



# ERDMP Regulations

**Petroleum and Natural Gas Regulatory Board**

27.04.2023

**“PNGRB (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2010”**

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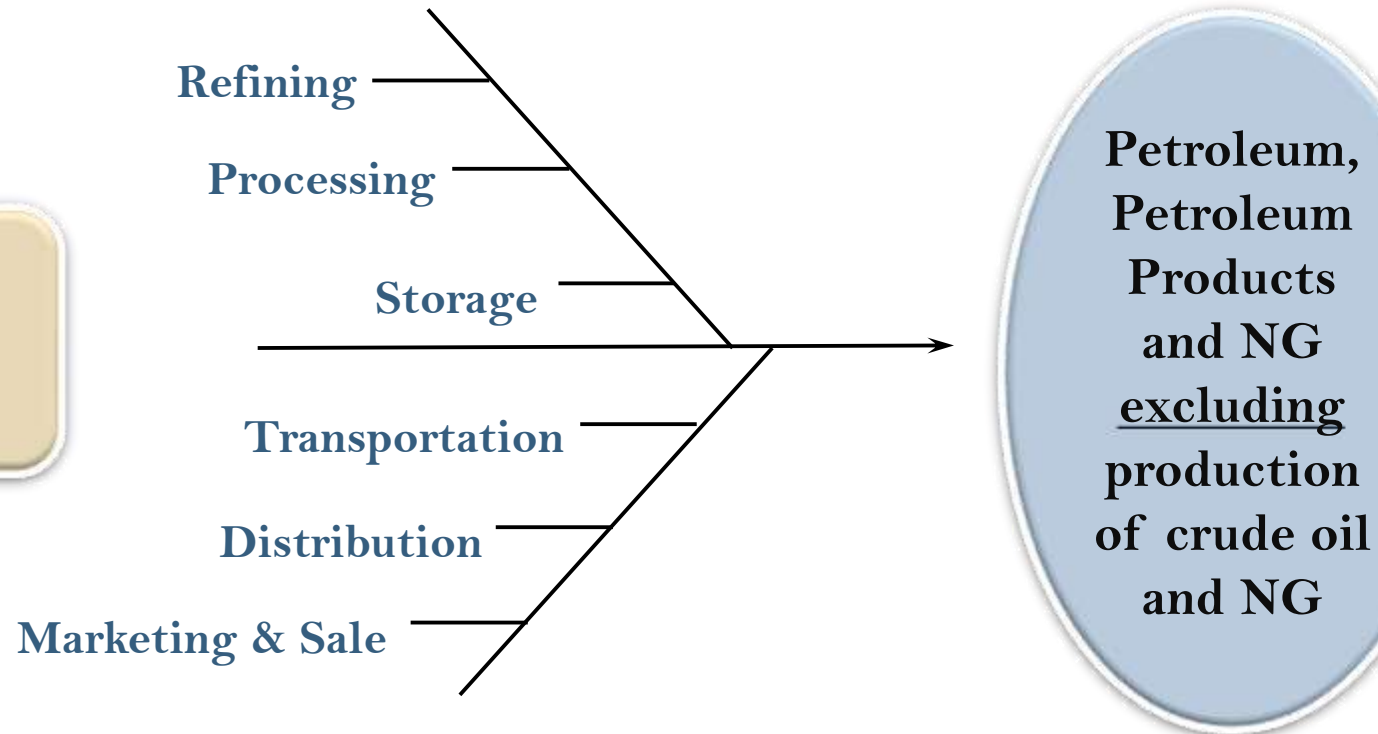
- Audit under ERDMP Regulations

# About PNGRB and its functions

**PNGRB Act,  
2006**

- PNGRB was constituted by PNGRB Act, 2006 for regulating midstream and downstream petroleum sector and natural gas

PNGRB  
to regulate



# About PNGRB and its functions

## Safety related functions of PNGRB

### Section 11(i)

- Lay down **technical standards and specifications including safety standards** in activities relating to petroleum, petroleum products and natural gas, including the construction and operation of pipeline and infrastructure projects related to downstream petroleum and natural gas sector

