UKOPA

United Kingdom Onshore Pipeline Operators' Association

Life extension Good Practice Guide (GPG)

Pipeline Integrity Working Group (PIWG)

Background

- UKOPA 2015 Strategy Workshop identified requirement for Life Extension GPG
- PIWG actioned development of scope - 2016
- Review of relevant standards:
  - ISO TS 12747 – Recommended practice for pipeline life extension
  - IGEM/TD/1
  - PD 8010-1
- Review of operator practices

PIWG standards review

- Definition of Life extension requirements
  - ISO TS 12747
- Data compilation
  - IGEM/TD/1, PD 8010-1
- Design, integrity and condition assessment
  - IGEM/TD/1, PD 8010-1, PD 8010-4
- Life extension – technical assessments
  - Operator practice
  - UKOPA GPGs
- Life extension report
  - ISO TS 12747

Scope

- Risk Assessment
- Design and construction review
- Current integrity and condition
- Life extension – technical assessments
- Future integrity management

Scope & issues identified by PIWG

- Risk Assessment:
  - Impact of corrosion and fatigue with age
- Design and construction review
  - Availability of records
- Current integrity and condition
  - Assessment of historical fatigue
  - Assessment of corrosion on non inspectable pipelines and buried installation pipework
- Life extension – technical assessments
  - Historical and future fatigue assessment
  - Prediction of corrosion growth
  - Assessment of vibration damage
- Future integrity management

Progress to date

- GPG Life extension of Pipelines and Associated Installations Draft A
  - Circulated to PIWG for comment
  - PIWG comments being collated
- PIWG Sub Group formed to progress further studies
  - Lead – Chris Rodgerson, NGN
  - Members – CLH, BPA, Cadent
- Further Studies
  - Corrosion
  - Fatigue
  - Vibration
  - Lack of records

