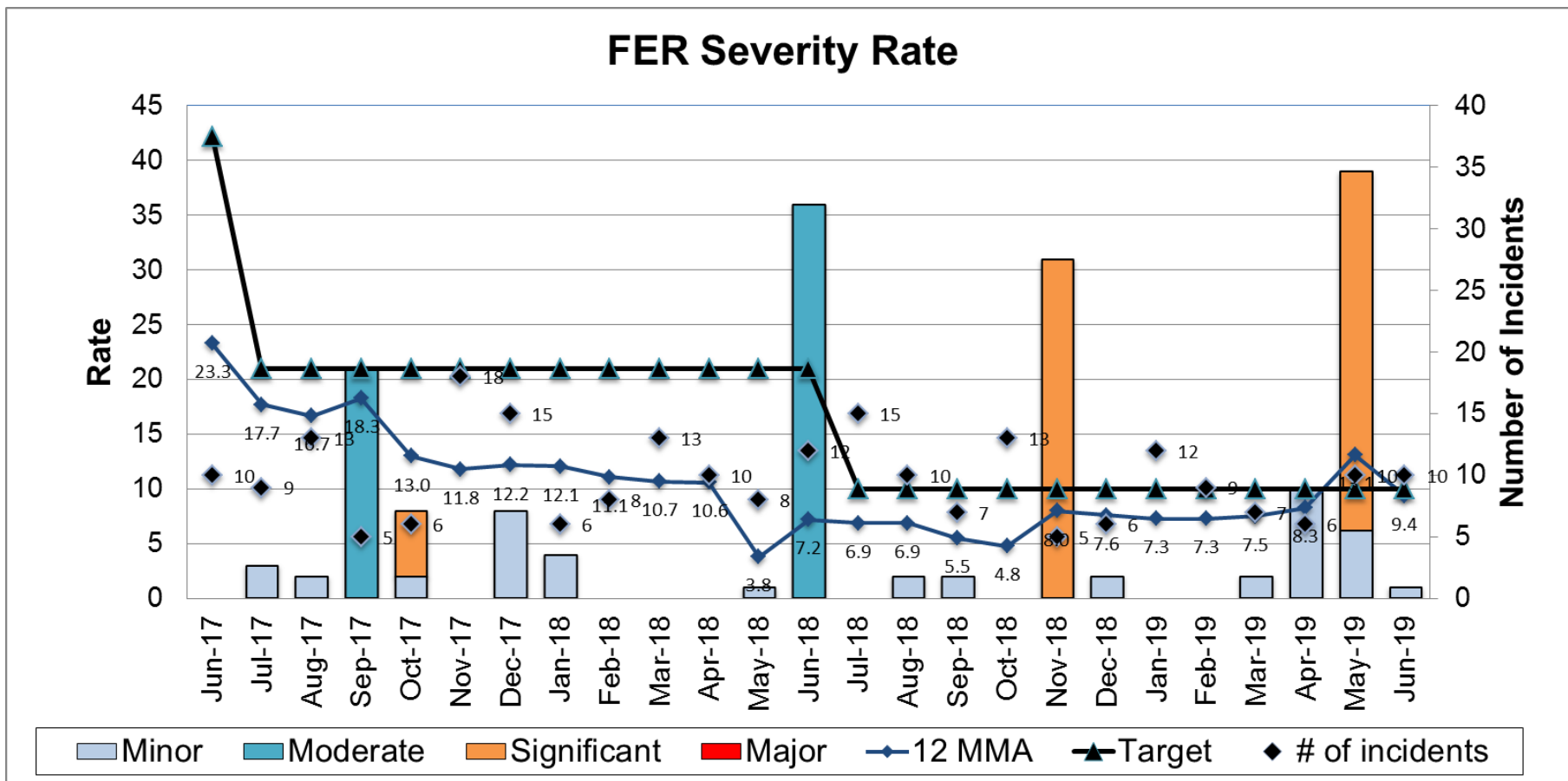




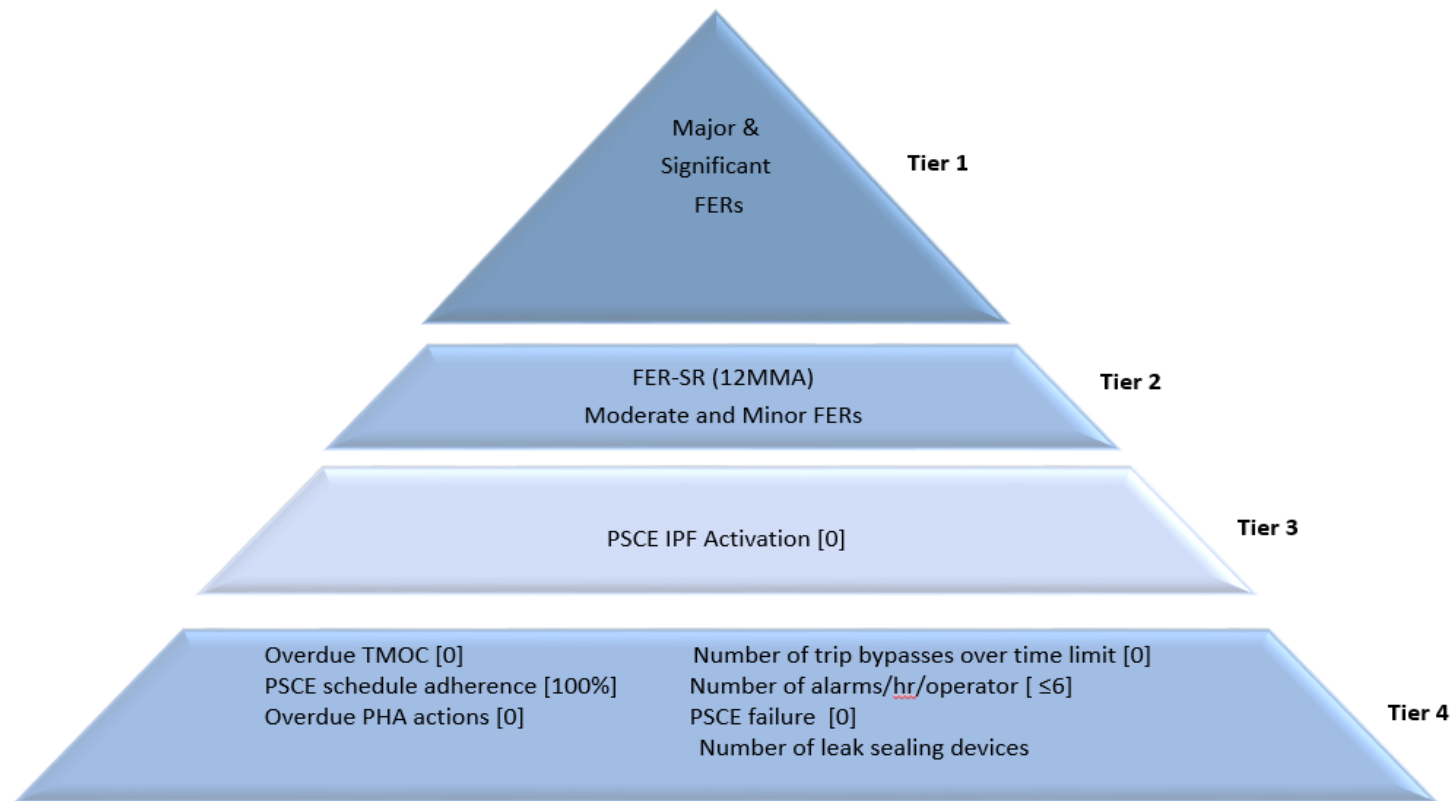
LOPC Monitoring, Mitigation and Management

Clinton Govender

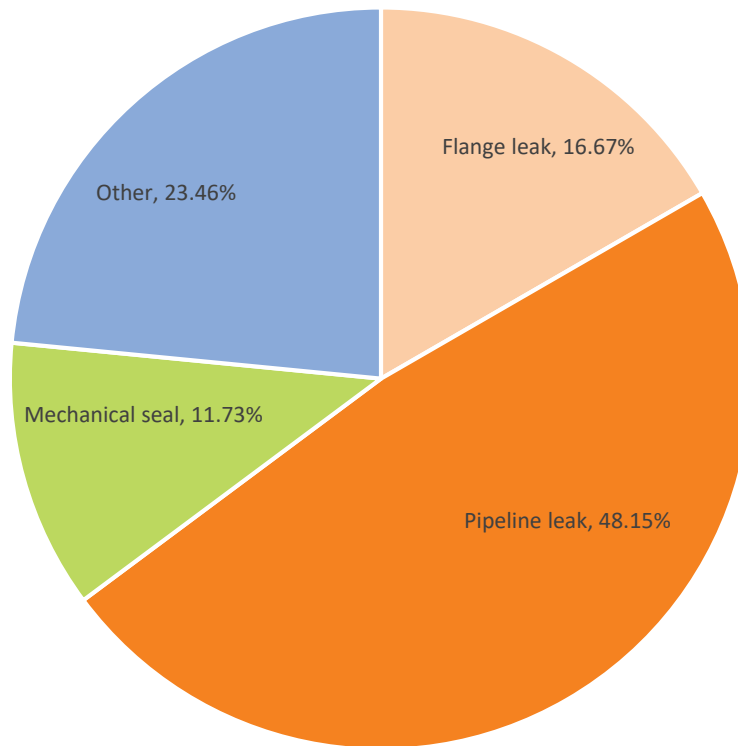
LOPC Monitoring - FER SR



LOPC Monitoring - Leading and Lagging Indicator Performance



Leak source for all incidents from FY17 to FY19



LOPC Management

- Process Safety Management System
 - Leadership and Organisational Culture
 - Process Safety Information (PSI)
 - Process Hazard Analysis (PHA)
 - Standard Operating Procedures (SOP's)
 - Training
 - Service Provider Management
 - Pre Start-up Safety Review (PSSR)
 - Maintenance Integrity Safety Standard (MISS)
 - Work Permits
 - Management of Change (MOC)
 - Incident Investigation
 - Emergency Planning and Response
 - Compliance Audits
 - Operating Discipline

LOPC Management

- Bow-ties (KUE) and Critical control management
 - Bow-tie methodology
 - Critical control checklist and performance criteria
 - Safety walks
- Pipeline leaks
 - Pipeline classification and RBIs process (API 580)
 - Pipelines statutory inspections
 - Under lagging corrosion
 - Maintenance execution
 - Repairs (QCP,
 - QCP compiled for repairs
 - Inspection conducted after repairs
- Flange leaks
 - QCPs (Bolting, torque settings)
 - PSSR completed before and during start-up
 - High frequency inspections

LOPC Management

- Mechanical seal
 - Contract management
 - Mechanical seal replacement (QCP and SP management)
 - Operation training (Process safety, etc.)
 - Mechanical seal monitoring (MTTF, Process upsets that could impact seal failure)