### Section 61(1)

- **The Board may, by notification, make regulations consistent with this Act and the rules made there under to carry out the provisions of this Act**

# About PNGRB and its functions

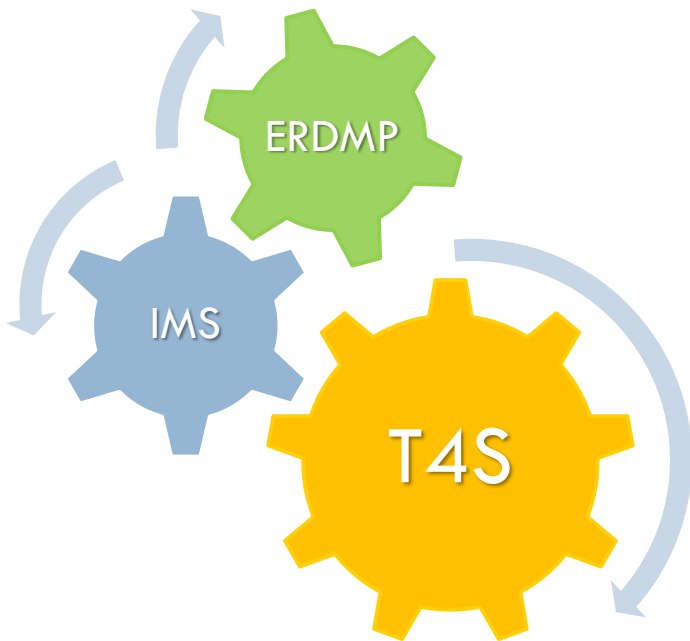
## Technical Regulations

Technical Standards and Specifications including Safety Standards  
(**T4S Regulations**)

Integrity Management System  
(**IMS Regulations**)

Emergency Response and Disaster Management Plan  
(**ERDMP Regulations**)

Third Party Conformity Assessment  
(**TPCA Regulations**)



# Introduction to ERDMP Regulations

## PNGRB (Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)) Regulations, 2010

- Notified on 18.01.2010
- 1<sup>st</sup> Amendment on 01.01.2015
- 2<sup>nd</sup> Amendment on 17.09.2020
- Total no. of clauses:31
- Total no. of Schedules: 09
- Total no. of checklists: 07

“codes of practice” means the codes of practice for emergency response and disaster management plan notified by the Board;

# Definitions/Applicability/Scope/Intent

- **Emergency** “means a situation or scenario which has the potential to **cause serious danger to persons, environment or damage to property** and which tends to cause disruption inside or outside the premises and may require the help of outside resources”
- **Disaster** “means a **catastrophe, mishap, calamity or grave occurrence** in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of **life or human suffering** or damage to, and **destruction of property**, or damage to, or **degradation of environment**, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area”
- **Disaster Management Plan** “means a well-coordinated, **comprehensive response plan** to contain loss of life, property, environment and provide **speedy and effective recovery** by making the most effective use of available resources in case of a disaster”

# Definitions/Applicability/Scope/Intent

S.no	Type of installation
1.	Hydrocarbons processing installation like Refinery, Gas processing, LNG Regasification installations etc.
2.	Pipeline such as natural gas, propane, butane etc. and the hydrocarbons products which remain in gaseous state at NTP
3.	Petroleum storage facilities including POL depot, installations and terminals
4.	Natural gas storage facilities including LNG terminals
5.	Hydrocarbons gas bottling Installations having receiving, storage and handling facilities including storage for LPG, propane and butane
6.	City or local natural gas distribution facilities
7.	Retail outlets dispensing like Petroleum, Auto LPG, LNG, CNG and like other retail outlets
8.	Transportation of petroleum products including LNG, CNG etc. by road

\* any other installation as may be notified by the Board from time to time

# Definitions/Applicability/Scope/Intent

S.no	Scope shall cover:
1.	the <b>identification</b> of probable emergency scenarios
2.	the <b>mitigation measures</b> that attempt to reduce and eliminate impact on people, assets and environment by bringing it in the ALARP level
3.	the <b>preparedness</b> of emergency plans for actions when disaster or emergencies occur
4.	the <b>responses</b> that mobilize the necessary emergency services including responders like fire service, police service, medical service including ambulance, government as well as non-governmental agencies
5.	the <b>post incident or accident or disaster recovery</b> with aim to restore the affected area to its original conditions to the extent possible

