



Review of HSE Performance for 2018

Er. Ng Chai Ling

Manager, Production Planning & Coordination

Annual PCS-Contractors HSE Meeting 2019

21 January 2019



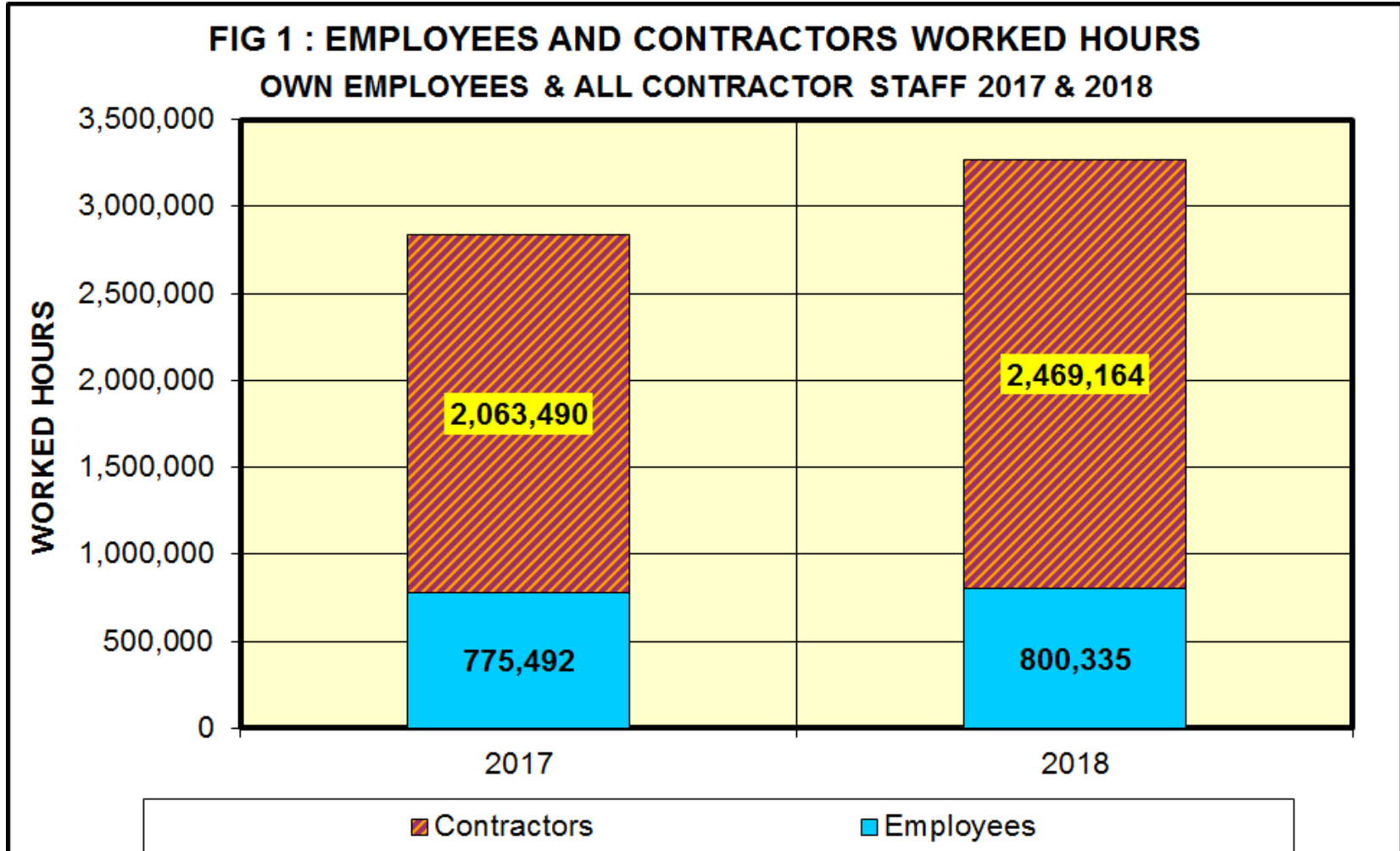
Review of HSE Performance



- 1 Safety & Environment Performance in 2018
- 2 Behavioural Based Safety (BBS) Activities
- 3 Safety Performance Awards 2018
- 4 WSHC bizSAFE Programme
- 5 HSE Achievements in 2018
- 6 Targets for 2019

