

IMPROVING ELECTRICAL SAFETY MANAGEMENT IN TNB

- TNB DISTRIBUTION



Mohd Farith Osman
Chief OSHE
TNB Distribution

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CONTENTS

OVERVIEW

**INTRODUCTION TO TNB
ELECTRICAL SYSTEM**

**ELECTRICAL SAFETY
SYSTEM**

LOOKING AHEAD

OVERVIEW

- Safety system management has been established in TNB Distribution since 1993 via Safety Excellent Management System (SEMS)..
- Electrical Safety System is one of the major criteria within the SEMS.
- We have conducted audit every year and for the last 5 years TNB Distribution performance on SEMS was between 85% - 90%



TOWARDS ZERO ACCIDENT

3E APPROACH IN SAFETY MANAGEMENT:

1

EDUCATION



Taklimat Keselamatan
Safety Campaign
Tool Box Talk
Latihan Keselamatan
Engineering Retreat
Penilaian Amalan Kejuruteraan (PAK)

2

ENGINEERING



Back to Basic
Amalan WAJIB
Kunci & NSL
Pemakaian PPE
Engineering & Safety Manuals

3

ENFORCEMENT



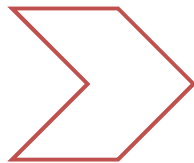
Safety & Quality Enforcement
Safety Quality Assurance (SQA)
Safety Compliance Audit (SCA)
SEMS Audit

EXERCISING SAFE WORK BEHAVIOUR AND
CONDITION WITHIN SELVES AND AMONG PEERS

SAFETY IS INHERENT AND VISIBLE CULTURE
IN THE ORGANISATION

Better. Brighter.

COVERAGE OF SEMS



1. PREMISES & HOUSEKEEPING
2. MECHANICAL, ELECTRICAL & MACHINE GUARDING
3. FIRE PROTECTION & PREVENTION
4. ACCIDENT REPORTING & INVESTIGATION
5. SAFETY ORGANIZATION

OSHAS 18000

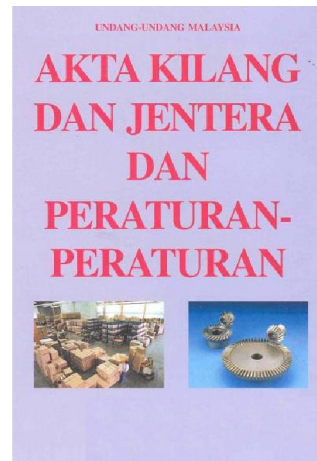
EMS 14000

ACTS AND REGULATION

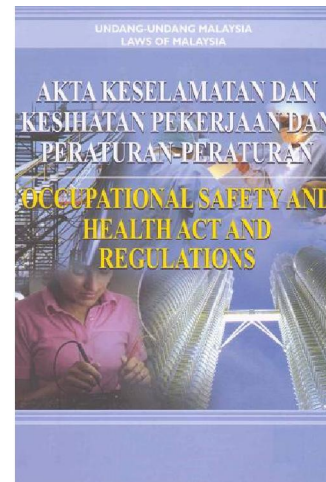
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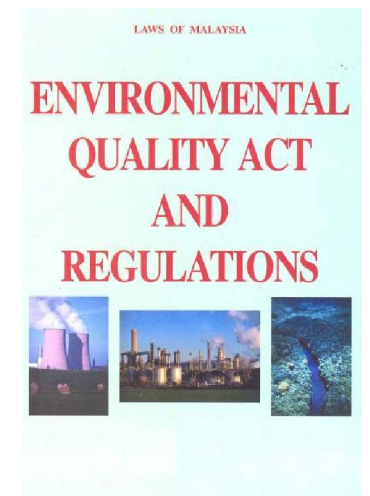
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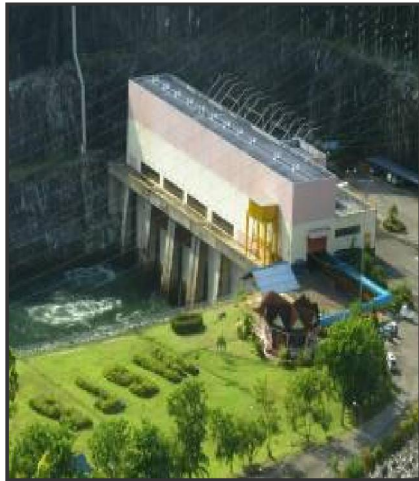