# Definitions/Applicability/Scope/Intent

S.no

Intended to apply ERDMP regulations :

1. to **develop a concise and informative ERDMP** to enable the entity to mitigate the emergency as quickly as possible
2. to **develop, state of readiness**, for a prompt and orderly response to an emergency and to establish a high order of preparedness (equipment, personnel) commensurate with the risk
3. to **prevent escalation** of events, both on-site and off-site
4. to **minimize impact** on people
5. to **reduce damage** to property, machinery and environment
6. to provide an **incident management organogram** with clear missions and lines of authority (incident command system, field supervision, unified command)
7. to ensure an **orderly and timely decision-making** and response process (notification, standard operating procedures)
8. to **maintain good public relations**

# Salient Features of ERDMP Regulations

## ➤ Classification of Emergencies:-

### “On site emergency”

- An emergency that takes place in an installation or site and the **effects are confined to the Installation** premise's involving only the **people working inside the plants** and to deal with such eventualities is the responsibility of the occupier. It may also require help of outside resources

### “Off site emergency”

- An emergency that takes place in an installation or site and the **effects of emergency extends beyond the premises** or the emergency created due to an incident, catastrophic incidents, natural calamities, etc. It no longer remains the concern of the installation management alone and to deal with such eventualities shall be the responsibilities of **district administration**

# Salient Features of ERDMP Regulations

## ➤ Classification of Emergencies:-

### Level 1 Emergency:

- (i) It can be **effectively and safely managed**, and contained **within the site**, location or installation by the **available resources**;
- (ii) It has **no impact** outside the site, location or installation.

**Example:** Tank truck hit the helper while moving backwards, resulting in a fatality.

### Level 2 Emergency:

- (i) It **cannot be effectively and safely managed** or contained at the location or installation **by available resources** and **additional support** is alerted or required;
- (ii) It is having or has the **potential to have an effect beyond the site**, location or installation and where external support of mutual aid partner may be involved and it is likely to be dangerous to life, the environment or industrial assets or reputation.

**Example:** Major fire incident in a Tank Lorry Filling Gantry at a POL installation, involving help from mutual aid partners.

### Level 3 Emergency:

- (i) This is an emergency or an incident with **off-site impact** which could be catastrophic and is likely to affect the population, property and environment inside and outside the installation, and **management and control is done by district administration**.
- (ii) Although the Level-III emergency falls under the purview of District Authority but till they step in, it should be responsibility of the unit to manage the emergency.

**Example:** Sanganer(Jaipur) fire incident

# Salient Features of ERDMP Regulations

## ➤ Reporting of Incidents to PNGRB:-

- ✓ An **incident shall be treated as Major** if any of the following occurs;
  - (a) fire for more than **15 minutes**
  - (b) explosion/blowout
  - (c) fatal incident
  - (d) loss above **Rs. 20.0 Lac**
  - (e) cumulative man hours lost more than **500 hrs**
  - (f) plant shutdown/outage due to the incident
- ✓ All **Major Incidents** shall be **reported to PNGRB** in the **Schedule-VI** format **within 48 hours** after occurrence of the incident. However, '**Major**' Incident shall be **intimated to PNGRB** through telephone, email or SMS immediately or but not later than **4 hours of occurrence**.
- ✓ All incidents covered under Minor Incident and Near Misses should be maintained by the entity for inspection in the Schedule-VI format.
- ✓ **Quarterly incident report** consisting **Summary of Major** (including detailed Investigation Report) and **Minor incidents and Near Misses (only numbers.)** shall be sent to the **PNGRB within 30 days of the end of every quarter**.

# Salient Features of ERDMP Regulations

## ➤ Pre-emergency planning:-

### ■ **Hazard identification**

The first step towards ERDMP shall be to identify potential on-site and off-site hazards such as gas leaks, spills, fire, explosion, transportation incident, pipeline ruptures, equipment failure, natural calamities, etc.