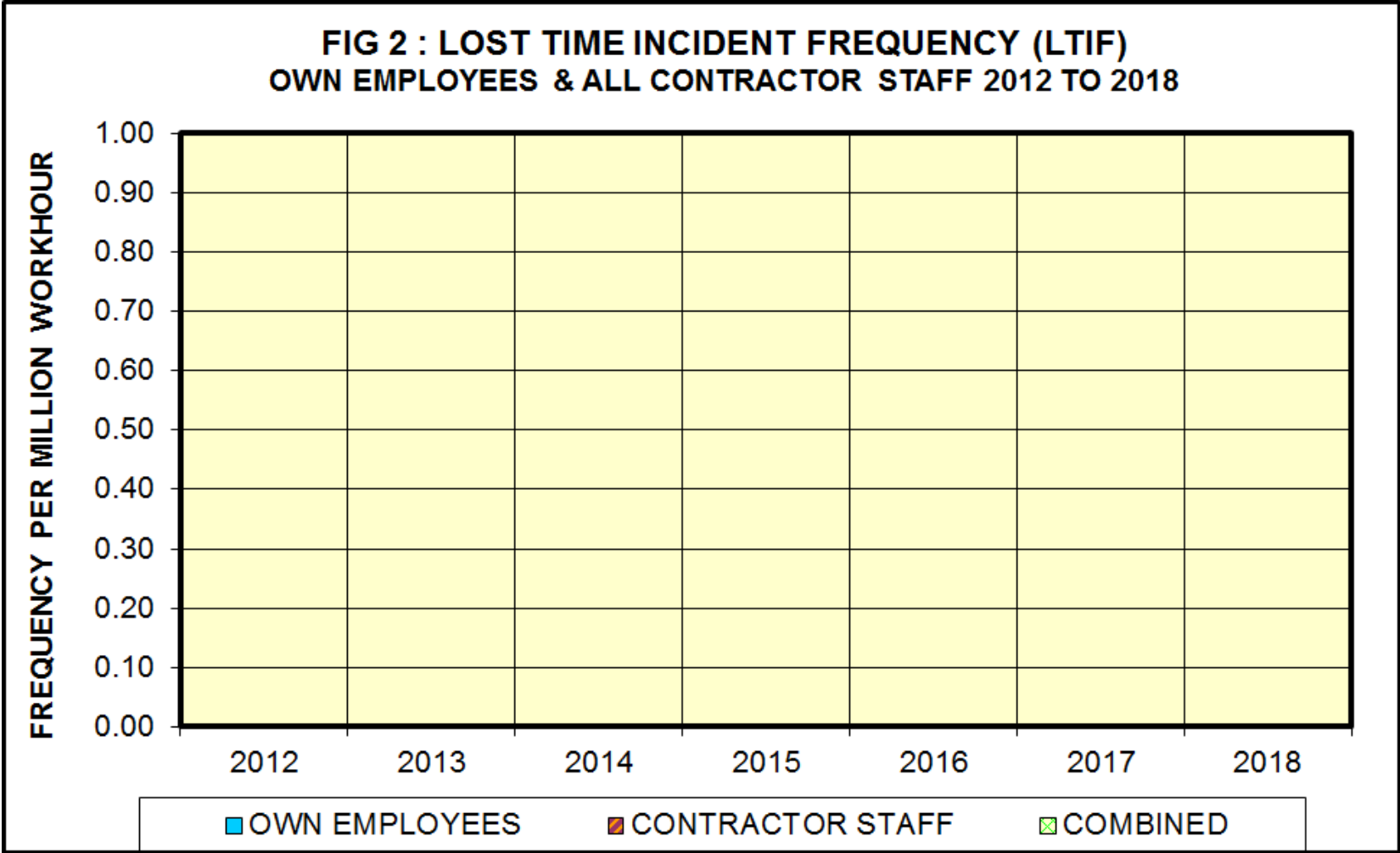
1. Safety & Environmental Performance

(a) Employees and Contractors Worked Hours in 2018



1. Safety & Environmental Performance

(b) Lost Time Incident Frequency [LTIF]



1. Safety & Environmental Performance

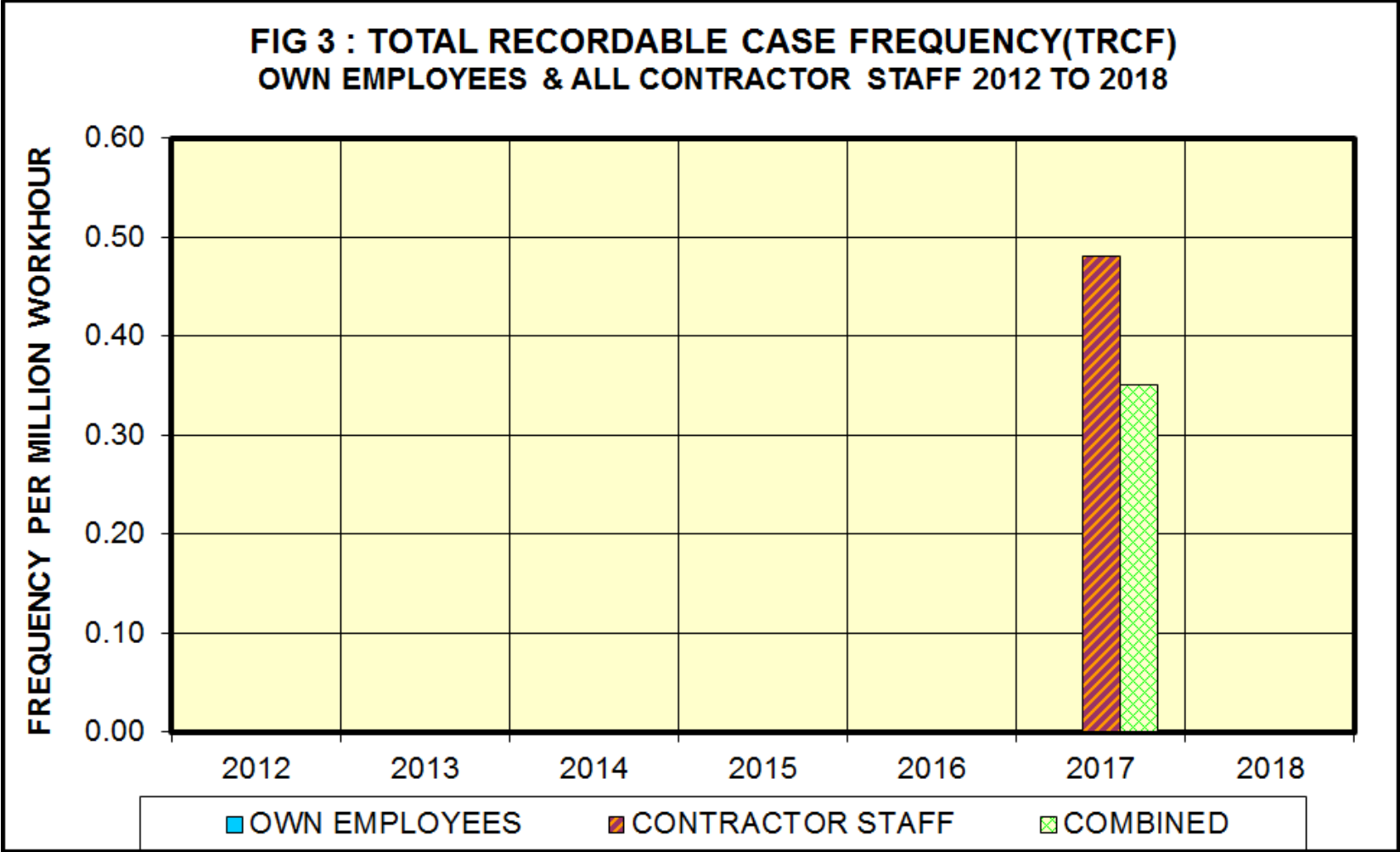
(b) Lost Time Incident Frequency [LTIF]

- Achieved 40 million hours worked without LTI on 1 Jun 2018
- As of 31 Dec 2018, we have worked safely for 42.2 million hours



1. Safety & Environmental Performance

(c) Total Recordable Case Frequency [TRCF]



1. Safety & Environmental Performance

Case Study: Off-The-Job Incident, 28 Feb 2018 1600 hrs

- Injured was leaving the Temporary Car Park on his motor cycle for home
- As he moved off from the traffic junction, his right foot struck the ankle-height metal motorcycle stopper which rebounded to hit his motorcycle brake pedal
- Impact against the foot brake caused a laceration at his right calf



1. Safety & Environmental Performance

Lessons Learnt

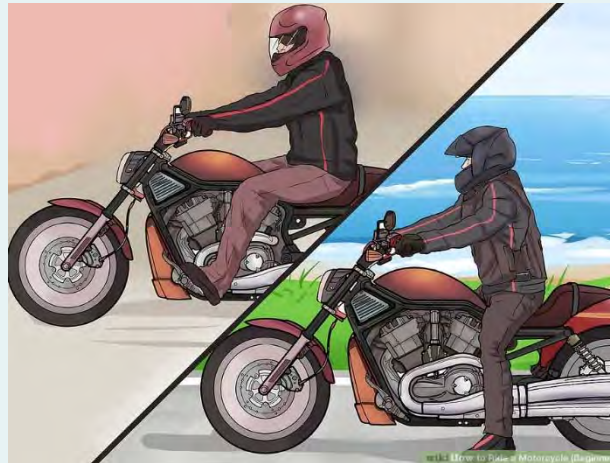
Situation Awareness

- Be alert
- Observe surroundings
- Think what will likely happen



Good Riding Habits

- Feet on foot pegs whenever motorcycle is moving, rear brake for slow manoeuvres