Further studies
Corrosion condition

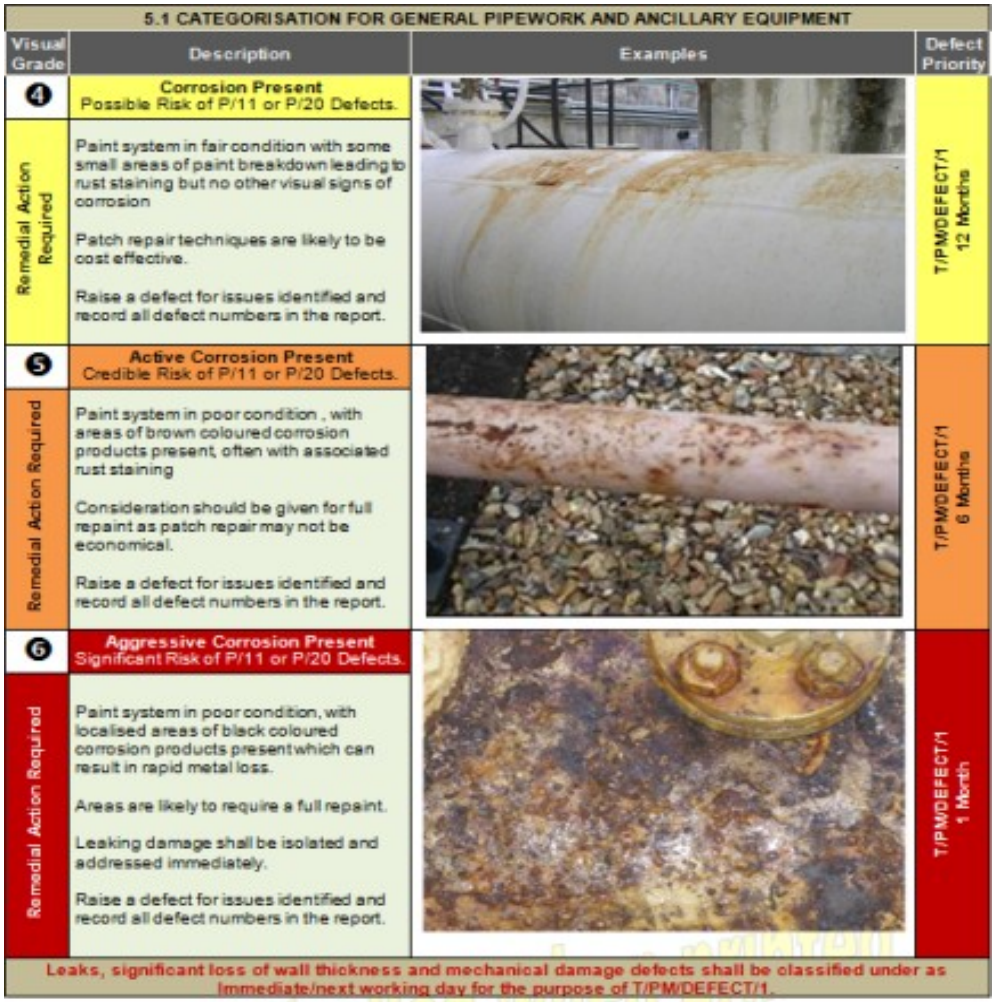
Installations

Corrosion, Operator studies, CP systems

Operational assessments at installations – NGN

Corrosion, Operator studies

- National Grid CM4
  - Presentation given to UKOPA February 2017

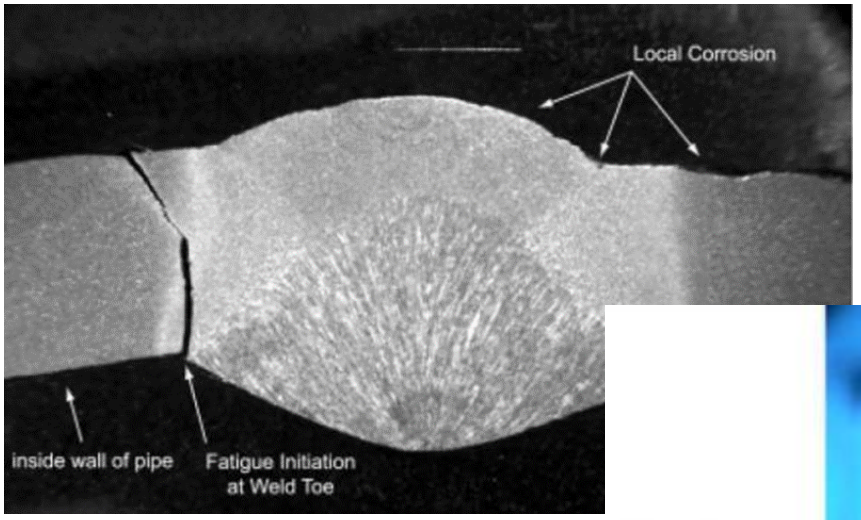


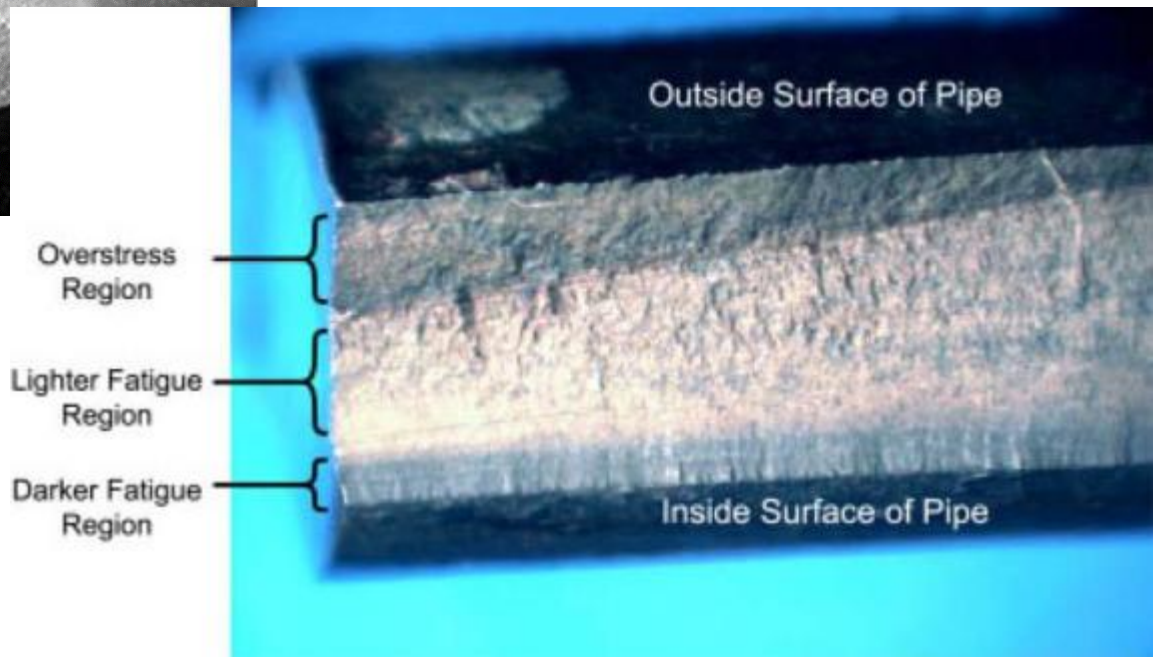
5.1 CATEGORISATION FOR GENERAL PIPEWORK AND ANCILLARY EQUIPMENT

Visual Grade	Description	Examples	Defect Priority
4	**Corrosion Present** Possible Risk of P/11 or P/20 Defects.		
Remedial Action Required	Paint system in fair condition with some small areas of paint breakdown leading to rust staining but no other visual signs of corrosion Patch repair techniques are likely to be cost effective. Raise a defect for issues identified and record all defect numbers in the report.		T/PM/DEFECT/1 12 Months
5	**Active Corrosion Present** Credible Risk of P/11 or P/20 Defects.		
Remedial Action Required	Paint system in poor condition , with areas of brown coloured corrosion products present, often with associated rust staining Consideration should be given for full repaint as patch repair may not be economical. Raise a defect for issues identified and record all defect numbers in the report.		T/PM/DEFECT/1 6 Months
6	**Aggressive Corrosion Present** Significant Risk of P/11 or P/20 Defects.		
Remedial Action Required	Paint system in poor condition, with localised areas of black coloured corrosion products present which can result in rapid metal loss. Areas are likely to require a full repaint. Leaking damage shall be isolated and addressed immediately. Raise a defect for issues identified and record all defect numbers in the report.		T/PM/DEFECT/1 1 Month

Leaks, significant loss of wall thickness and mechanical damage defects shall be classified under as Immediate/next working day for the purpose of T/PM/DEFECT/1.