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INTRODUCTION

GENERATION



TRANSMISSION



HIGH VOLTAGE
500kV/275kV/132kV



MEDIUM VOLTAGE
33kV/22kV/11kV

DISTRIBUTION

DISTRIBUTION



DISTRIBUTION TOWER
33kV/22kV/11kV



DISTRIBUTION MAIN
INTAKE 33kV/22kV



33kV/22kV/11kV
SUBSTATION



METERING



LV OVERHEAD
LINES (415/240V)

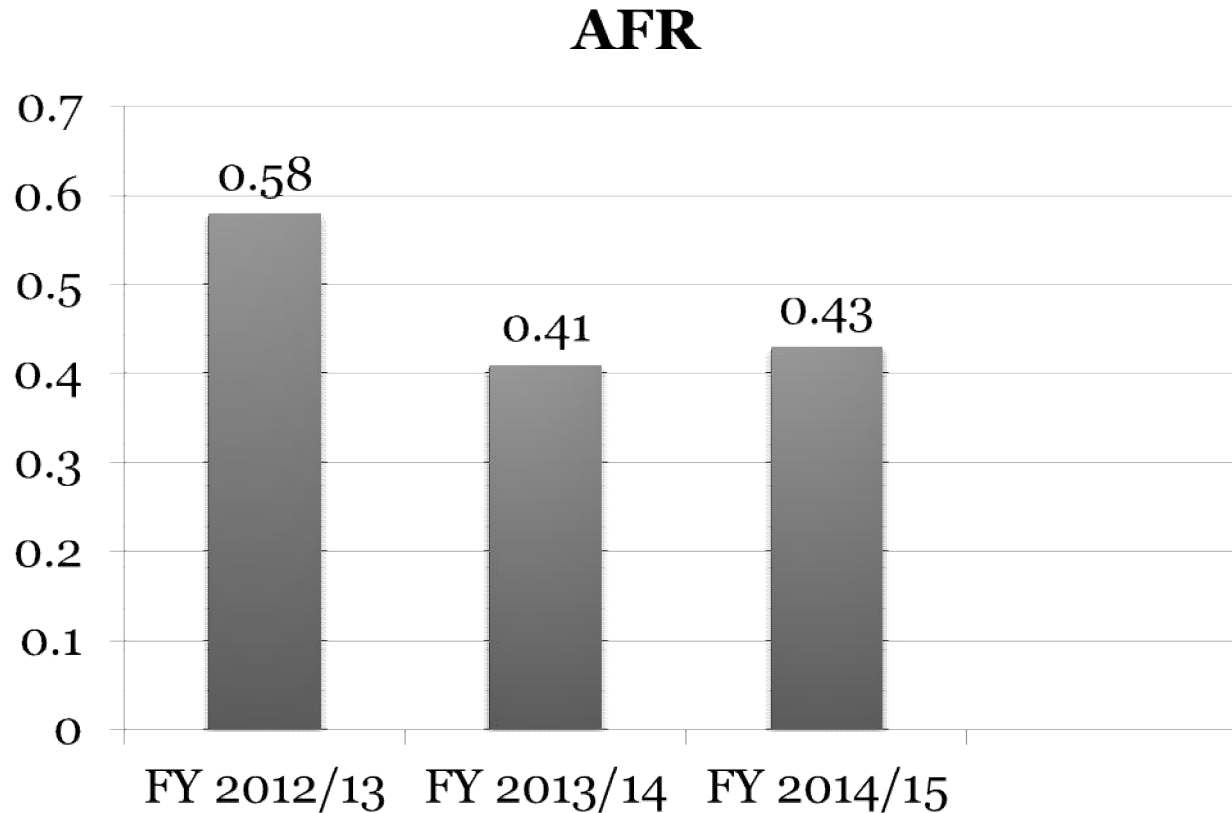


LV FEEDER PILLAR
(415/240V)

SUPPLY	NATIONAL GRID – TNB TRANSMISSION
OPERATING VOLTAGE	33kV, 22kV, 11kV & 0.415kV
PEAK LOAD	15346MW
CUSTOMER	6.8 Millions
ELECTRICAL ASSETS	<p>SUBSTATION: 33kV- 1251, 22kV- 2559 , 11kV- 56,076</p> <p>CABLES(KM): 33kV- 5628, 22kV- 4080, 11kV- 261,647</p> <p>LV – 481,608KM</p>
NO OF WORKERS	<p>TECHNICAL- 12,000</p> <p>NON TECHNICAL- 6,650</p>
MAN HOURS WORKING	69.8 Millions HOURS