- At a stop, “Left foot only” down
- If need to change gears, always return “Right” foot to peg/board position before moving off

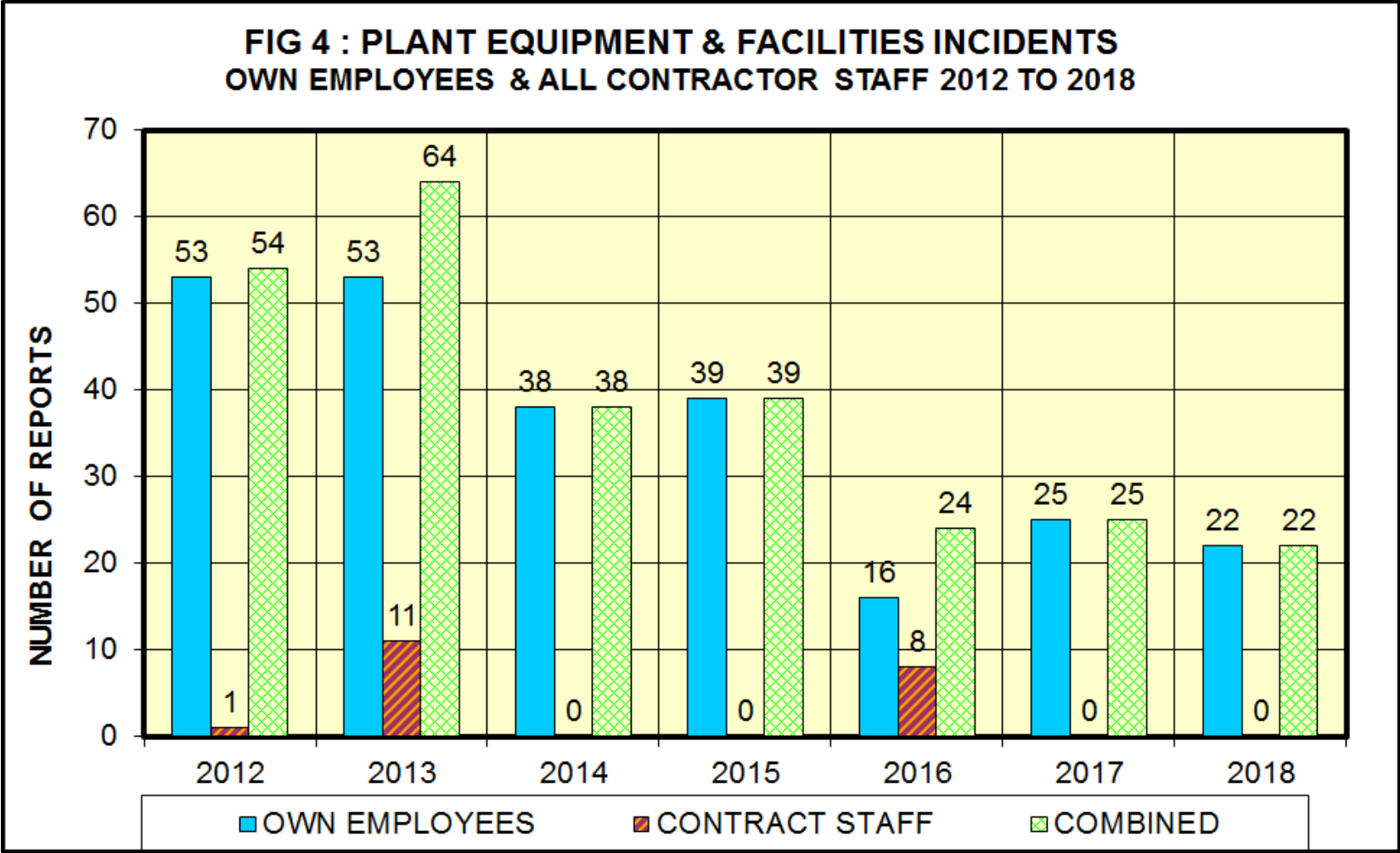
Hazard Identification

- Hazard for a foot to be caught in between was not properly identified
- Motorcycle / vehicle stopper to be constructed from a solid block, or install a purpose built vehicle stopper



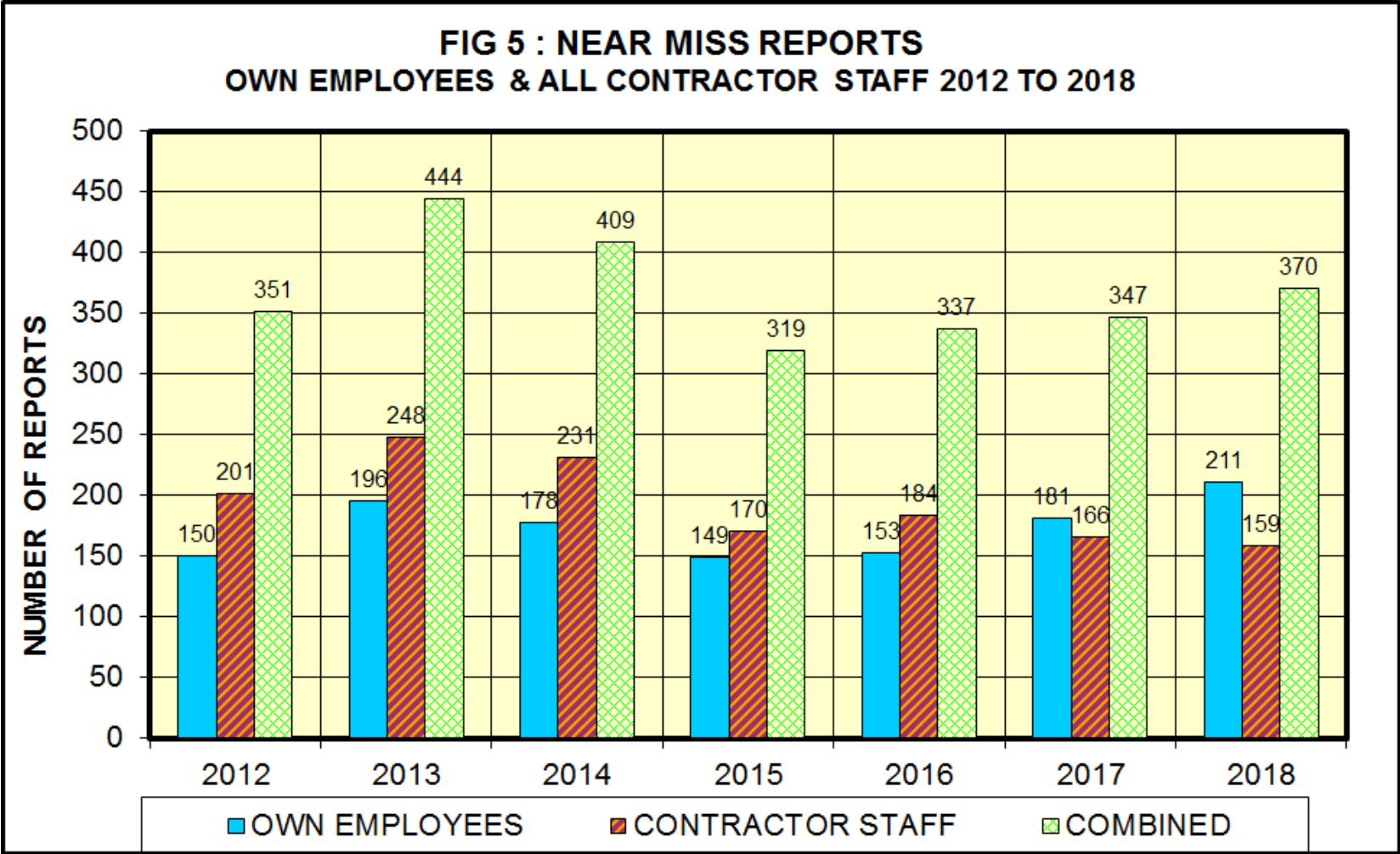
1. Safety & Environmental Performance

(d) Plant Equipment / Facilities Incidents [PEF]