### ■ **Risk analysis and risk assessment**

The second step is to determine the risk of an incident associated with each hazard. The risk analysis may be used to identify the high risk of scenarios to prioritize the emergency response plans.

### ■ **Causes of disasters**

The common causes for all above events to be tabulated and the ERDMP should be prepared by the installation to deal with all probable emergencies inter alia covering floods, earthquake, Drone attack, Cyber attack, bomb threat, Pandemic etc.

### ■ **Consequences**

The consequences of an Incident may be confined within the premises or may spill off-site triggering cascading effects.

# Salient Features of ERDMP Regulations

## ➤ Emergency preparedness Measures:-

### ■ **Training**

- ✓ Training on Emergency Preparedness and Response shall be imparted to all the personnel likely to be involved directly or indirectly to the emergencies including employees, contract workers, transport crew and security personnel.

### ■ **Mutual Aid**

- ✓ Since combating major emergencies might be beyond the capability of individual unit/ facility/ entity /site, it is essential to have mutual aid agreement with neighboring industries.
- ✓ Mutual aid associations shall conduct regular meetings, develop written plans and test the effectiveness of their plans by holding drills.

### ■ **Emergency Drills and Mock Exercises**

- ✓ To **evaluate the thoroughness and effectiveness of an ERDMP**, it is necessary to conduct periodic table top exercises full-scale or announced, and unannounced drills.
- ✓ Mock drill for On site (Level –I or II) shall be carried once in **three months** and for Off site (Level-III) emergency shall be carried once in **twelve months** in accordance with Typical Mock Drill Reporting format. Entity shall conduct at least one On site emergency exercise of Level-II during a year.

# Salient Features of ERDMP Regulations

## ➤ Response Procedures and Measures:-

### ▪ **Zoning and Maps**

The zones and maps shall be prepared highlighting the Incident prone areas of the unit so that in case of an emergency it serves as a basis for taking the action.

### ▪ **Layout/flow diagram**

Detailed layout and flow diagram for different activities such as Product Lines, filling system, emergency shutdown system isolation valves etc. should be detailed.

### ▪ **Manpower data**

The details of manpower deputed on shift basis should be given in order to assess the requirement in case of emergency.

## ➤ Emergency Organization and Responsibilities:-

✓ The plan shall identify an emergency response personnel or group with appropriate lines of authority for actuating the response management. Responsibilities for decision making shall be clearly shown in an emergency organization chart. The plan shall identify each responder's position, mission, duties and reporting relationship.

✓ Employees must assume additional responsibilities as per laid down procedure of ERDMP whenever an emergency alarm sounds.

# Salient Features of ERDMP Regulations

**No “two locations”** will be identical in respect of layout, surroundings, products, storage quantities, meteorological data etc. Therefore, ERDMP shall be **location specific** as per the available resources.

- Provided that, in respect of Cross-Country Pipelines, City Gas Distribution Networks, Retails Outlets, Road Transportation:
  - a. The entity may prepare a single ERDMP document of a **Cross Country Pipeline**. However, location/installation specific information shall be detailed in the document.
  - b. The **CGD entity** can prepare a single ERDMP document for its **Geographical Area**. However, specific information and mitigation measures w.r.t CNG Stations, Domestic, Commercial and Industrial supplies shall be detailed in the document.
  - c. Entities owning **Retail outlets (ROs)** shall identify various format for its RO like (Like RO with LPG, RO without LPG, RO in Cities, ROs on Highways or combination of two or more or other like devices) and prepare **typical ERDMP** in accordance with these regulations for implementation across all ROs of same format and ensure compliance.
  - d. For **road transportation**, entity shall identify the routes, prepare **typical ERDMP** and share the same with various stakeholders and ensure compliance.

# Salient Features of ERDMP Regulations

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## ERDMP for Constructions or Projects:-

- The entity shall formulate Emergency Plan for **Constructions or Projects** in accordance with the guidelines (Refer Annexure 2), duly approved by **Project In-Charge**. However, in case of Constructions or Projects in existing installations, the existing ERDMP document should either cover or be modified as per Annexure 2.

