UKOPA

United Kingdom Onshore Pipeline Operators' Association

Update from the Fault and Risk Working Group (FARWG)

Graham Goodfellow
(FARWG Chair)

FARWG – Current Membership

Graham Goodfellow	Penspen Group (Chairman)
Neil Jackson	Independent Consultant (Secretary)
Arnaldo Latas	BP
Antonio Carabello	*BP (alternate member to Arnaldo)*
Richard Price	BPA
Stephen Humphrey	CLH PS (formerly the Oil and Pipelines Agency)
John Ferrari	Essar
Graham Canty	Gas Networks Ireland
Robert Owen	National Grid
Steve Potts	National Grid
Kristina Brazenaite	Northern Gas Networks
Graham Pailor	Sabic
Barry Mackay	SGN
Fridolin Jenny	Swissgas
Timothy Rudd	Valero
Morgan James	Wales & West Utilities
Jane Haswell	Independent Consultant
Rod McConnell	Independent Consultant
Mike Acton	DNV-GL (Technical Advisory)

18 members

Current Work

- Now functioning independently of the PIWG
- Recent meetings:
  - Ambergate on the 26th March
  - Teleconference on the 3rd June
  - Tebay on the 23rd September
- Ongoing 3 year work programme and associated budgets for the group being developed
- 2014 Fault Data Report initial draft prepared (more details later)
- Non-MAHP leak and fault database being developed (more details later)
- Some ongoing issues with LUP
  - Further discussions with the HSE regarding categorisation of historical incidents required

Future Work Programme

- 4 Key Areas
  - Continuation of Existing Work
    - e.g. MAHP Fault Database
  - Improvements to Database
    - e.g. Non-MAHP database
  - Better Use of Existing Data
    - e.g. Predictive corrosion frequency model?
  - Risk Assessment & Failure Frequency Prediction Improvements
    - e.g. Fault distributions update, denting force distribution, thick-walled pipelines

Potential Good Practice Guides Identified by the Group

- Specification for Concrete Slabs (final draft version available)
- Collecting and Reporting Fault Data
- Managing Encroaching Development and Societal Risk Around Pipelines

3 documents

  - Pipelines where societal risk is covered by code requirements (draft developed)
  - Ethylene pipelines (draft developed)
  - Oily pipelines

- Hazard distances associated with Ethylene Pipelines (draft developed)
- Modelling Third Party Damage
- Managing and Mitigating the Impacts of Ground Movement
- Managing Seismic Risks For Pipelines

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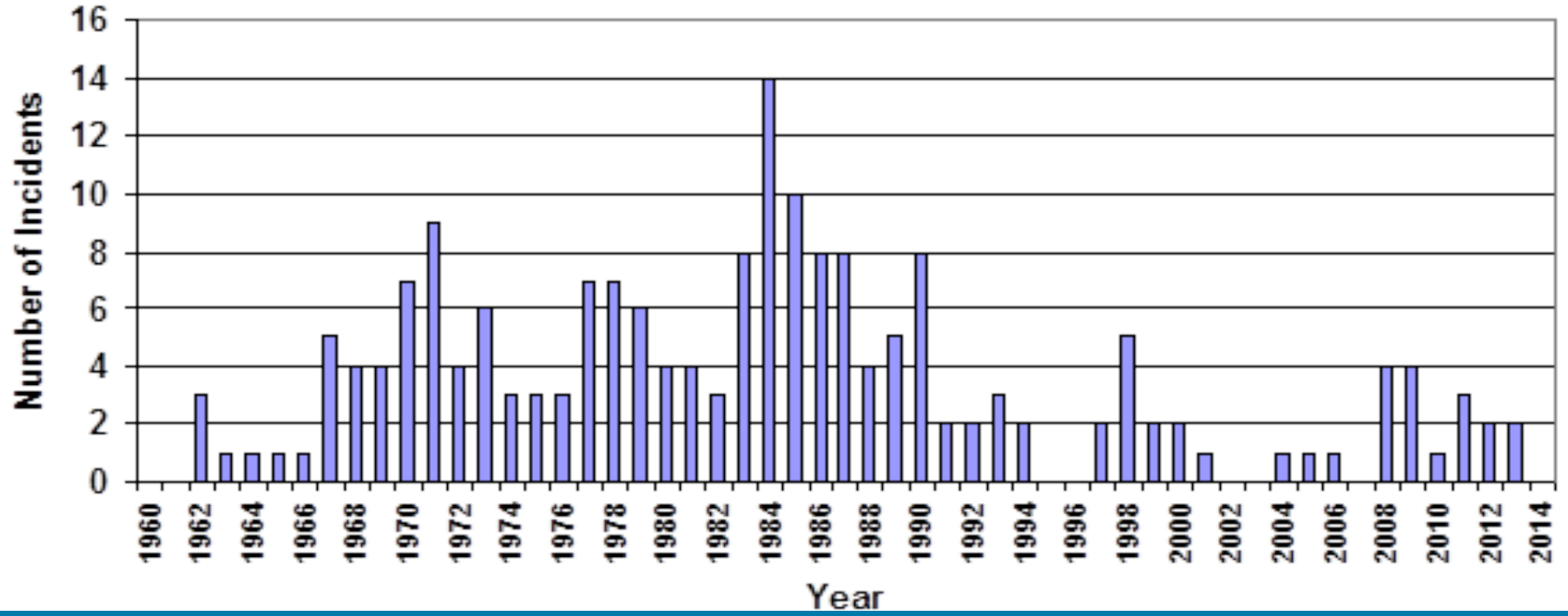
UKOPA MAHP Fault Database

