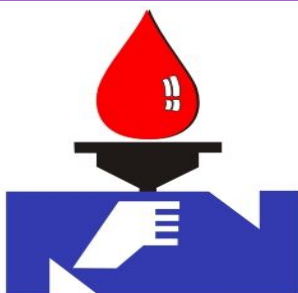


# NATIONAL REFINERY LIMITED



## HSE NEWS LETTER

June — 2017

### HSE Newsletter Contents:

<a href="#">Permit to Work</a>	1
<a href="#">Safe Man Hours</a>	1
<a href="#">Fire Drill at NRL &amp; KT</a>	2
<a href="#">Hose Handling Drill</a>	2
<a href="#">Incident / Ill health &amp; Loss Time Injury</a>	3
<a href="#">Illumination Monitoring</a>	3
<a href="#">Noise Survey Report Korangi</a>	3
<a href="#">H<sub>2</sub>S &amp; VOCs Monitoring Korangi</a>	3
<a href="#">Safety Article: Hazardous Characteristics of H<sub>2</sub>S</a>	4

## Permit to Work System at NRL Korangi & K.T

Permit is regarded as a written agreement between the person authorizing the work and the person receiving the permit to work. During working days in the morning several naked flame hot work permits were audited before issuance of various jobs at different locations inside Refinery by Sr. Engineer, Engineer and HSE / Fire Protection Officers along with respective area custodians. Following Permit to Work (PTW) were issued in the Month of **June 2017** at Korangi & K.T.

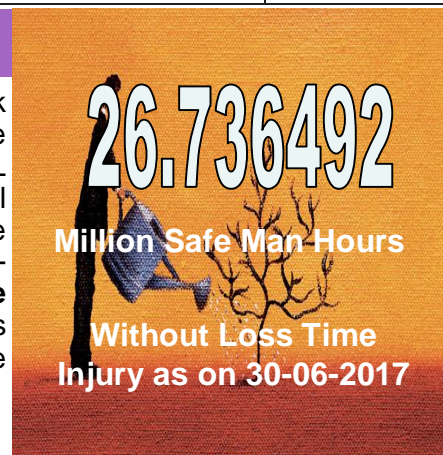
KORANGI REFINERY		KEAMARI TERMINAL	
PERMITS	TOTAL QUANTITY (NOs.)	PERMITS	TOTAL QUANTITY (NOs.)
Hot Work Permit	348	Hot Work Permit	01
Confined Space Entry Permit	01	Confined Space Entry Permit	—
Excavation / Civil Work	—	Excavation / Civil Work	—
Radiography Permit	—	Radiography Permit	—
Crane Operation	05	Crane Operation	—
Cold Work Permit	—	Cold Work Permit	—
Scaffolding Permit	01	Scaffolding Permit	—

Question or concerns regarding this news letter may be directed to:

Manager HSE  
National Refinery Limited (NRL), 7-B, Korangi Industrial Zone, Karachi - 74900, Pakistan.  
Email: [mgrhse@nrlpak.com](mailto:mgrhse@nrlpak.com)

## Safe Man-Hours

NRL Safety Board is updated by second week of every month. Safety Board shows the number of Safe Man-hours worked by NRL MPT and Non MPT Staff. By the Grace of Al Mighty Allah and joint efforts by all of us, we have achieved **26.736492** millions safe man-hours with out Lost Time Injury as on **June 30<sup>th</sup>, 2017**. Let us all give top priority towards safety, as there is no job, which cannot be done in a safer way.



## Fire Drill at NRL Korangi & KT

Live Fire / Dry drill is carried out every Thursday at 1000 hrs. sharp at NRL Korangi Refinery & Dry Drill is carried out every Wednesday at 1530 hrs. sharp at NRL Keamari Terminal. This drill helps in checking the fitness of fire fighting equipment & imparting training to Auxiliary Staffs as describe in Procedure to gain experience for combating / catering of live fire fighting. HSE department observes the response time during fire drill. Following are the status of Drills practices which were carried out in the month of **June 2017**.