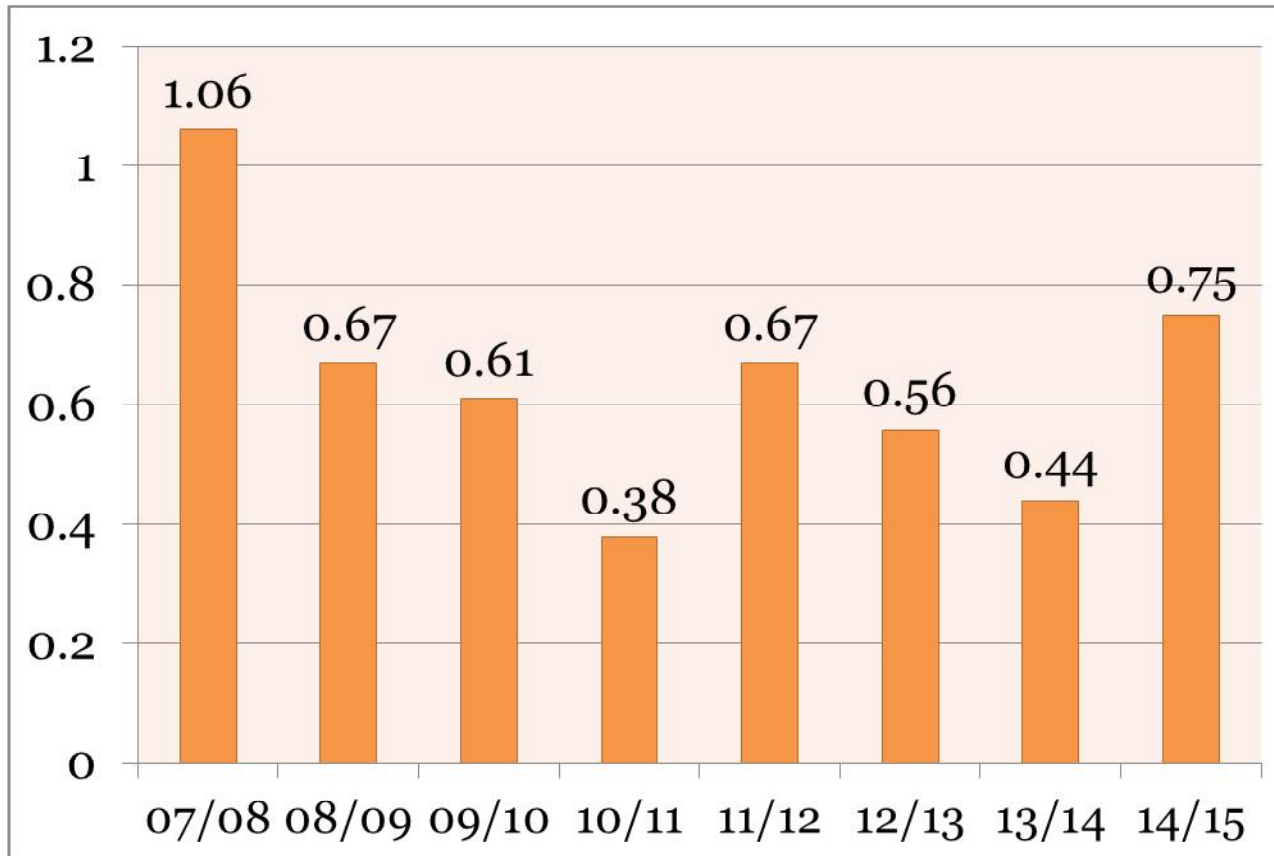


ACCIDENT FREQUENCY RATE (AFR)



$$\text{Frequency Rate} = \frac{\text{Nos of Accident} \times 1,000,000}{\text{Total man-worked hours}}$$