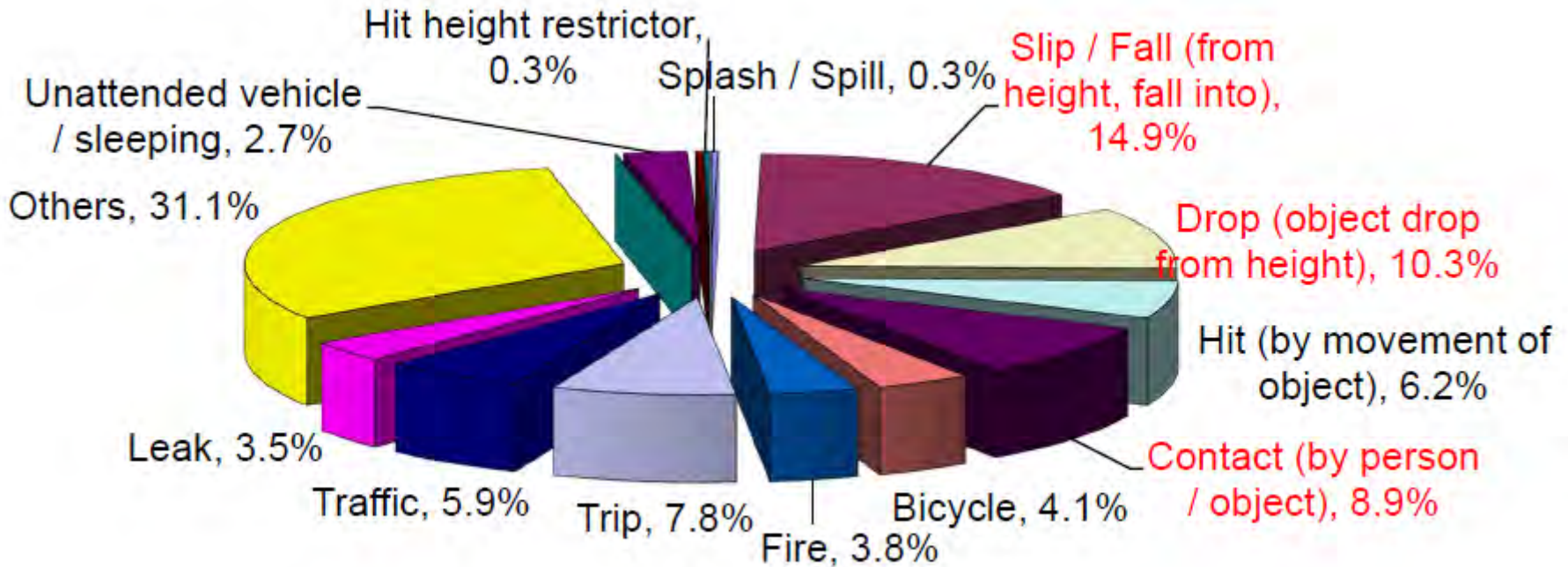
1. Safety & Environmental Performance

(e) Near Miss Reports [NMR]



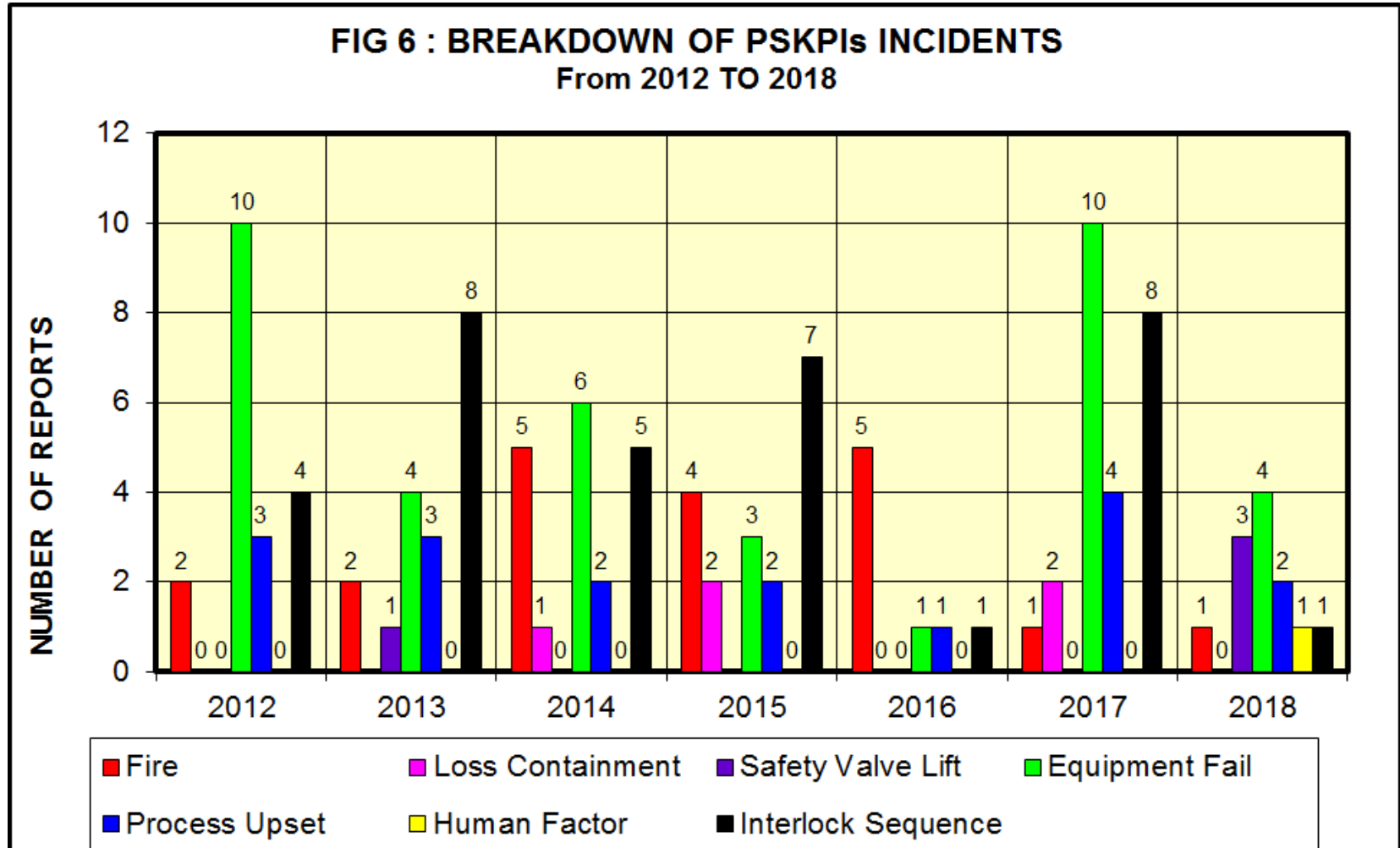
1. Safety & Environmental Performance

(e) Near Miss Reports [NMR]