S. No	Date	Team Leader	Nos. of Participant Attended	Nos. of Absentees	Type of Drill	Response Time (min & sec)
<b>Korangi Refinery</b>						
01.	01-06-2017	Mr. Khalid Hussain	12	01	Dry	—
02.	08-06-2017	Mr. M. Arif Bhatti	11	02	Dry	—
03.	15-06-2017	Mr. Shahid Mehmood	12	01	Dry	—
04.	22-06-2017	Mr. Shahid Rashid	10	03	Dry	—
05.	29-06-2017	Mr. Azam Baig	13	—	Dry	---
<b>Keamari Terminal (K.T)</b>						
01.	07-06-2017	Mr. Agha Munawar	07	—	Dry	—
02.	14-06-2017	Mr. Asif Bhatti	07	—	Dry	—
03.	21-06-2017	Mr. Asif Bhatti	07	—	Dry	—
04.	28-06-2017	<b>Not Performed due to Gazette Holiday (Eid-ul-Fitr)</b>				

## Hose Handling Drill Korangi

Hose handling drill is carried out every Tuesday at 1000 hrs. sharp at Fire station NRL Korangi Refinery. This drill helps in handling of fire fighting equipment to Auxiliary Staffs from Productions, Security, Quality Control and Oil movement departments to handle / cater emergency situation. Following are the status of Hose Handling Drills practices which were carried out in the month of **June 2017**.

S. No	Date	Team Leader	Nos. of Participant Attended	Nos. of Absentees
01.	06-06-2017	Mr. Azam Baig	09	04
02.	13-06-2017	Mr. Shahid Rashid	12	01
03.	20-06-2017	Mr. Ali Muhammad	10	03
04.	27-06-2017	<b>Not Performed due to Gazette Holiday (Eid-ul-Fitr)</b>		



## INCIDENT / ILL HEALTH AND LOSS TIME INJURY

Near miss	A near miss describes incident where no property was damaged and no personal Injury sustained, but when given a slight shift in time or position, damage and / or injury easily could have occurred.
Incident	An incident is an unplanned, undesired event that adversely affects completion of a task.
Accident	An accident is an undesired event that results in personal injury, property damage and equipment damage.
Loss Time injury (LTI)	If any NRL employee on duty had on the job accident, which render the employee medically unfit to resume of his duty next 24 hours is considered to be lost time injury (LTI).

## MONTHWISE STATUS OF INCIDENT & LOSS TIME INJURIES

Sr. No.	MONTH	INCIDENTS	LOSS TIME INJURIES
01.	January 2017	00	Nil
02.	February 2017	00	Nil
03.	March 2017	01	Nil
04.	April 2017	00	Nil
05.	May 2017	01	Nil
06.	June 2017	00	Nil
<b>Total</b>		<b>02</b>	<b>Nil</b>

## Illumination Monitoring Report Korangi

HSE department monitor the Illumination intensity at various Rooms, corridor & Control rooms which include Admin Block, Operation Block, all three Refineries, Canteen, Fire station, Security, Shipping office, Oil movement office, Quality Control, Workshop Hall, Ware house office and Dispensary office for the month of **June 2017** on **22<sup>nd</sup> June 2017**. The results was reported to all stake holders.

## Noise Survey Report Korangi

HSE department recorded the noise level reading at various location i.e., Lube-I, Lube-II, Fuel Refinery, Utilities, Oil Movement, R.O, Power Generation, Workshop, Warehouse, Quality control, Fire Protection, Shipping and Security department for the month of **June 2017** on **22<sup>nd</sup> June 2017**. Boiler # 7 was not in operation. The results of noise level reading was reported to all stakeholders.

## H<sub>2</sub>S & VOCs Monitoring Korangi


HSE department monitors the Hydrogen Sulphide (H<sub>2</sub>S) & Volatile Organic Compounds (VOCs) which are being toxic in nature to the human beings and pollution to the environment. The results of H<sub>2</sub>S & VOCs recorded at more than **80 different locations in Refinery** for the month of **June 2017** on **22<sup>nd</sup> June 2017**. Boiler VII was not in operation. The results was reported to all stake holders.