ELECTRICAL ACCIDENT



ELECTRICAL ACCIDENT PER 1000 STAFF

TRANSFORMATION OF SAFETY MANAGEMENT TO TENAGA *SAFE*

**CURRENT SAFETY
MANAGEMENT STYLE**

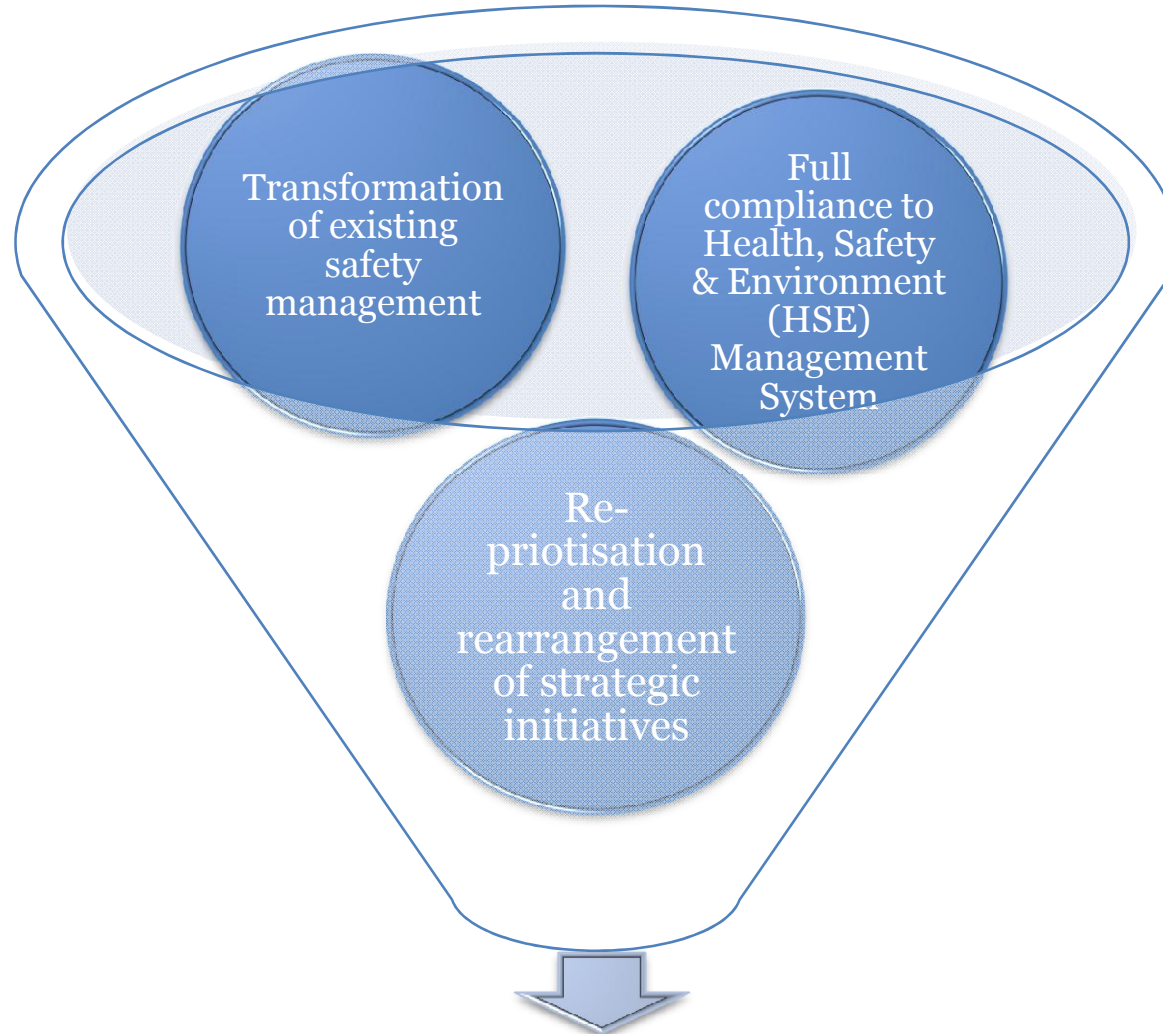
TENAGA *SAFE*

SAFE BEHAVIOUR & SAFE CONDITION

ENFORCEMENT & RE-ENFORCEMENT



WHAT IS TENAGA SAFE?



TENAGA SAFE

TENAGA *SAFE* OBJECTIVE



To achieve interdependent safety culture



Ensure all Act and Regulations on health, occupational safety and environment are adhered and complied



Recognition on good safety performance by shareholders, employees, customers, public and international certifying bodies

