PROCESS SAFETY MANAGEMENT: A PROACTIVE WAY TO PREVENTING OIL & GAS FACILITIES OPERATIONAL DOWN-TIME DURING PRODUCTION PHASE.
FULL STATURE SAFETY & SECURITY COMPANY LIMITED is an indigenous entity duly registered with the Corporate Affairs Commission of Nigeria and assigned No. RC 1144049 in 2013. The Company is based in Port Harcourt, Rivers State and has her office located on the address below:

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1.0 Introduction

Process Safety is a structured framework for managing the integrity of operating systems and processes handling hazardous substances such as surface production facilities. It is achieved by applying good design principles, engineering, operation and maintenance practices. It deals with the prevention and control of events that have the potential to release hazardous materials and energy. Such incidents can result in toxic exposures, fire or explosions and could ultimately result in serious incidents including fatalities, injuries, property damage, lost production or environmental damage. These incidents are caused by multiple and sequential failures that coincide as can be seen in the figure below:
Introduction Cont’d

- Figure 1: Swiss Cheese Model

![Swiss Cheese Model Diagram]

- External
  - Industry-wide learning, risk control barriers, KPIs and good practice

- Proactive
  - Identify controls to mitigate identified hazards and risks (e.g., HAZOP, PHA)

- Reactive
  - Weak barriers identified from past integrity incidents and high potential events
During the design and construction phases of oil and gas plants, barriers are usually introduced into emerging designs based on structured technical safety studies to prevent loss of primary containment (LOPC) or process safety event (PSE) and to mitigate consequences or prevent escalations should the top event still happen. The integrity of such barriers is of primary importance to any oil and gas producer. At least, three types of inputs are required to help identify weak, strong or critical barriers. See Figure 2 below for illustration.
The establishment of Key Performance Indicators (KPI) forms part of the process that leads to decision making per API RP 754. KPIs perform the following functions:

- Identify events or conditions.
- Provide a means to measure activity, status, or performance.
- Serve as basis for taking preventive/corrective action.
- Pointers to whether or not the right/wrong things are being managed and tracked.

Key Performance Indicators are divided into two broad groups:

- Lagging (outcome oriented and retrospective). This group of indicators divides naturally into Tier 1 and Tier 2.
- Leading (forward-looking and indicate the performance of the key work processes, operating discipline, or protective barriers that prevent incidents). Tiers 3 and 4 KPIs belong to this family.
Process Safety Management was implemented on three oil and gas facilities in the Niger Delta:
- Fixed platform June 2015.

The results for the two Flow-stations are presented on subsequent slides.
4.0 Results

Flow-station “O”

Results

Flow-station “O”
Results

Flow-station “I”
Results

Flow-station “I”
THANK YOU FOR YOUR ATTENTION