# Safety Article : Hazardous Characteristics of H<sub>2</sub>S

## 1. What makes H<sub>2</sub>S so dangerous?


Working in the oil & gas industry is associated with an often underestimated danger: **Hydrogen sulfide, a toxic gas**, which can unexpectedly occur during routine work. **H<sub>2</sub>S is colorless and invisible** but can be perceived in very low concentrations by our sense of smell. Because of its **distinct odor of rotten eggs**, it is also known as **sewer gas, digester gas, or marsh gas**. However, **hydrogen sulfide numbs olfactory nerves starting with a concentration of about 100 ppm**. People are no longer able to smell this gas at these concentrations. **Concentrations higher than 1,000 ppm can be immediately fatal**. H<sub>2</sub>S is heavier than air and therefore often collects in low-lying areas and working sites near the ground. **Hydrogen sulfide ignites on its own at a temperature of 518 °F**. Due to its highly inflammatory property, an explosive atmosphere may occur when combined with air. Strong reactions are possible that can trigger spontaneous combustion, explosions and detonations in case of contact with peroxides, bromates, ammonia, or other chemical substances. **H<sub>2</sub>S combined with air and humidity or moisture also may corrode metals** (such as in pipes, tanks, vessels, etc.) through the **formation of sulfuric acid**.

## Specifications of H<sub>2</sub>S



Identifiers	
CAS No.:	7783-06-4
EINECS No.:	231-977-3
UN No.:	1053
Ignition temperature:	270 °C
Ionization energy:	10.46
Temperature class (EN):	T3
Explosion group (EN):	IIB
Vapor pressure:	18,100 hPa (at 20 °C)
Molecular weight:	34.08 g/mol
Density:	0.002 g/mL (at 20 °C)
Melting point:	-85,6 °C
Boiling point:	-60,2 °C

Explosive limits in air (typical for Germany):	
UEL:	45.5 vol. %
LEL:	4.3 vol. %

Hazard symbols:	
	

Water pollution class:	2
Kemler code:	263
Danger sign:	263/ 1053

## Exposure levels and possible effects

### 0 – 20 ppm H<sub>2</sub>S

0.00047 ppm: Perception threshold, 50% of humans notice the odor

0.13 ppm: Threshold of odor perception

0.77 ppm: Readily perceptible odor

4.6 ppm: Easily noticeable odor

Prolonged exposure may deaden the sense of smell

5 ppm: Metabolic changes in exercising individuals, not clinically significant

10 ppm: Eye irritation, soreness, redness, burning

10 – 20 ppm: Causes painful eye, nose and throat irritation, headaches, fatigue, irritability, insomnia, gastrointestinal disturbance, loss of appetite, dizziness. Prolonged exposure causes bronchitis and pneumonia.

### 21 – 99 ppm H<sub>2</sub>S

- At these levels, OEL levels in all regions have been exceeded.
- Respiratory protection must be worn!
- Eye protection should also be worn.

27 ppm: Strong, unpleasant, but not intolerable odor

30 ppm: Up to this level, the rotten egg odor is recognizable

30 – 100 ppm: Odor becomes sickly sweet

Prolonged exposure will cause serious eye damage, migraine headaches, nausea, dizziness, coughing, vomiting and difficulty breathing.

### 100 – 1,000 ppm H<sub>2</sub>S

- IDLH\* limits have been exceeded.
- An APR\*\* should no longer be worn, use a supplied air system.
- Eye protection is indispensable.

100 ppm: Immediate irritation of eyes and respiratory tract

150 ppm: Sense of smell can be paralyzed quickly (in 2-15 min)

200 ppm: Headaches, dizziness, nausea

500 ppm: Unconsciousness leading to death within 30-60 minutes

Strong stimulation of nervous system, rapid breathing

1,000 ppm: Immediate loss of consciousness and respiratory paralysis leading to death

\* IDHL: Immediately Dangerous to Life and Health

\*\*APR: air-purifying respirator

Source: H<sub>2</sub>S (hydrogen sulfide) – Knowledge can save lives. Booklet; Dräger, 2013