October 2015

2014 MAHP Fault & Incident Data

- 2014 faults have been entered into the database
  - 84 faults recorded in 2014
  - No product loss incidents reported
- 2014 report – 1st draft prepared
  - NB Please treat all data presented today as draft!



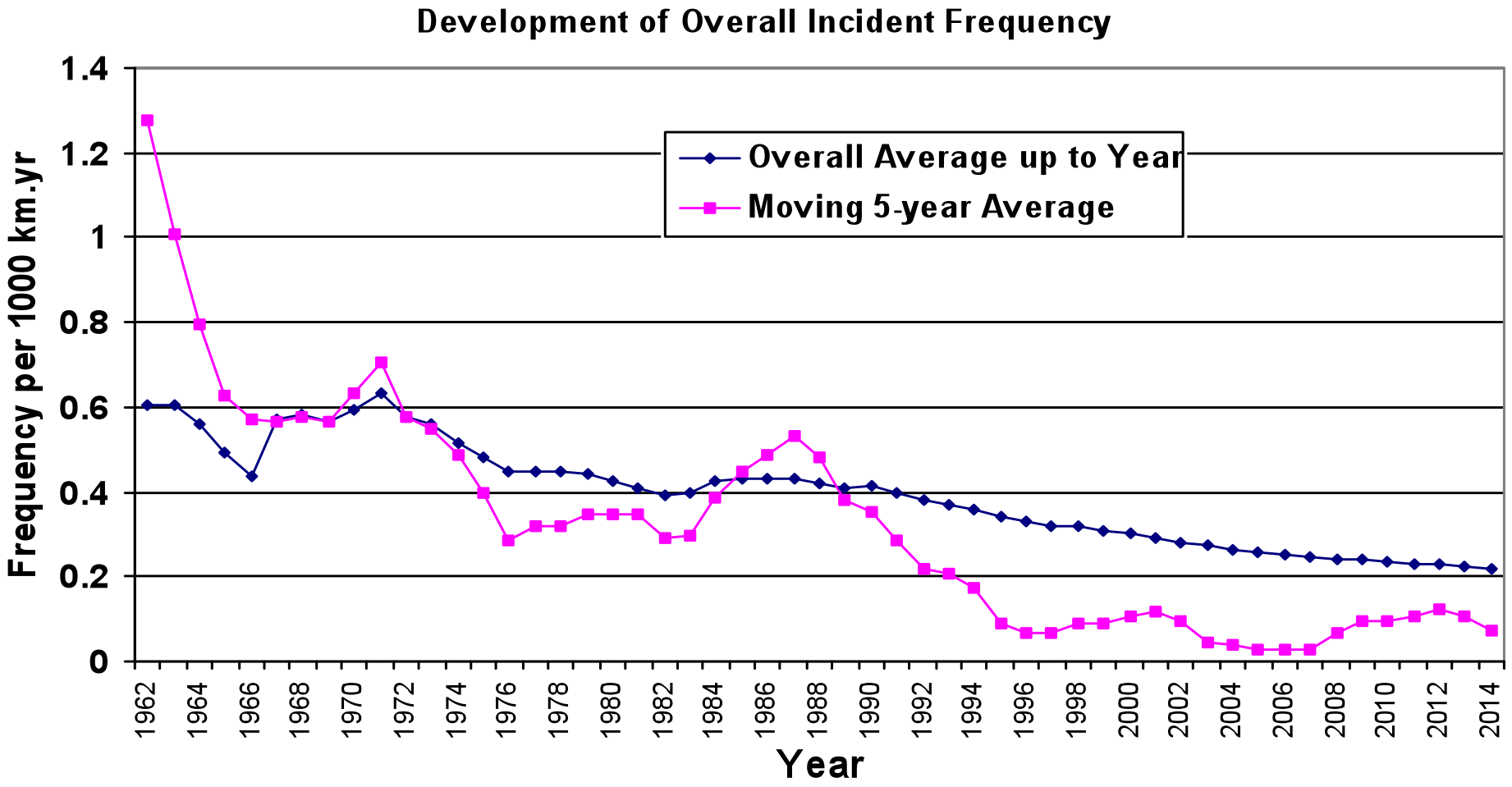
2014 MAHP Product Loss Incident Data

- 2014 Pipeline Population – 22,158 km
  - Pipeline population update from UKD (diversions)

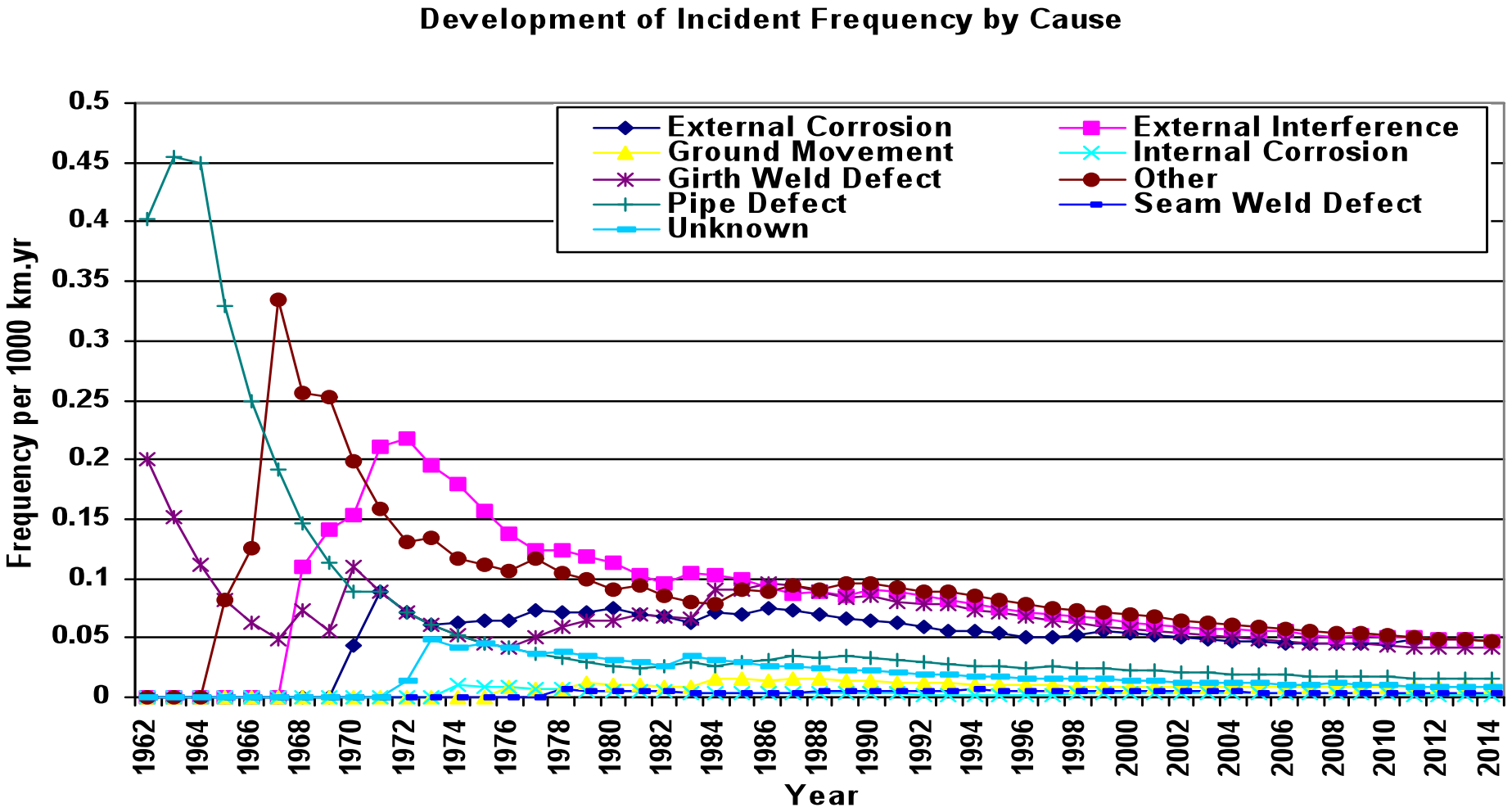
- Total Operational exposure – 877,589 km yrs