1. Safety & Environmental Performance

(f) Process Safety Performance



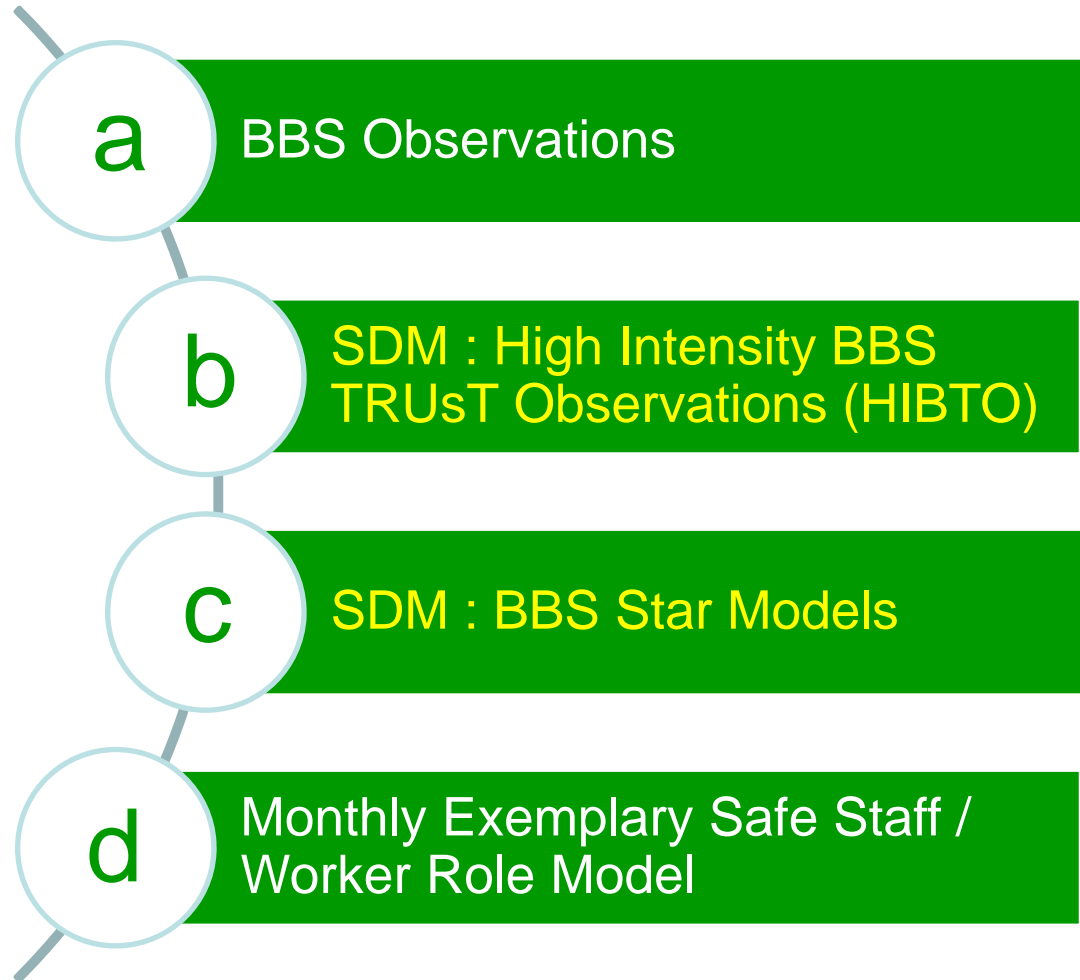
1. Safety & Environmental Performance

(g) Environmental Performance

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

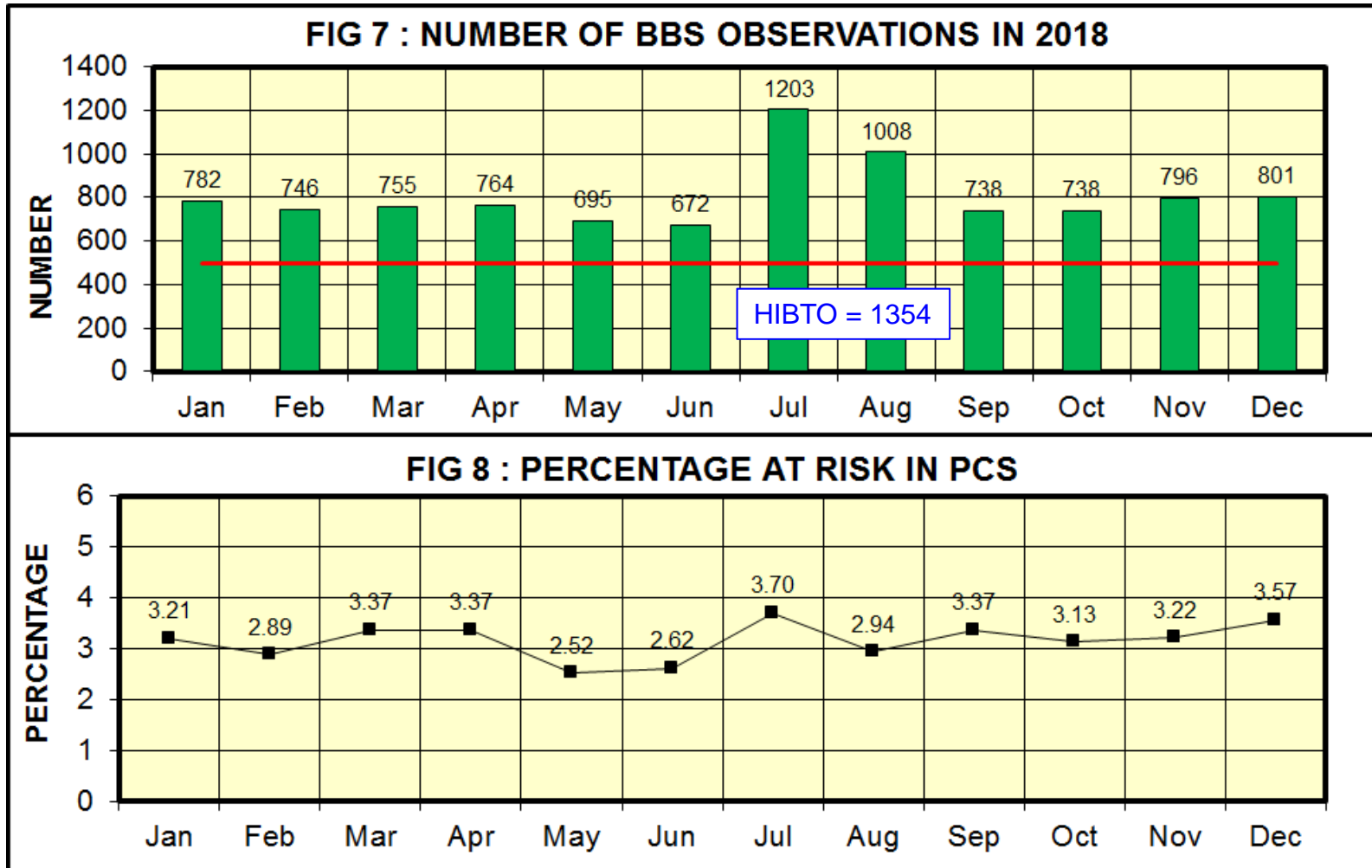


2. Behavioural Based Safety (BBS) Activities



2. Behavioural Based Safety (BBS)

(a) BBS Observations



2. Behavioural Based Safety (BBS)

(b) High Intensity BBS TRUsT Observations (HIBTO)

- Carried out during SDM 2018

Date	Number of Observations	Number of At-Risk Behaviours	Number of Safe Behaviors	At-risk %
17-Jul-18	59	28	667	4.03
18-Jul-18	37	18	430	4.02
19-Jul-18	44	18	516	3.37
20-Jul-18	49	19	527	3.48
21-Jul-18	59	23	580	3.81
22-Jul-18	39	12	348	3.33
23-Jul-18	45	22	473	4.44
24-Jul-18	46	17	477	3.44
25-Jul-18	40	19	449	4.06
26-Jul-18	49	14	572	2.39
27-Jul-18	38	4	236	1.67
28-Jul-18	41	5	222	2.20
29-Jul-18	34	3	311	0.96
30-Jul-18	48	8	259	3.00
31-Jul-18	69	22	814	2.63
01-Aug-18	54	19	614	3.00
02-Aug-18	58	21	670	3.04
03-Aug-18	47	10	238	4.03
04-Aug-18	46	14	462	2.94
05-Aug-18	47	10	539	1.82
06-Aug-18	47	19	532	3.45
07-Aug-18	50	18	579	3.02
08-Aug-18	44	17	484	3.39
09-Aug-18	42	14	450	3.02
10-Aug-18	44	11	430	2.49
11-Aug-18	94	7	437	1.58
12-Aug-18	84	4	411	0.96
Total	1354	396	12727	3.01

High Intensity BBS TRUsT Observation
OBJECTIVE

To **Ensure** workers are **Aware** that they will be **Observed** and given **Feedback** for **At-Risk Behaviours**

OBSERVATION PERIOD
17 JULY 2018 TO 12 AUGUST 2018

ACTIVITIES LINE-UP

- Campaign by SDM Contractor Companies**