## Nomination of Director:-

- The Board of the concerned entity, within ninety days of the commencement of these regulations shall **appoint one of its Directors**, who shall be responsible for ensuring compliance to these regulations.
- ERDMP document shall be duly approved by the **Board of Directors of the entity** and copy shall be submitted to the PNRB.

# Audit under ERDMP Regulations

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## Compliance monitoring:-

- The Board shall monitor the compliance of ERDMP, either directly or indirectly by accredited third party through separate regulations on third party conformity assessment.

## Penal Provision:-

- In case of any deviation or shortfall, in achieving the recommended standards the entities are liable to penal provisions under PNGRB Act, 2006.

## Preparation of Draft ERDMP document

- Entity/location shall **prepare** draft ERDMP document based on latest QRA/HAZOP in line with PNGRB ERDMP Regulations. 2010.
- Content of the ERDMP document shall be as per clause-5 of PNGRB ERDMP Regulations. 2010.
- PNGRB-empaneled TPIA shall not prepare or provide consultancy in the preparation of ERDMP document.

## Role of TPIAs

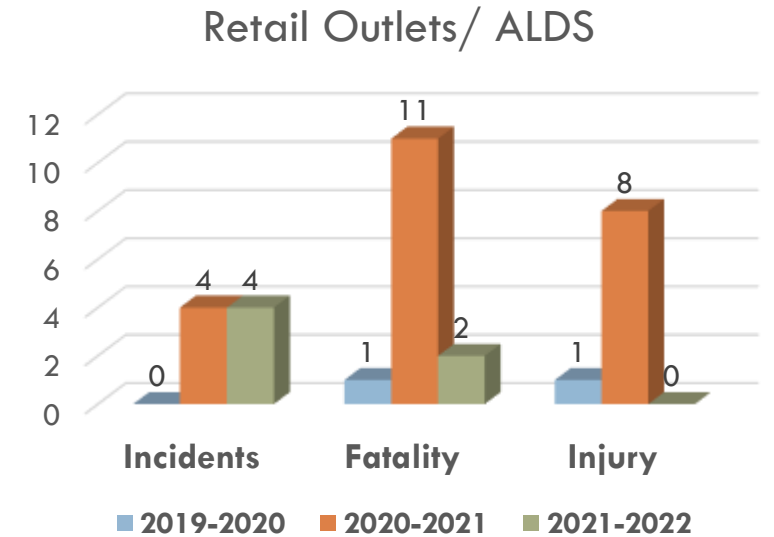
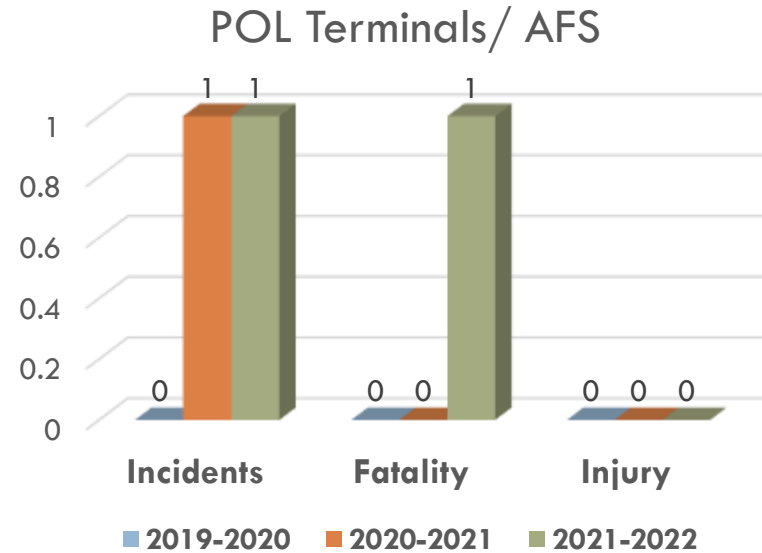
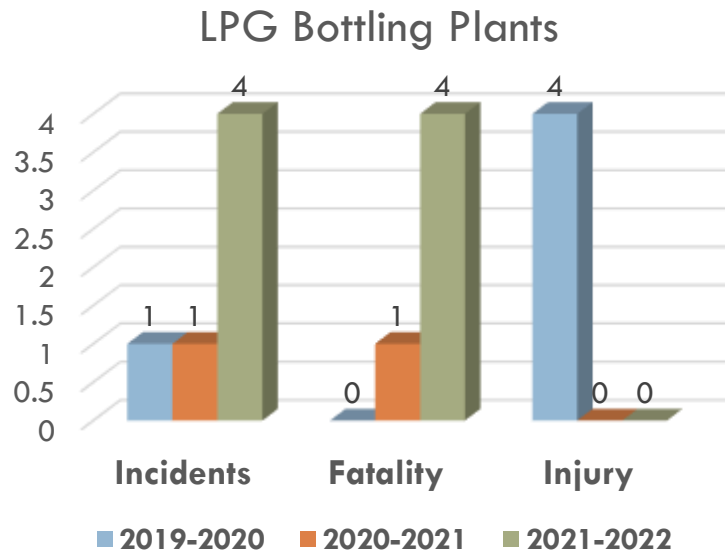
- TPIAs will do **gap analysis** of draft ERDMP document of any location vis a vis PNGRB ERDMP Regulations. 2010.
- TPIAs will **cross-check** the preparedness, mitigation measures, emergency handling facilities, etc. available/deployed at site as per draft ERDMP document as well as PNGRB ERDMP Regulations. 2010.
- TPIAs will communicate its audit observations to the Entity and PNGRB.
- After satisfactory compliance of audit observations, TPIA will certify the ERDMP document and issue Certification having 3/5 years validity, as applicable.