Pipeline fatigue

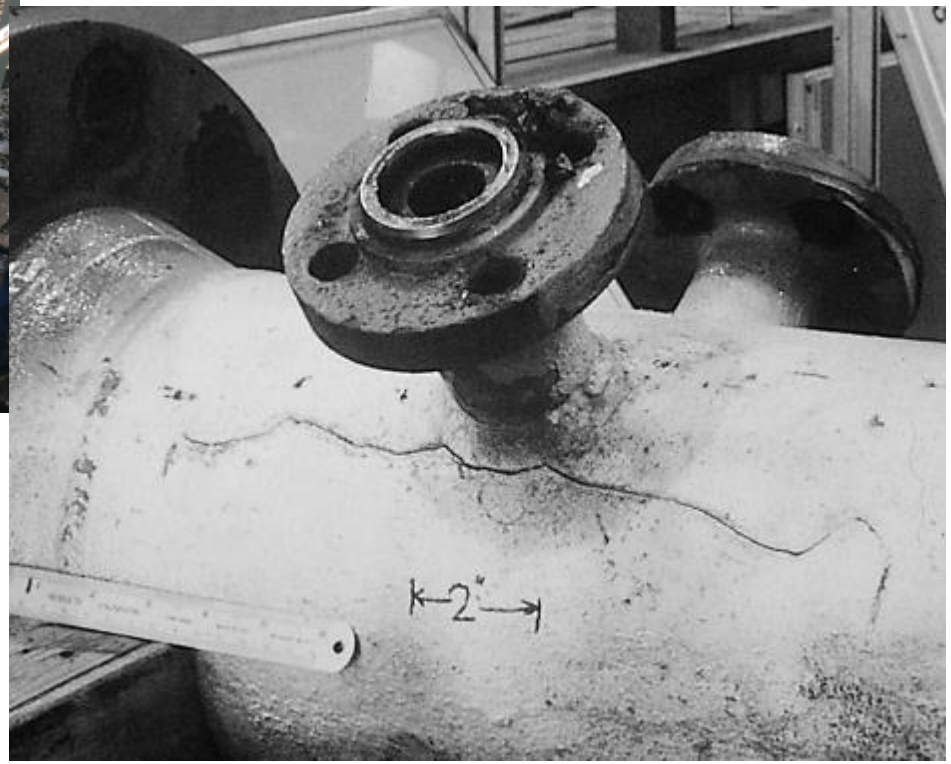




Seam weld fatigue – US pipeline

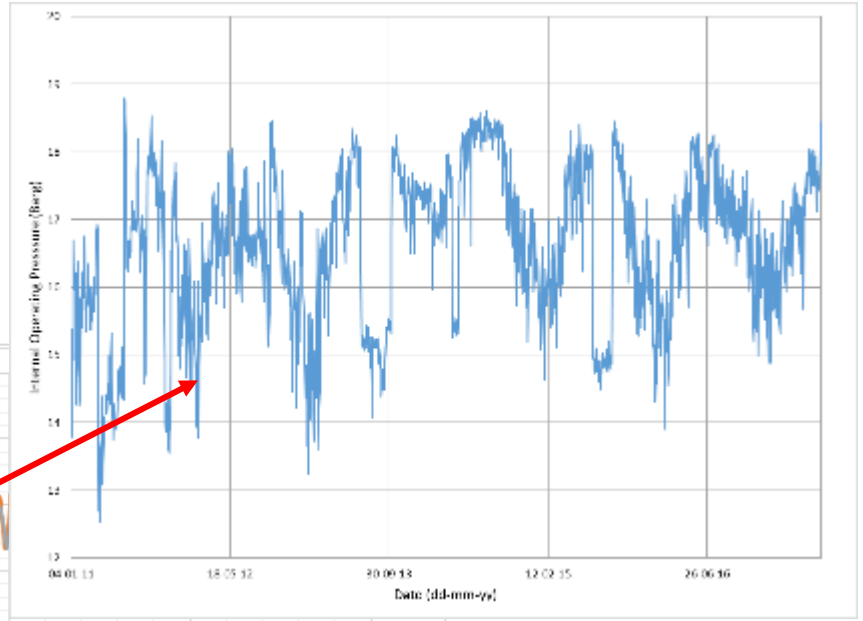
