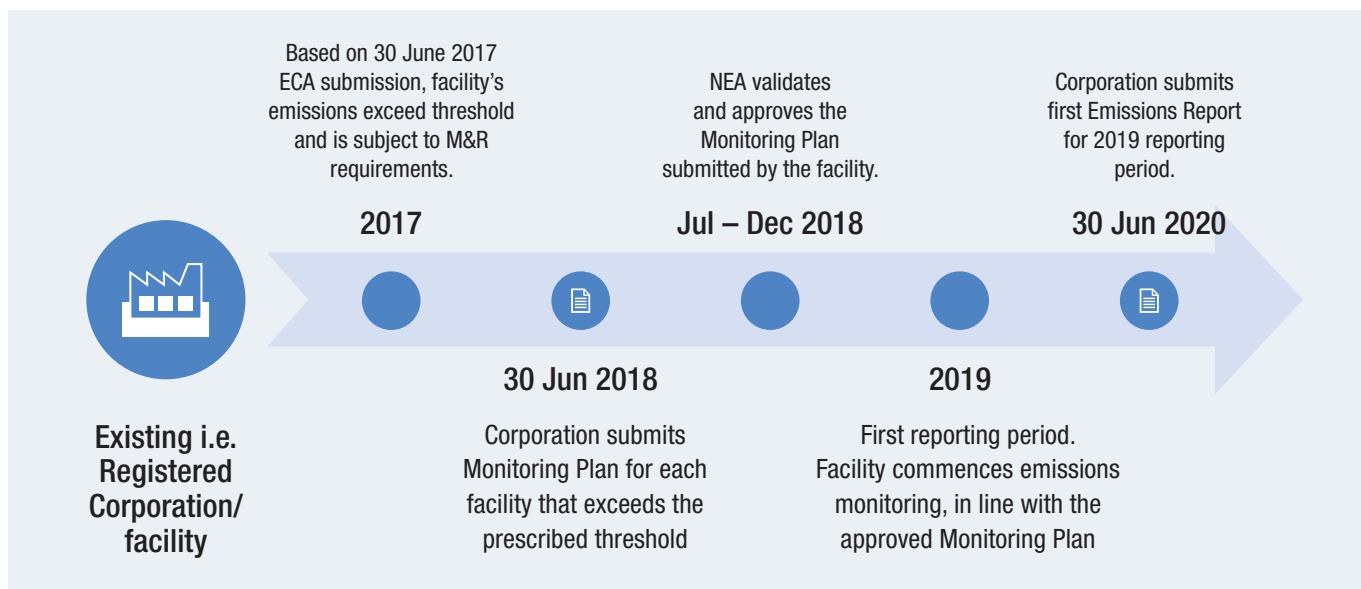
The carbon tax is part of a suite of measures that will help Singapore meet its commitments under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) where Singapore has pledged to reduce its emissions intensity (GHG emissions per dollar of Gross Domestic Product (GDP)) by 36% from 2005 levels by 2030, and to stabilise our emissions with the aim of peaking around 2030. The Paris Agreement entered into force in November 2016.

The Energy Conservation Act (ECA) was gazetted in April 2013

which requires companies to register with the National Environment Agency (NEA) as a registrable corporation upon meeting certain qualifications and to implement mandatory energy management practices. These practices include:

- 1) Appointment of an Energy Manager
- 2) Periodic reporting of energy use covering each business activity under operational control of the registered corporation
- 3) Periodic submission of an energy efficiency improvement plan which covers a period of not less than 1 year and not more than 5 years.

The ECA was enhanced in 2017 to strengthen the measurement and reporting (M&R) requirements for GHG emissions. The M&R requirements aim to improve the accuracy and rigour of GHG emissions data, in order to improve the credibility of GHG data reported to the UNFCCC.





## Requirements under Carbon Pricing Bill

Reportable Facilities	Taxable Facilities
Equal to or more than 2,000 tonnes of carbon dioxide-equivalent (tCO <sub>2</sub> e) of GHG emissions in the preceding calendar year	Equal to or more than 25,000 tCO <sub>2</sub> e of GHG emissions in the preceding calendar year.
Register as a reportable facility by 30 June 2018	Register as a taxable facility by 30 June 2018
Monitor their GHG emissions	Submit a monitoring plan (for the monitoring and reporting of greenhouse gas emissions) that has been prepared in accordance with guidelines for NEA's approval by 31 December  Monitor their GHG emissions based on the approved monitoring plan
No requirement for emissions report submission	Submit a verifiable emissions report for the preceding year that is prepared in accordance with the approved monitoring plan and that has been independently verified by a qualified third-party verifier, by 30 June every year; and
No requirement for carbon tax payment	Pay the carbon tax for the preceding year's emissions by 30 September every year.