## Initial Certification & Revision

- Entity shall undertake initial audit/certification of ERDMP document within one year from the date of commissioning of the installation/ facility.
- Entity shall undertake a revision of ERDMP document in case of any addition or deletion of any facility in the installation.

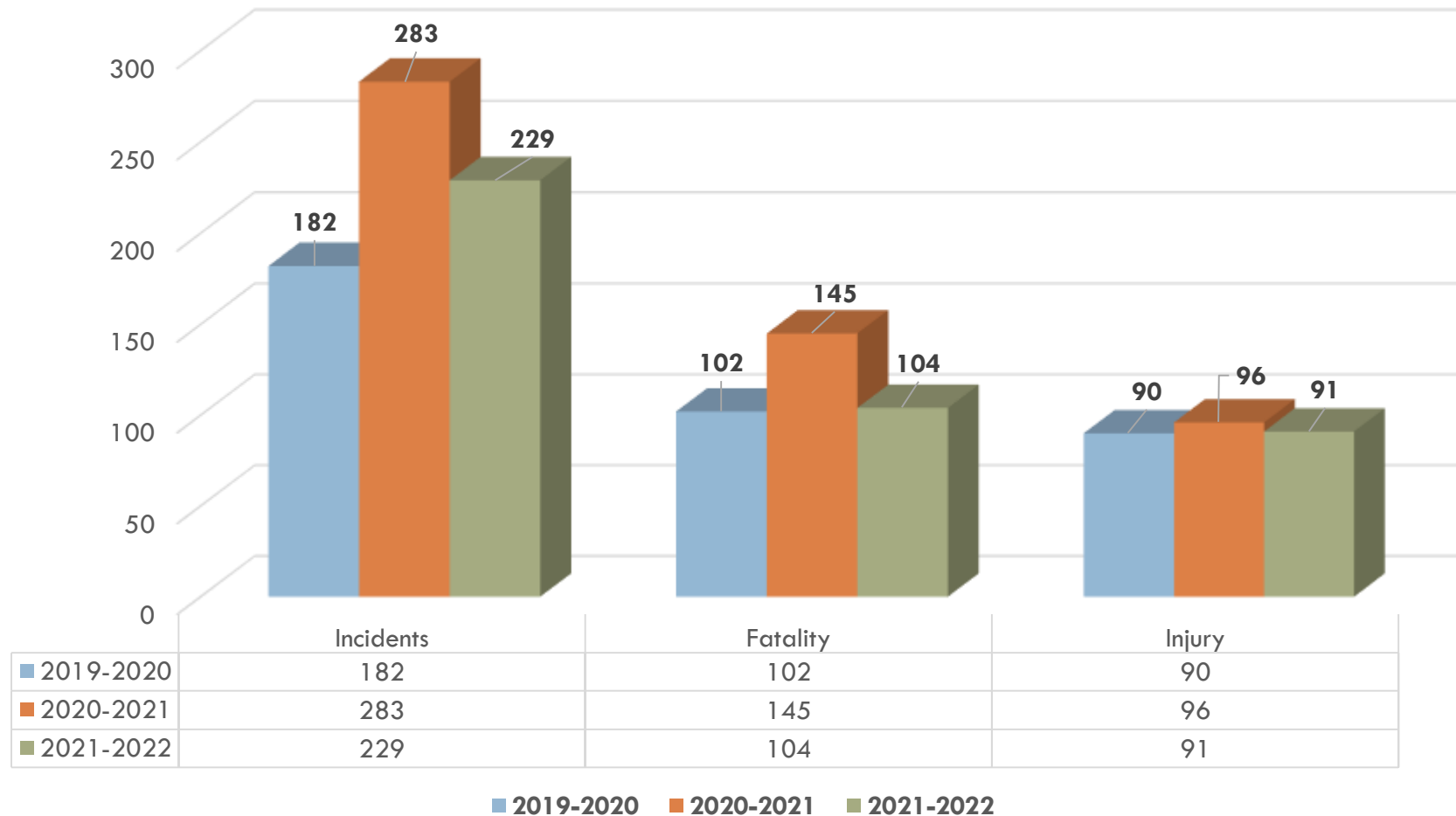
# Incident Statistics

## TREND OF INCIDENTS IN LAST THREE YEARS



# Incident Statistics

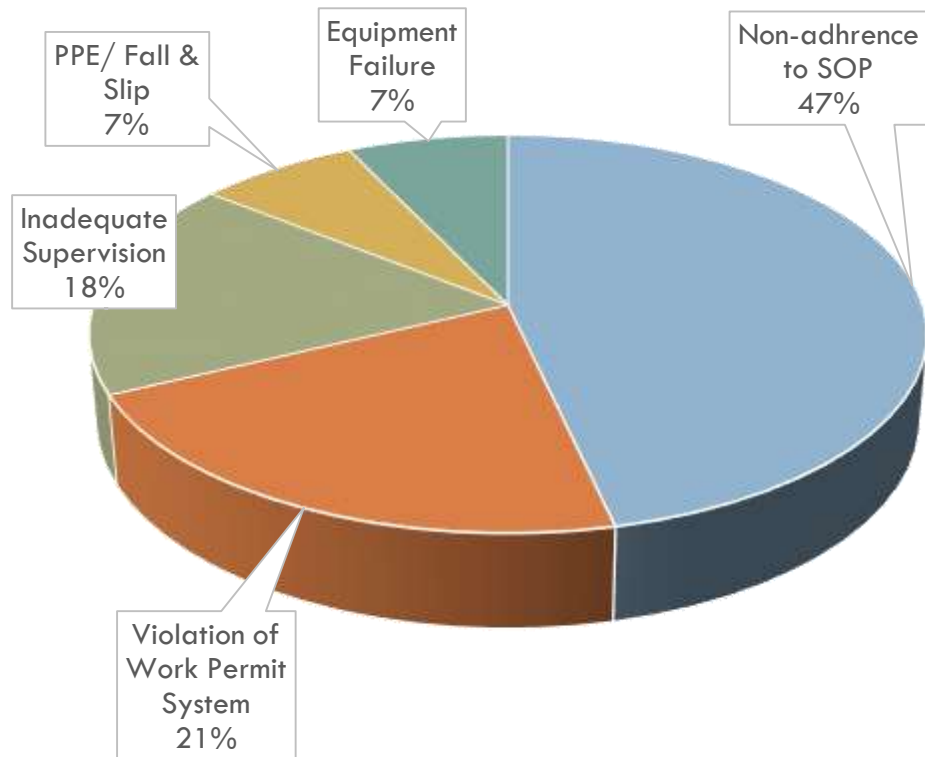