 - Daily Highlight of Objective
 - Workers be Prepared to be Observed
- Carry Out Hi-Intensity BBS TRUsT Observation**
 - Target SDM Workers for Safe Behaviour
 - Observe Workers and Feedback
 - Submit Daily Observation Data
 - Rectify At-Risk Behaviours
- Awareness Promotion**
Mass Tool Box Talk on **25 Jul 18, 1 Aug 18, and 8 Aug 18**

Daily BBS Self Check

- Are you in the **Line of Fire**?
- Do you have **Eyes on Path**?
- Do you use **Correct Tools**?
- Do you **Inspect Job** before work?
- Do you wear proper **Safety Helmet & Safety Shoes**?
- Do you wear protective equipment for **Eyes, Face & Hearing**?
- Do you wear **Respiratory Protection Equipment**?
- Do you wear proper **Gloves & Work Clothes**?
- Do you wear **Safety Harness** when working at height?

2. Behavioural Based Safety (BBS)

(c) BBS STAR Models

- During SDM 2018 hot work period, supervisors and workers who demonstrated good safety behaviours and awareness were selected as STAR models by BBS Steering Committee
- Total of 4 supervisors and 12 workers were picked as BBS STAR models



PCS **SDM 2018 BBS PROMOTION**

SDM HOT WORK PERIOD
17 JULY TO 12 AUGUST 2018

High Intensity BBS TRUST Observation

BBS STAR MODELS

- HIBTO** – To enhance safe work behaviours by:
 - Providing greater awareness of Behavioural Based Safety
 - Participation of Supervisors and Workers
- BBS STAR Models**
 - One Supervisor and three workers will be selected from each Block (SE, SA/SB/SC, SU, Compressors & others)
 - They will be awarded NTUC vouchers
 - Photos of BBS STAR models will be displayed on SDM notice boards