TENAGA *SAFE* deliverables

Zero accident

Competent workforce

Inherent & visible safe
work practices

Results

**Safe
condition**

**Safe
behaviour**

**Initiatives
– Strategic
& BAU**

**3E – ENGINEERING, EDUCATION,
ENFORCEMENT**

TENAGA SAFE STRATEGIC INITIATIVES

- "Best-practice Structure"**
- 1 OSHE Restructure
 - 2 Dedicated Switching Team

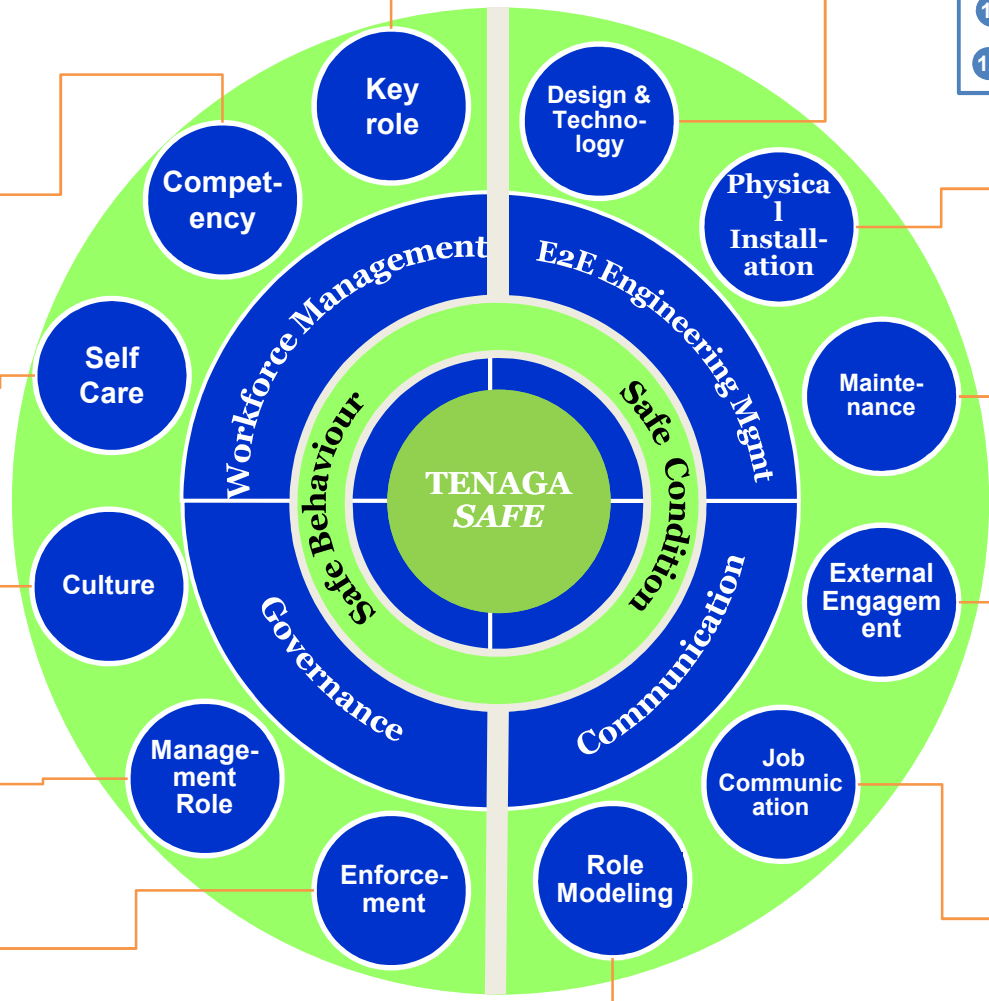
- "Technical Competency Management"**
- 3 Technical Certification Programme
 - 4 Video Clips on Standard Equipment Construction, O&M

- "Safety Is Everybody's Concern"**
- 5 Stress & Trauma Management

- "Safety To Be Seen & Felt"**
- 6 Lock Out Tag Out (Multi-Locking System)

- "Reinforcing Formal Mechanisms "**
- 7 Safety KPI for All

- "Safety Merit Demerit"**
- 8 3rd Party Audit by International Body
 - 9 Safety & Quality Enforcement



- "Embed Safety & Quality In Equipment, Accessories & Tools"**
- 10 Arc Flash Density Management
 - 11 Remote Switching Operation
 - 12 Standardized Features of Equipment

- "Do It Right First Time"**
- 13 Safety Elements during PIAT (Pre-Inspection Acceptance Test)

- "Keeping Our Equipment In Safe Working Condition"**
- 14 Street Furniture Maintenance

- "Safety Outreach"**
- 15 Engagement with Stakeholders
 - 16 Media Management

- "Enhance Safety Practices"**
- 17 On-job (HIRADC)
 - 18 Post-job (HIRADC)

- "Enhance safety role model "**
- 19 Top Mngmt Engagement via MBWA (Mngmt By Walk About)