## TREND OF ROAD INCIDENTS IN LAST THREE YEARS



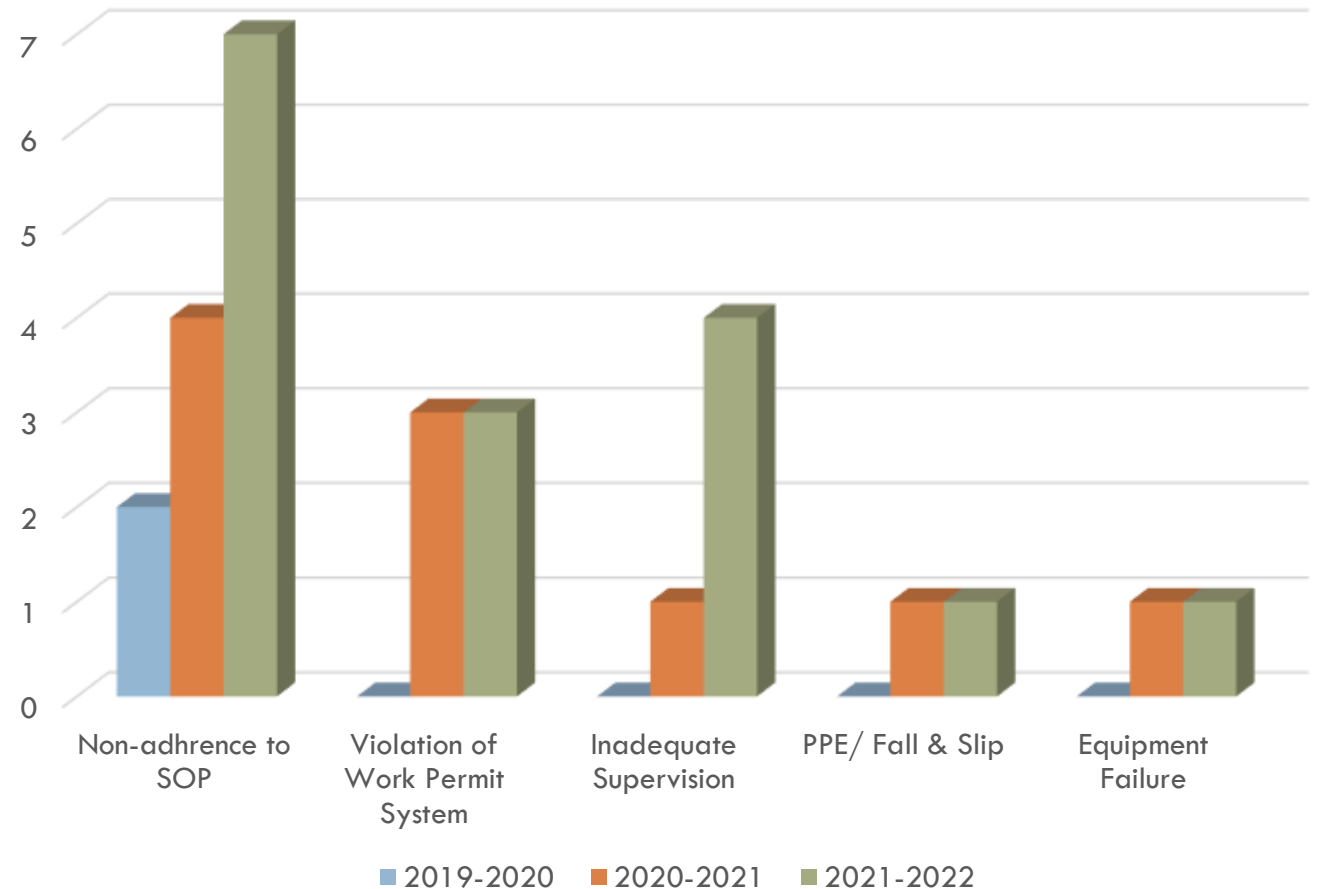
# Root Cause Analysis

## ROOT CAUSE OF INCIDENTS IN LAST THREE YEARS

### Percentage Distribution



### Year-wise Trend



# Thank You

**TEAM PNGRB**