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United Kingdom Onshore Pipeline Operators' Association

Development and Use of the UKOPA Fault database

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What will be covered

- The history and why it was developed

- The biannual product loss report

- Fault statistics and their use

- Future of the Fault Database

Risk = Probability x Consequence

the probability of a specific consequence occurring

- **Consequence, established models**

- **Probability**

- **Based upon records of historical pipeline failures (product loss)**

  US Gas Transmission
  CONCAWE
  EGIG

History

- **St Fergus-Mossmorran 1978**
  CONCAWE 20 incidents 0.232 per 1000km year

- **BG UK transmission 69-77**
  31 incidents 0.230 per 1000km year

- **TPeP/NWeP Technica 89-90**
  US gas pipelines 0.273 per 1000km year

- **HSE LUP 1991**
  0.273 per 1000km year

History continued

- Constant frequency
no account of wall thickness, design factor, burial depth.

- Assumed all holes that were not ruptures were punctures (conservative)

- 90s BG had been collecting fault and failure data

- Develop a database that considers: Diameter, wall thickness, operating pressure, grade of steel, depth of burial, etc

UKOPA fault database

Considers Faults and failures (loss of containment).

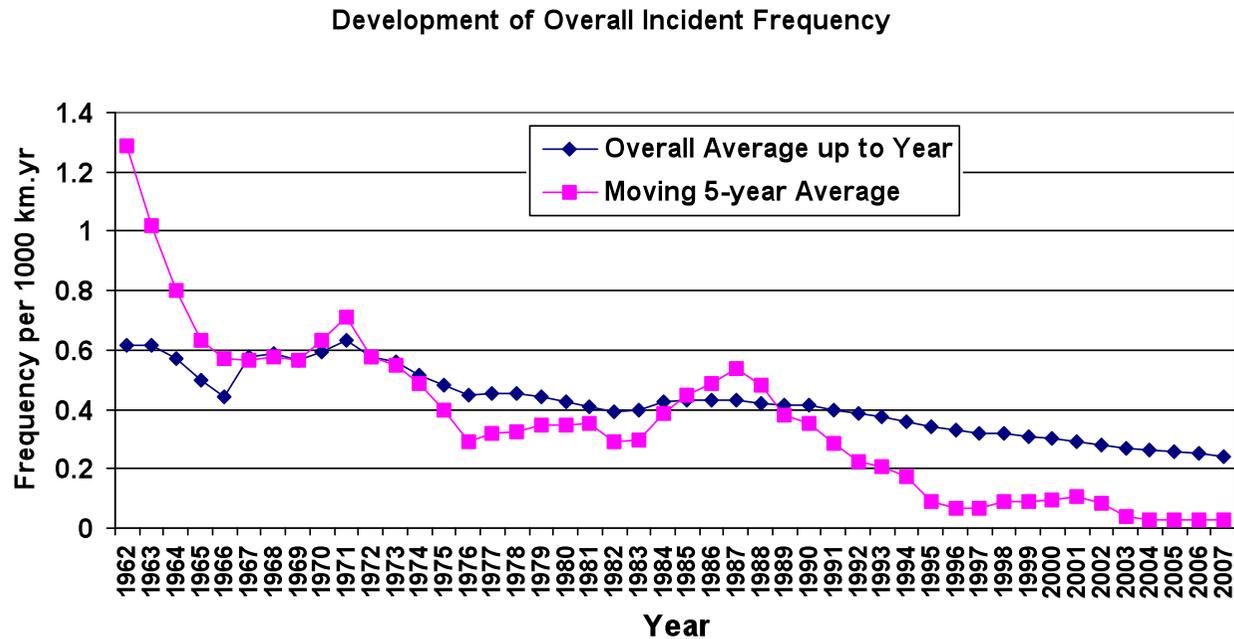Definition of a Pipeline fault within the UKOPA fault database.

A pipeline for the purposes of fault reporting is defined as a major accident hazard pipeline (defined in PSR96) and any associated equipment outside the fenced area of an installation (e.g. AGI, pressure reduction station, compressor, etc)

A pipeline fault is a feature that has been confirmed by field investigation, excavation and measurement. Any features that are inferred by other measurements such a intelligent pig in line inspections, CIPS, etc and have not been verified in the field should not be included. However pipeline defects comprising of coating damage or grinding marks confirmed by inspection should be included. The date of the fault should be the date of the field inspection.

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UKOPA Pipeline Product Loss Report 2007:

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ADVANTICA

UKOPA PIPELINE FAULT DATABASE

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Pipeline Product Loss Incidents

(1962 - 2007)

2007 Interim Report of the UKOPA Fault Database Management Group

Comprising:

National Grid
BP
Ineos
SABIC
Shell UK Limited
Shell EPE
E-ON UK
Wales and West Utilities
Scotia Gas Networks
Northern Gas Networks
Health and Safety Executive

Report prepared by G.Arunakumar Advantica for FDMG

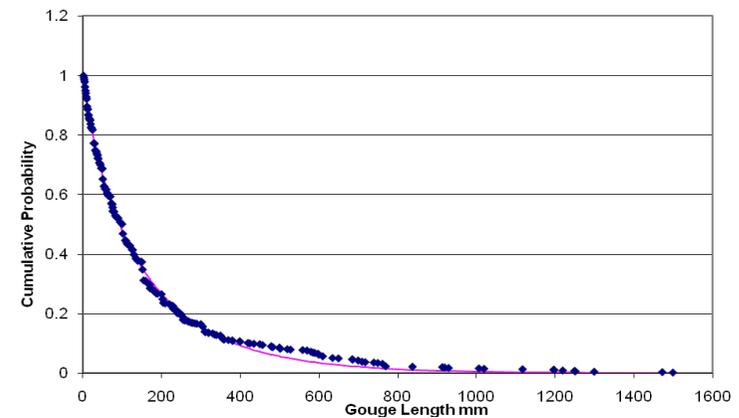*2007 INTERIM REPORT FOR FDMG CIRCULATION ONLY*

Fault Statistics

Use in IGEM and BSI codes for QRA

Modify failure rates based on thicker walls, lower design factors, etc.

Parameter Weibull	α	β mm
Gouge length	0.600	120.851
Gouge Depth	0.889	1.442
Dent Depth	0.690	6.202

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The future

- 2 yearly reporting.
Product Loss 2008 report July 2009
Faults statistics 1st report July 2009

- A new database maintaining data collected and integrity
Improved functionality
End 2009

- Training, Awareness and sharing of best practice.

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The future

Regular data entries and input

Your contribution

Questions