



# **LOPC Mitigation and Management**

## **Secunda Synfuels Operations**

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# LOPC Failures

- The three highest failures:
  - Flange leaks (30.4%)
  - Pipeline leaks (30.0%)
  - Pump seal failures (9.4%)
- Data analysed for the past three financial years

# Flange leaks

- QCPs for all flanges been break during maintenance
  - Correct gasket type
  - Torque setting for the bolts
  - Correct bolt types
- PPSR completed during start-up
  - Walk the line
  - Stand test
  - Soap tests
- Higher class gaskets are installed
  - Spiral wound instead of soft sheeting gasket
- Gasket failure analysis:
  - Flange alignment
  - Loose or incorrect bolting
  - Flange faces
  - Gasket alignment
  - Gasket type
  - Gasket size
  - Thermal shock
  - Vibration

# Pipeline failures

- Pipeline classification
  - Corrosion loops identified
    - Similar pressure and product
  - RBIs in progress for pipelines
- Pipelines statutory inspections
  - Inspection dependant on RBI rating and corrosion loop
  - Pressure tests
  - NDTs
  - X-rays
- Under insulation corrosion
  - Pipelines identified
  - Insulation removed where possible
  - Pipelines insulated safe
- Maintenance
  - Strategies compiled for pipelines
  - Change material for problem pipelines
- Repairs
  - QCP compiled for repairs
  - Inspection conducted after repairs

# Pump seal failures

- Mechanical seal contract
  - Service provider to supply mechanical seals
  - Supply correct mechanical seals
- Mechanical seal replacement
  - QCP during mechanical seal replacement
  - Service provider analyse mechanical seal after failure
  - Service provider present during mechanical seal replacement
- Operation
  - Process controllers retrained
  - Training manual compiled for pumps
  - Ensure pump operate at correct NPSH
  - Ensure pump operate at BEP
- Mechanical seals
  - Retrofit pumps with double mechanical seals where required
  - Correct seal plan installed as per specification
- Risk studies
  - Determine if mechanical seal can run dry and install protection
  - Install minimum flow requirement where required



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# Questions