Fatigue at installations

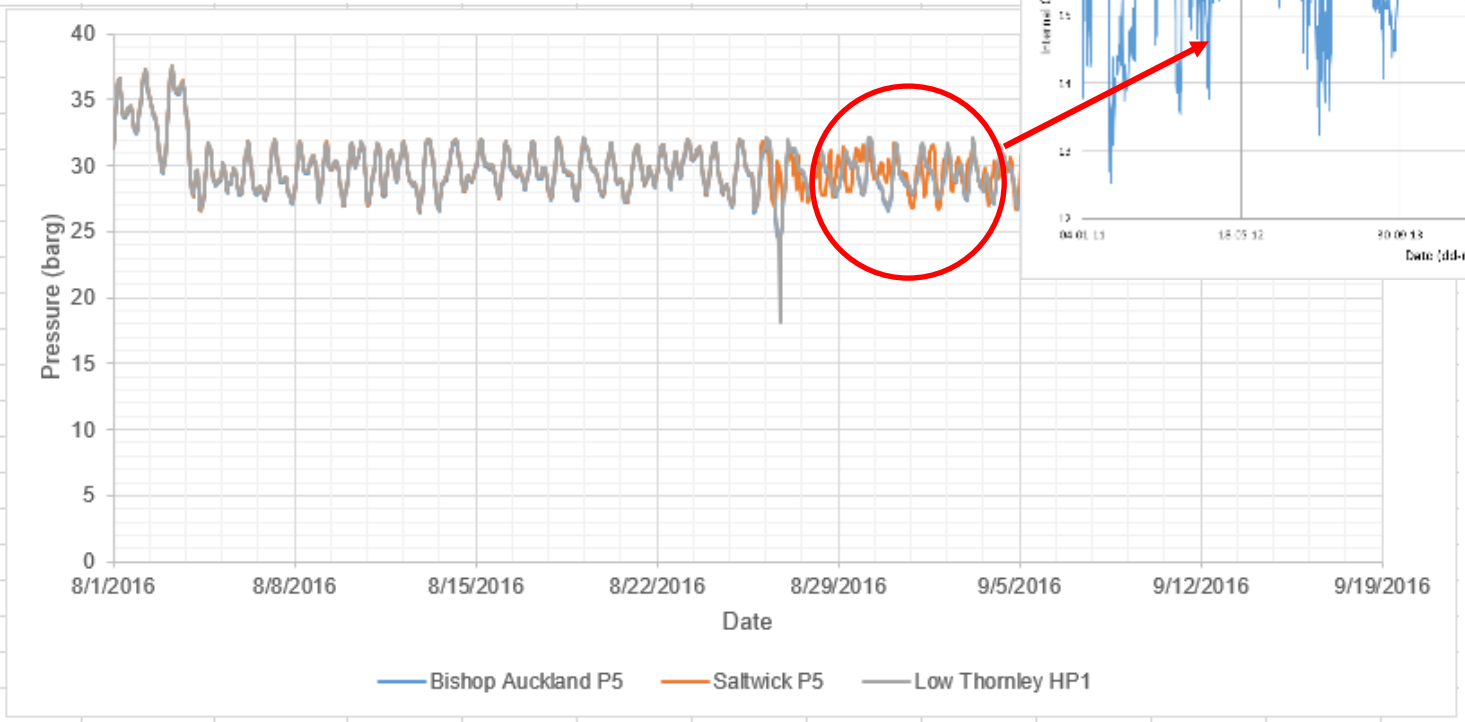
Fatigue at attachment on regulator stream