19 Strategic Initiatives of Tenaga Safe

NO	INITIATIVES	CHAMPION	MEMBERS	FY2014/15	FY2015/16	FY2016/17	FY2017/18	FY2018/19
1	OSHE Restructure	OSHE	DTP, HR					
2	Dedicated Switching Team	OW1	HR, DTP, OSHE					
3	Technical Certification Programme	HR (ENG)	OSHE, ILSAS, OW					
4	Video Clips on Standard Equipment Construction (O&M)	AMD (ES)	PPV, OW, ILSAS					
5	Incident Response Management (Stress & Trauma Management)	OW2	HR, OSHE, PP					
6	Lock Out Tag Out Management (Multi-Locking System)	AMD (ES)	OSHE, OW, KSP, ILSAS					
7	Safety KPI for All	SMOD	OW, OSHE					
8	Certifications by International Body	OSHE	SMOD, CMD					
9	Safety & Quality Enforcement	OSHE	OW, HR, PP					
10	Arc Flash Density Management	AMD (KSP)	ES, Protection, Planning, OSHE, OW					
11	Remote Switching Operation	AMD (ES)	KSP, SCADA, Protection, OW					
12	Standardized Features of Equipment	AMD (ES)	KSP, SCADA, Protection, OW					
13	Safety Elements during PIAT (Pre-Inspection Acceptance Test)	AMD (ES)	OW, PA					
14	Street Furniture Maintenance	OW2	Steering Committee SF					
15	Engagement with stakeholder	OSHE	PP, HR, PPV					
16	Media Management	PP	OSHE, OW					
17	On-job (HIRADC)	OSHE	OW					
18	Post-job (HIRADC)	OSHE	OW					
19	Top Management Engagement via MBWA (Management by Walkabout)	OW1	DTP, PP					

HOW TO DELIVER TENAGA SAFE?

ROLES OF SAFETY AT EVERY LEVEL

- VP Safety Committee
- Tenaga Safe Steering Committee
- State Safety Committee

TENAGA SAFE Strategic Initiatives

KPI, AOP & Risks Assessment

HQ OSHE

1. OSHE Leadership
2. Change management
3. Documentation & information management
4. Performance monitoring, control and reporting
5. Review & Improvement

OSHE PRACTITIONER

1. Communication, engagement & promotion
2. Emergency preparedness and response
3. Incident management
4. Audit & Inspection
5. Enforcement

Stations

1. OSHE Roles, Responsibilities and Accountability at all level
2. Safety implementation & Line enforcement
3. Provide all the safety resources
4. Ensuring JKPP effectively implemented
5. Legal and safety precautions are strictly adhered
6. Incidents management

Enhance Safety Role Model

a) Continuous roadshow and dialogue by top management



b) Launching of AMBIL KISAH campaign

Tenagawan Daily
EDARAN DALAMAN SAHAJA • SALURAN INFORMASI ANDA

Bil. 049/2015 : 13 Mac 2015

KETEGASAN CEO ISU KESELAMATAN

"SAFETY FIRST! Keselamatan mesti diutamakan. Tidak ada kompromi soal keselamatan ketika kerja pensuisan dijalankan."

Presiden/Ketua Pegawai Eksekutif Datuk Seri Ir Azman Mohd dengan tegas berkata demikian dalam sesi dialog bersama pemegang AP/CP di Wisma TNB di Jalan Kepong dan Shah Alam baru-baru ini.

Dalam kedua-dua pertemuan tersebut, Datuk Seri Ir. Azman berkali-kali memperkatakan tentang isu keselamatan.

"Isu keselamatan sentiasa menjadi *first priority* pada kita," kata beliau yang turut mengajak warga kerja membincangkan isu keselamatan (pencegahan) bagi memartabatkan TNB sebagai *The Best In The World*.

Beliau mahu warga kerja membincangkan bagaimana mahu mengubah dan pada masa yang sama menasihatkan rakan-rakan dalam mendisiplinkan diri dan mengikut arahan keselamatan.

Rata-rata pemegang AP/CP yang hadir di sesi dialog itu menerima baik peringatan dari Datuk Seri Ir Azman.

BERITA BAHAGIAN PEMBAHAGIAN

UPDATE

Peneraju, Dinamik, Informatif

BIL. 126/2014 26 NOVEMBER 2014

KEMPEN KESELAMATAN TERAP ELEMEN AMBIL KISAH

Towards Zero Accident merupakan aspirasi Bahagian Pembahagian ke arah membudayakan amalan kerja selamat yang seiring dengan Kempen Ambil Kisah yang telah dilancarkan oleh Naib Presiden (Pembahagian) semasa Mesyuarat Prestasi Bisnes Bagi Suku Tahun Keempat TK2014 / Suku Tahun Pertama TK2015 baru-baru ini.