2. Behavioural Based Safety (BBS)



PCS | SDM 2018 BBS STAR MODELS

TIME BLOCK A 17 to 20 JULY 2018

CONGRATULATIONS TO OUR STAR MODELS



FLORO GLODOVISA
STK / NIPPON EX
SA/SB/SC PLANTS



B. P. KUMAR
STK / LKW
SA/SB/SC PLANTS



ARCOS H. OBENZA
STK / GULF
SA/SB/SC PLANTS



JEREMAIN
LAMPITOC
PEC
SA/SB/SC PLANTS



2. Behavioural Based Safety (BBS)



PCS I SDM 2018 BBS STAR MODELS

TIME BLOCK B 17 to 24 JULY 2018

CONGRATULATIONS TO OUR STAR MODELS



MOHD ANNUAR BIN
ITHININ
SANKYU/WINN
MEIKO
COMPRESSOR &
PUMPS



RADZUAN BIN ABDUL
KARIM
SANKYU/WATERWELL
COMPRESSOR &
PUMPS



HLA MYO KYAW
SANKYU
COMPRESSOR &
PUMPS



MAHARAJAN
SATHIYARAJ
STK / LKW
SA/SB/SC PLANTS



2. Behavioural Based Safety (BBS)



PCS | SDM 2018 BBS STAR MODELS

TIME BLOCK C 17 to 31 JULY 2018

CONGRATULATIONS TO OUR STAR MODELS



GILL RAJ KARAN
SINGH
PEC / CHINO
SE PLANT



YE LIN NAING
PEC / ALPHA
SE PLANT



RENGAIYAH
CHELLAMUTHU
PEC / CHINO
SE PLANT



RAI ASHUTOSH
KUMAR
SANKYU
SU PLANT



2. Behavioural Based Safety (BBS)



PCS I SDM 2018 BBS STAR MODELS

TIME BLOCK D 17 JULY to 7 AUG 2018

CONGRATULATIONS TO OUR STAR MODELS



RANGANATHAN
VIJAYAKUMAR
SANKYU
SU PLANT



MAIAH JUWEL
SANKYU / A & S
SU PLANT



ALAGAPPAN
SEETHARAMAN
SANKYU / HOLCAM
SU PLANT



PEREZ ERWIN DONA
YRE
PEC / ALPHA
SE PLANT



2. Behavioural Based Safety (BBS)

(d) Monthly Exemplary Safe Staff / Worker Role Models













- Carried out monthly since Jun 2015

<u>Jan 2018</u>	<u>Feb 2018</u>	<u>Mar 2018</u>
  <p>ANDY CHEE GUO LIANG OLEFIN II SENIOR TECHNICIAN II</p> <p>YEANUS ABDUL MOJID MIAH VINDES ENGINEERING PTE LTD SCAFFOLDER</p>	  <p>DESMOND KOH KOK ENG QUALITY CONTROL SENIOR TECHNICIAN II</p> <p>KAUNG MYAT ZAW ASAHI KOKUSAI TECHNEION SINGAPORE PTE LTD, TECHNICIAN</p>	  <p>IVAN NAH CHONG POH MAINTENANCE SUPERVISOR</p> <p>ALAM MOHAMMAD KHORSHED HOLCAM CONSTRUCTION PTE LTD PAINTING WORKER</p>
<u>Apr 2018</u>	<u>May 2018</u>	<u>Jun 2018</u>
  <p>REDZWAN BIN MOHD ROZALI FIRE & SECURITY SENIOR LEADING FIREMAN</p> <p>CHINNASAMY MURUGAN HAI LECK ENGINEERING (PRIVATE) LIMITED, SCAFFOLDER</p>	  <p>EILEEN HUM BUSINESS DEVELOPMENT & PLANNING SENIOR ADMIN ASSISTANT</p> <p>DHANAPAL IYAPPAN TECHGEMS ENGINEERING & CONSTRUCTION PTE LTD, FITTER</p>	  <p>NG TEO HONG OLEFIN I LEAD TECHNICIAN</p> <p>HUI KIM KEONG FOSTER ASIA PACIFIC PTE LTD INSULATION WORKER</p>

2. Behavioural Based Safety (BBS)

(d) Monthly Exemplary Safe Staff / Worker Role Models

- Carried out monthly since Jun 2015

<p style="text-align: center;"><u>Jul 2018</u></p>	<p style="text-align: center;"><u>Aug 2018</u></p>	<p style="text-align: center;"><u>Sep 2018</u></p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>MUHAMMAD ASHAARI BIN HASAN BASRI OLEFIN II TECHNICIAN II</p> </div> <div style="text-align: center;">  <p>DINH TAN THACH TRIDENT HYDROJETTING PTE LTD HYDRO JET WORKER</p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>KIRA CHNG WEI LANG QUALITY CONTROL SENIOR TECHNICIAN II</p> </div> <div style="text-align: center;">  <p>ZA YAR LIN SHOWA DENKI (S'PORE) CO. PTE. LTD. ELECTRICIAN</p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>CHAN CHEE WING MAINTENANCE INSTRUMENT SUPERVISOR</p> </div> <div style="text-align: center;">  <p>SOE THU AUNG MEISEI INTERNATIONAL PTE. LTD. INSULATOR</p> </div> </div>
<p style="text-align: center;"><u>Oct 2018</u></p>	<p style="text-align: center;"><u>Nov 2018</u></p>	<p style="text-align: center;"><u>Dec 2018</u></p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>MD IRWAN BIN MD HASSAN FIRE & SECURITY LEADING FIREMAN</p> </div> <div style="text-align: center;">  <p>YAN LIN TUN YOKOGAWA ENGINEERING ASIA PTE. LTD. ANALYSER TECHNICIAN</p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>MS JOYCE SIM FEEDSTOCK PROCUREMENT OFFICER</p> </div> <div style="text-align: center;">  <p>MR HOSSEN BABUL A+ ENGINEERING PTE LTD RIGGER / SIGNALMAN</p> </div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>MR MOHAMMAD BHASHIR BIN SELAMAT OLEFIN-I LEAD TECHNICIAN</p> </div> <div style="text-align: center;">  <p>MR MIAH MOHAMMAD MAMUN KYC SCAFFOLDING PTE LTD SCAFFOLDER</p> </div> </div>

3. Safety Performance Awards

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

- Award is given when PCS employees and contractors meet the Total Recordable Case Frequency set and maintain a Lost Time Incident free period for the quarter
- PCS Employees and Contractors Achieved the Quarterly Set Target for all 4 Quarters in 2018
- Contractor workers received vouchers totalling \$17,500 for the achievement in each quarter




3. Safety Performance Awards

(b) Contractors Safety Set Target (CSST)

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

3. Safety Performance Awards

Contractor Companies awarded CSST Bonus Award in 2018

	Meisei International Private Limited	Showa Denki (Singapore) Co. Pte. Ltd.	Holcam Construction Pte Ltd	A+ Engineering Pte. Ltd.
Award				
Category *	1	2	1	1
Yrs worked w/o LTI	30	30	21	3
Cheque amount	S\$1,000	S\$500	S\$1,000	S\$500

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

4. WSHC *bizSAFE* Programme



- PCS was one of the pioneering companies to become bizSAFE Mentor since 2011



- 5 Mentors recognised at the bizSAFE Convention 2018

4. WSHC *bizSAFE* Programme



Maintenance Contractors

	Company	Level	Expiry Date
1	Hai Leck Engineering (Private) Limited	Partner	24 July 2020
2	Kurihara Kogyo Co., Ltd.	Partner	31 May 2019
3	Sankyu (Singapore) Pte Ltd	Partner	11 Jul 2019
1	A+ Engineering Pte. Ltd.	Level Star	6 Feb 2021
2	Asahi Kokusai Techneion Singapore Pte. Ltd.	Level Star	12 Sep 2020
3	Foster Asia Pacific Pte Ltd	Level Star	11 Mar 2021
4	Holcam Construction Pte Ltd	Level Star	7 Sep 2019
5	KYC Scaffolding Pte. Ltd.	Level Star	6 Dec 2019
6	Meisei International Private Limited	Level Star	22 Sep 2019
7	Prowess Engineering Design and Services	Level Star	20 Jun 2019
8	PSM Aircon & Engineering Pte. Ltd.	Level Star	7 Nov 2021
9	Setsco Services Pte Ltd	Level Star	11 Mar 2021
10	Showa Denki (Singapore) Co. Pte. Ltd.	Level Star	11 Mar 2021
11	Singapore Takada Industries Private Limited	Level Star	21 Feb 2020
12	Techgems Engineering & Construction Pte. Ltd.	Level Star	27 May 2020
13	Trident Hydro Jetting Pte Ltd	Level Star	6 Mar 2019
14	VinDes Engineering Pte Ltd	Level Star	9 Jun 2019
15	Yokogawa Engineering Asia Pte Ltd	Level Star	16 Jun 2020