Assessment of fatigue duty

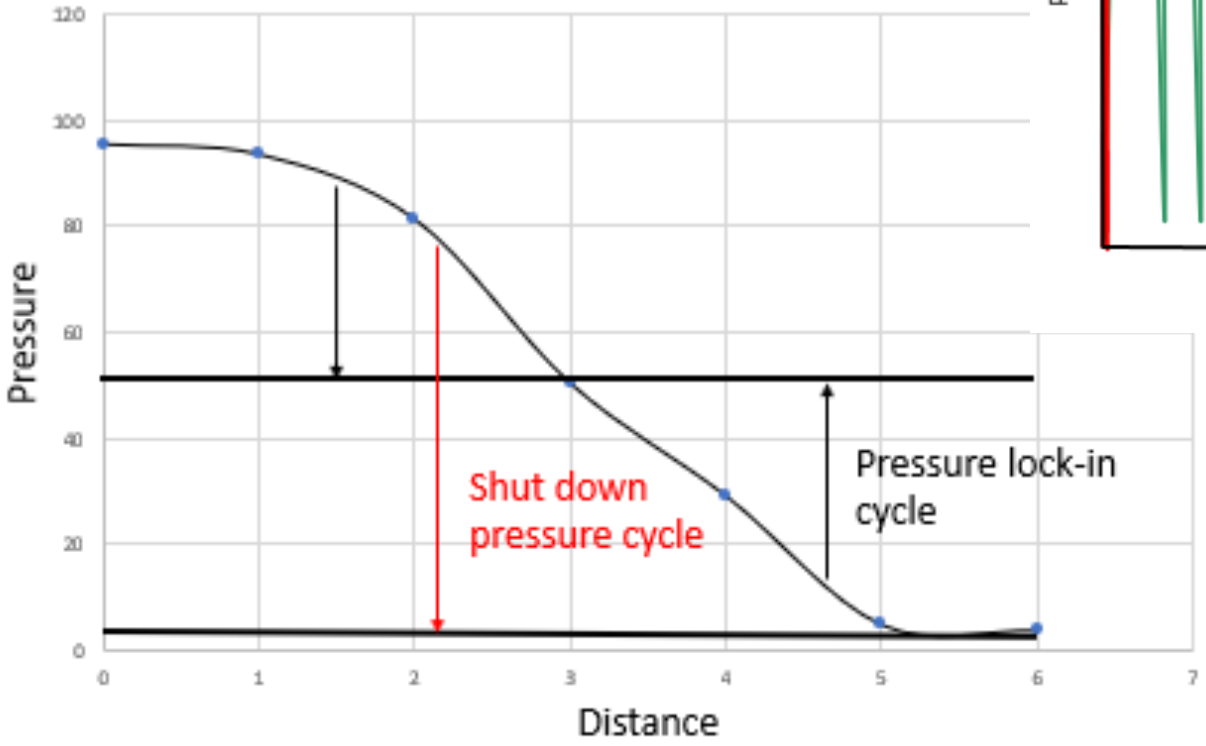
Gas Pipeline

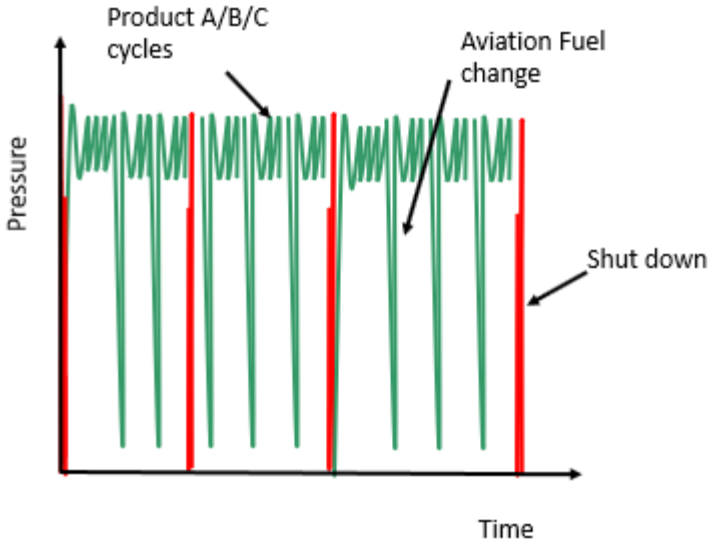




Assessment of fatigue duty

Liquid Pipeline





Operational pressure cycling
(varies along pipeline)

Vibration

Pipework attachments

Impulse pipework

NGN vibration assessments

Fretting wear on impulse lines

Lack of records

- Original records for pipelines constructed over 40 years ago may not be available
- Guidance is required for the assessment of criticality and lack of records
- The approach to records and data uncertainty developed for the “Transco 85 Bar Uprating projects” will be reviewed and applied:
  - Definition of essential data
  - Primary and secondary records
  - Use of testing
  - Assessment of uncertainty
  - Recommendations for generic assumptions

Status

- Chris Rodgerson (NGN) has reviewed Sub Group Tasks work and formed Sub Group
- Sub Group comprises; Stephen Humphrey (CLH), Richard Price (BPA) and Peter Talbot (Cadent)
- Sub Group to define additional studies scope and work programme

For further information, contact

crodgerson@northerngas.co.uk