TENAGAWAN NASTORAL Better, Brighter

AMBIL KISAH

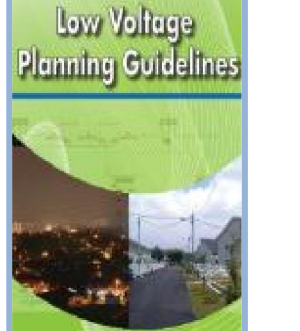
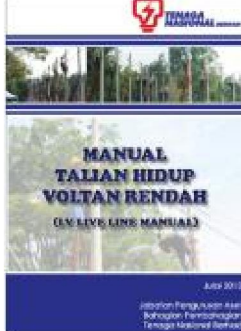
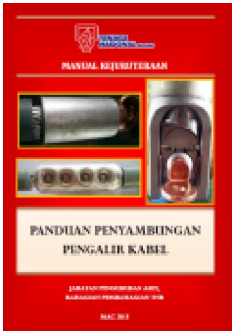
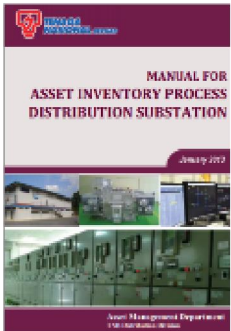
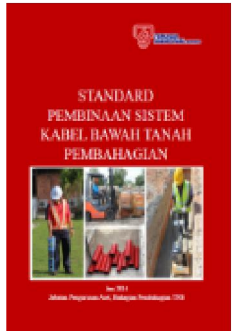
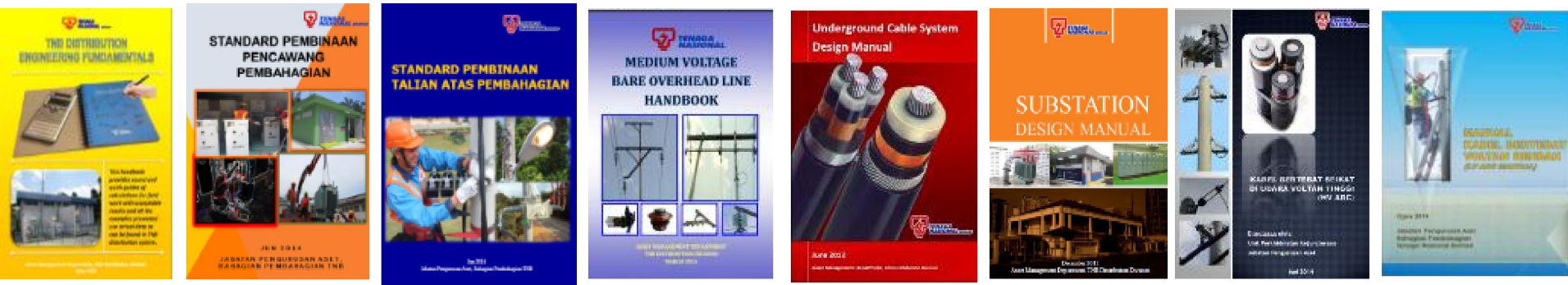
HAK MILIK BAHAGIAN PEMBAHAGIAN, TNB

Technical Competency Management

Annual Distribution Technical Conference



34 engineering manuals have been published



Technical Competency Management

Activities	Time Line (Financial Year starting Sept)				
	2016	2017	2018	2019	2020
1. Technical Training					
E-learning & on- line assessment	50%	100%			
Professional training course by international experts	200 engineers	400 engineers	400 engineers	400 engineers	400 engineers
Introduce attachment program at advanced utilities	5 engineers	10 engineers	20 engineers	20 engineers	20 engineers
2. Enhance Technical Outreach Program					
Penilaian Amalan Kejuruteraan (PAK)	15 states /areas	15 states /areas	15 states /areas	15 states /areas	15 states /areas
Technical retreat	500 Technicians	500 Jointers	500 Fitters	500 Linesmen	500 Technicians
Engineering Manual Roadshow	500 engineers	500 engineers	500 engineers	500 engineers	500 engineers
Annual Distribution technical Conference	100%	100%	100%	100%	100%
3. Review and enhance ILSAS DACUM					
	20	20	20	20	20
4. Publication of engineering manuals					
Special requirement in network – mobile power equipment	25%	75%	100%		
Operation of primary equipment – VCB, DC system	50%	100%			
Frequently asked technical questions			30%	100%	



(Penilaian Amalan Kejuruteraan) PAK

30 main PAKs have been implemented since 2008
2016-2020: PAK will continue at high impact states and kawasan