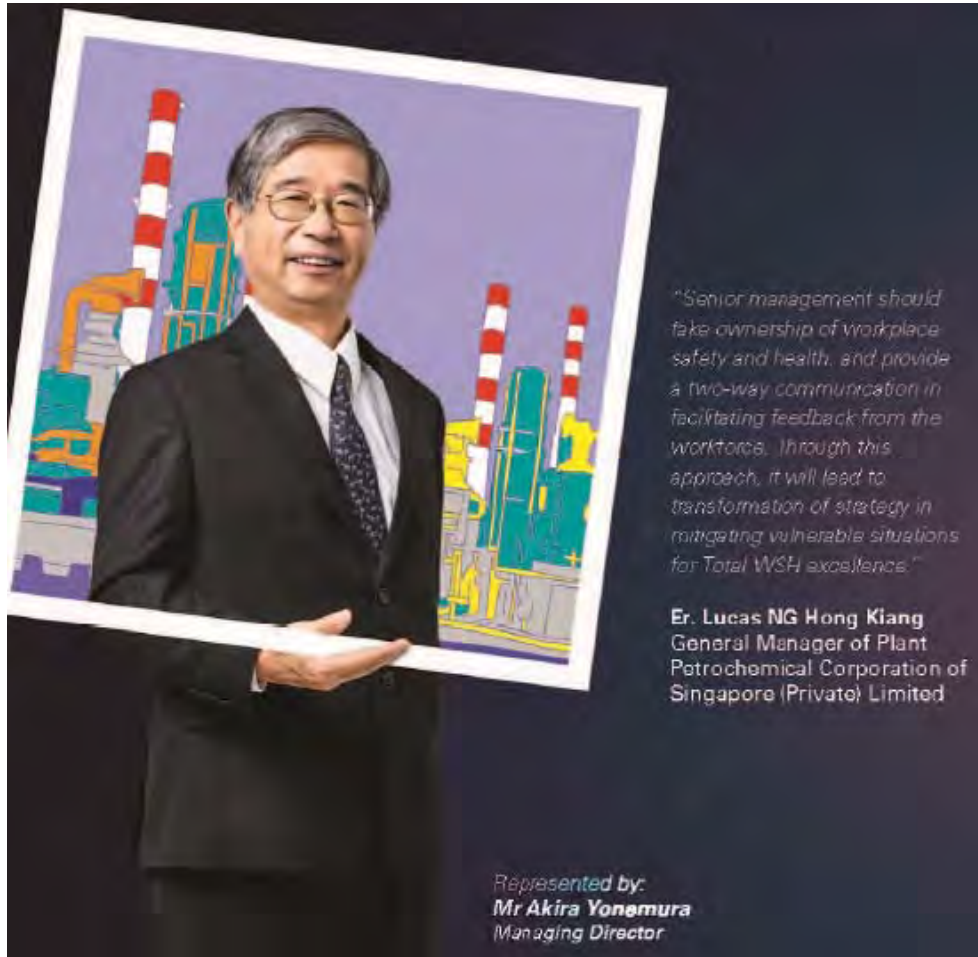
Service Contractors

	Company	Level	Expiry Date
1	AETOS Security Management Pte. Ltd.	Level Star	10 Mar 2020
2	Archiplast Engrg Services & Modelling	Level Star	10 Feb 2020
3	ComfortDelgro Bus Pte. Ltd.	Level Star	11 Mar 2021
4	Ikari Services Pte Ltd	Level Star	15 Jan 2020
5	Loh Kim Chay Marine Service	Level Star	8 Aug 2021
6	The Wok People Pte. Ltd.	Level Star	21 Mar 2019
7	Veolia ES Singapore Industrial Pte. Ltd.	Level Star	5 Sept 2019
1	Holcam Facilities Services Pte. Ltd.	Level 3	8 Jan 2022



5. HSE Achievements in 2018

(a) Workplace Safety & Health Performance (Gold) Award



The last time PCS was awarded Gold was in 2014
The award was presented to MD Mr. Yonemura at a dinner held on 31 July 2018



5. HSE Achievements in 2018

(b) Responsible Care®

- Excellence Award in all six RC Codes
- SCIC Responsible Care® Leadership Award (5th time)
(The seventh code, Security Code, currently in “pilot” phase)



5. HSE Achievements in 2018

(c) Energy Efficiency National Partnership Awards

- Honourable Mention in Best Practices category

BEST PRACTICES (HONOURABLE MENTION)
EENP AWARDS 2018

About Petrochemical Corporation of Singapore (Private) Limited (PCS)

PCS was jointly established in 1977 by Singapore Government and Japan-Singapore Petrochemicals Company Limited (JSPC) led by Sumitomo Chemical. It is currently owned equally by JSPC together with GPT and Shell Petrochemicals (Singapore) Pte. Ltd (QSPS). PCS is the pioneer of the petrochemical industry in the region providing basic feedstock for polymer and chemical industry in Singapore and region. Its production capacity has increased to more than threefold through debottlenecks, expansion and diversification since 1984.

Sustaining Energy Efficiency Through Back-flushing Of Seawater Heat Exchangers

In PCS, seawater was used to remove residual heat from its processes via seawater heat exchangers. A major problem associated with the use of seawater was fouling. Fouling led to an increase in thermal resistance and reduced seawater flow, thereby resulting in a loss of duty.

To mitigate the problem of fouling, PCS had progressively modified the heat exchangers and the associated piping to enable back-flushing, a process where the flow of seawater in the heat exchanger was reversed to flush out the fouling materials.

Achievements

Due to fouling in the overhead condenser 2E-085, the reflux ratio to distillation column 2T-080 was lower than optimum. This caused the specific energy consumption (SEC) of the system to increase. With regular back-flushing of 2E-085, PCS managed to improve the SEC by approximately 0%.



5. HSE Achievements in 2018

(d) Successful Completion of SDM 2018

PCS Management / Shareholders / Contractors Management Walkabout



5. HSE Achievements in 2018

(d) Successful Completion of SDM 2018

PCS Management / Shareholders / Contractors Management Walkabout



5. HSE Achievements in 2018

(d) Successful Completion of SDM 2018

SDM Mass Tool Box Meeting



5. HSE Achievements in 2018

(d) Successful Completion of SDM 2018

Safe Workers

SDM 2018 Jul 17 Safe Workers		SDM 2018 Jul 28 Safe Workers		SDM 2018 Aug 6 Workers	
					
STK Gull Denisetti Ravi	PEC Santiago Gabby Lemana	FOS S. Baskaran	STK LKW A Nadarajan	PEC Sami Ayya Dinakaran	PEC Chidura Karunakan
					
MEI Nelson Jaganath	AKT Kyaw Zay Aung	PEC Naung Cho Htet	SKS Periyasamy Vimalras	KYC Gurung Dharma Raj	PEC Shariful
					
FOS Kurusu Michel Stalinraj	Holcam Palani Sankar	STK LKW Santosh Kumar	STK LKW S. Pandiyan	SKS VM Veerabathini Sridhar	PEC Marimuthu Sowri Giri

6. Target for 2019

Next Safety Performance Target :

45 million Hours Worked without LTI

		
<p>Speak Out for Safety (SOS)</p>	<p>Behavioural Based Safety (BBS)</p>	<p>STop And Report (STAR)</p>

Review of HSE Performance for 2018

THANK YOU



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