The Monitoring Plan identifies and describes the facility's GHG emission sources and streams, emissions quantification methods, alternative methods, quality management procedures and uncertainty. The Monitoring Plan submission includes the Monitoring Plan Template ('MP Template') and the necessary supporting documents. The facility is required to use the MP Template provided by National Environment Agency (NEA) which can be downloaded online from the Emissions Data Monitoring and Analysis (EDMA) system. The Monitoring Plan submission will need to be uploaded via the EDMA system and approved by NEA before the start of the first reporting period.

The Emissions Report for each reporting period contains information on the facility's activity data, computation for each direct GHG emissions, and the total direct GHG emissions. The Emissions Report is prepared based on the approved Monitoring Plan and uses the Emissions Report User-Interface (UI) provided online by NEA in the (EDMA) system. This Emissions Report UI builds on the forms and templates used for energy use reporting and IPPU (Industrial Processes and Product Use) emissions reporting under the ECA prior to the implementation of the GHG Measurement & Reporting (M&R) Regulations.

An effective Quality Management Framework (QMF) is crucial in ensuring data quality. Under the GHG M&R Regulations, the facility is required to develop, document, implement and maintain an

appropriate QMF for the collection, computation, and reporting of GHG emissions data. Systematic biases or errors are assumed to be eliminated given the requirement for the facility to implement a QMF.

The various inventory development stages are defined below which will consist of the various QMF elements.

- 1) Inventory preparation and management
- 2) Data gathering, input and handling
- 3) Data documentation, reporting and review

Resources are available to assist companies in the area of energy efficiency. An example is the Energy Efficient Singapore website (<http://www.e2singapore.gov.sg/default.aspx>) which is an initiative of the Energy Efficiency Programme Office (E2PO). The E2PO is a multi-agency committee that jointly promotes and facilitates the adoption of energy efficiency in Singapore led by the Energy Market Authority (EMA) and NEA.

The Energy Efficient Singapore website has a section dedicated to industries which contains links to documents and videos which provide insights into what the general industry is doing to improve energy efficiency such as best practice guides, assessment frameworks etc. Information on programmes and incentive schemes to help companies in this area are also readily accessible from the same website.

*Reference: GHG Measurement and Reporting Guidelines Parts I and II (ver 29 Dec 2017)*

Contributed by: SCIC P&E (Process & Engineering) Committee



# Forthcoming Events

## October – November 2018

- |                                |  |
|--------------------------------|--|
| <b>16 Oct</b>                  | SCIC Sharing Forum - Industrial 4.0 Revolution<br>– What in it for the Energy & Chemicals Industry?  |
| <b>18 Oct</b>                  | IGAS 2018 – Flammable Gas Cylinder Safety Seminar Series 2018  |
| <b>22 Oct</b>                  | Training Workshop on Globally Harmonised System (GHS)<br>for Chemical users                          |
| <b>23-24 Oct &amp; 7-8 Nov</b> | SCIC Safety Case Practitioners Workshop  |
| <b>25 Oct</b>                  | SCIC-Energy Institute and Shell Joint Collaboration<br>Human Factors Competency Development Workshop |
| <b>30-31 Oct</b>               | SCIC Training Course on “Regulatory, Technical<br>& Safety Requirement of ISO Tank Containers”       |
| <b>1 Nov</b>                   | SCIC Joint-Agencies (MOM, NEA & SCDF) Dialogue Session 2018<br>– <b>For SCIC Members only</b>        |
| <b>7-8 Nov</b>                 | SCIC-GHS Classification and Labelling of Chemicals   |
| <b>23 Nov</b>                  | SCIC-Annual Cocktail and Networking session 2018<br>– <b>For SCIC Members only</b>                   |

*Note: SCIC may change/amend the events listed above without any prior notice.*

For more information on the dates of these training courses, you may visit our website at [www.scic.sg](http://www.scic.sg) or contact [SCIC secretariat@scic.sg](mailto:SCIC_secretariat@scic.sg)

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