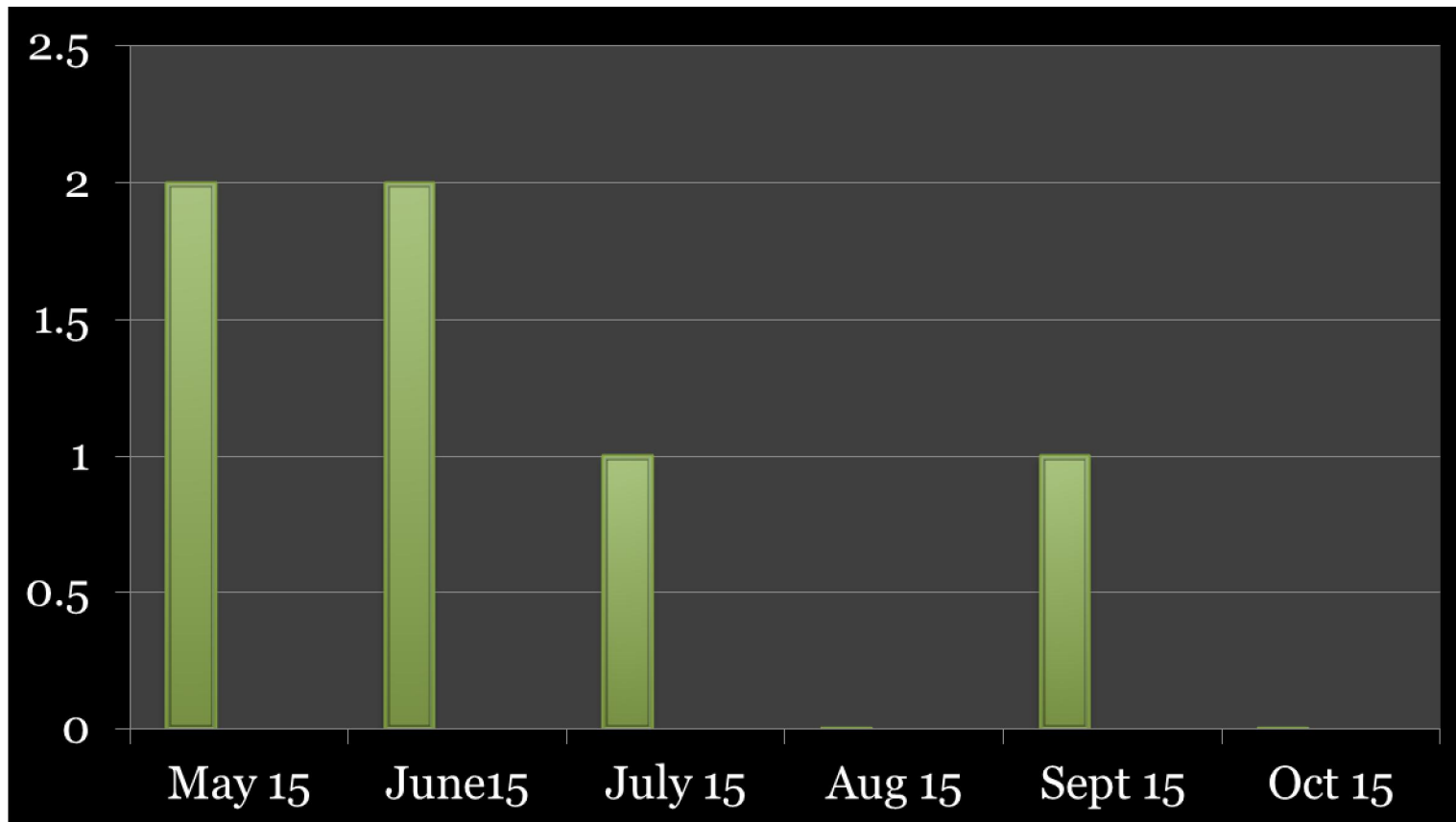
Technical Retreat & Manual Roadshow



Engagement with staff on the ground to promote good engineering practices



Bil Kemalangan Elektrik



**JIKA
TERNAMPAK
SEBARANG
KEADAAN
MERBAHAYA DI
PEPASANGAN
TNB
SILA HUBUNGI**

15454

**TNB CareLine
15454**

TNB CareLine sentiasa bersama
anda 24 jam sehari



- Panggilan talian tetap akan dikenakan caj panggilan tempatan
- Caj panggilan telefon selular adalah tertakluk kepada pembekal perkhidmatan
- Perkhidmatan SMS adalah percuma

 **TENAGA
NASIONAL BERHAD**
(2021494-W)
Pengerak Kemajuan Negara



**THANK
YOU**