- Overall leak rate (1962 – 2014) = 2.18 $x10^{-4}$ per km yr
- 5 yearly leak rate (2010 – 2014) = 0.69 x $x10^{-4}$ per km yr
- 2014 leak rate – nil

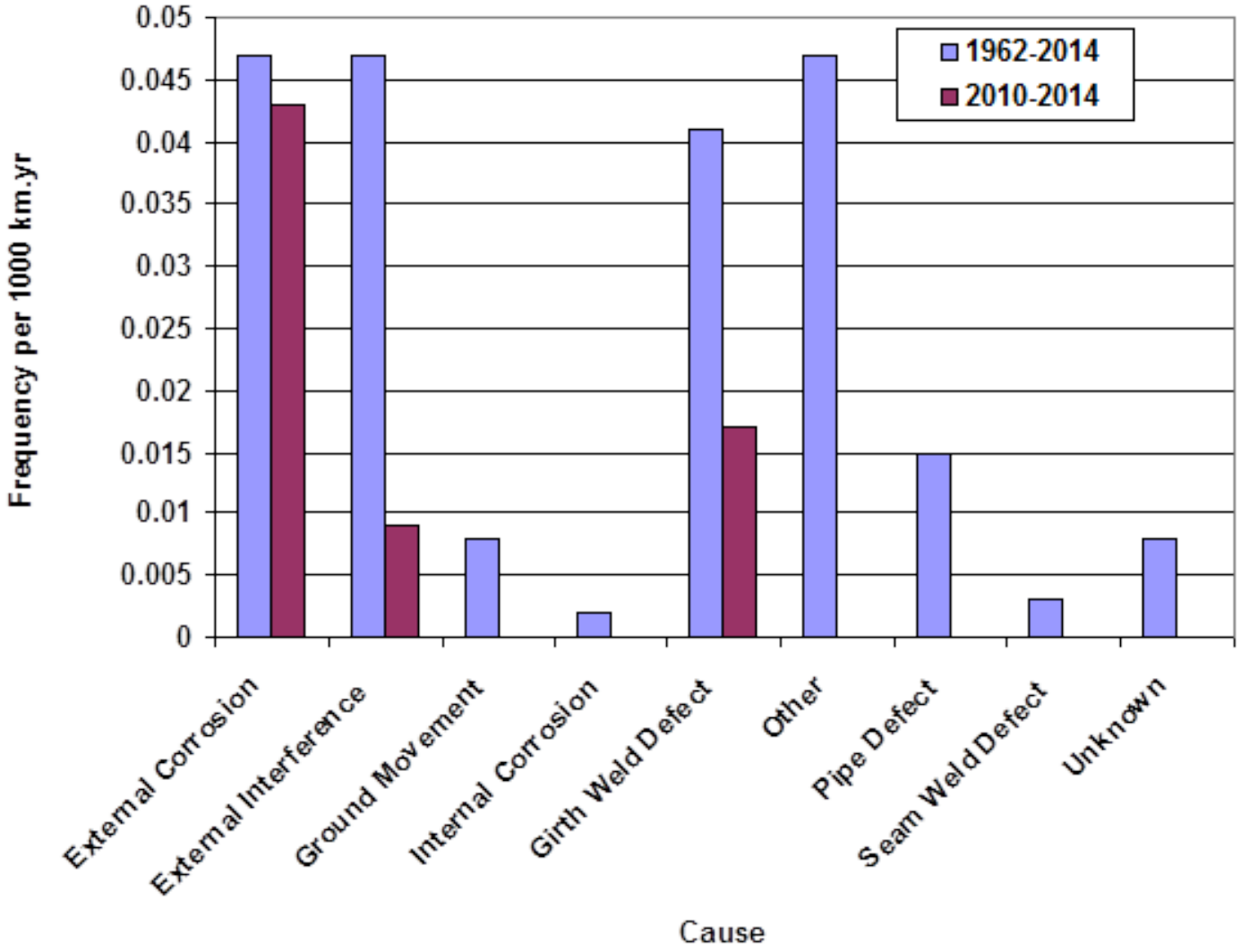
Overall Incident Frequency



Incident Frequency by Cause



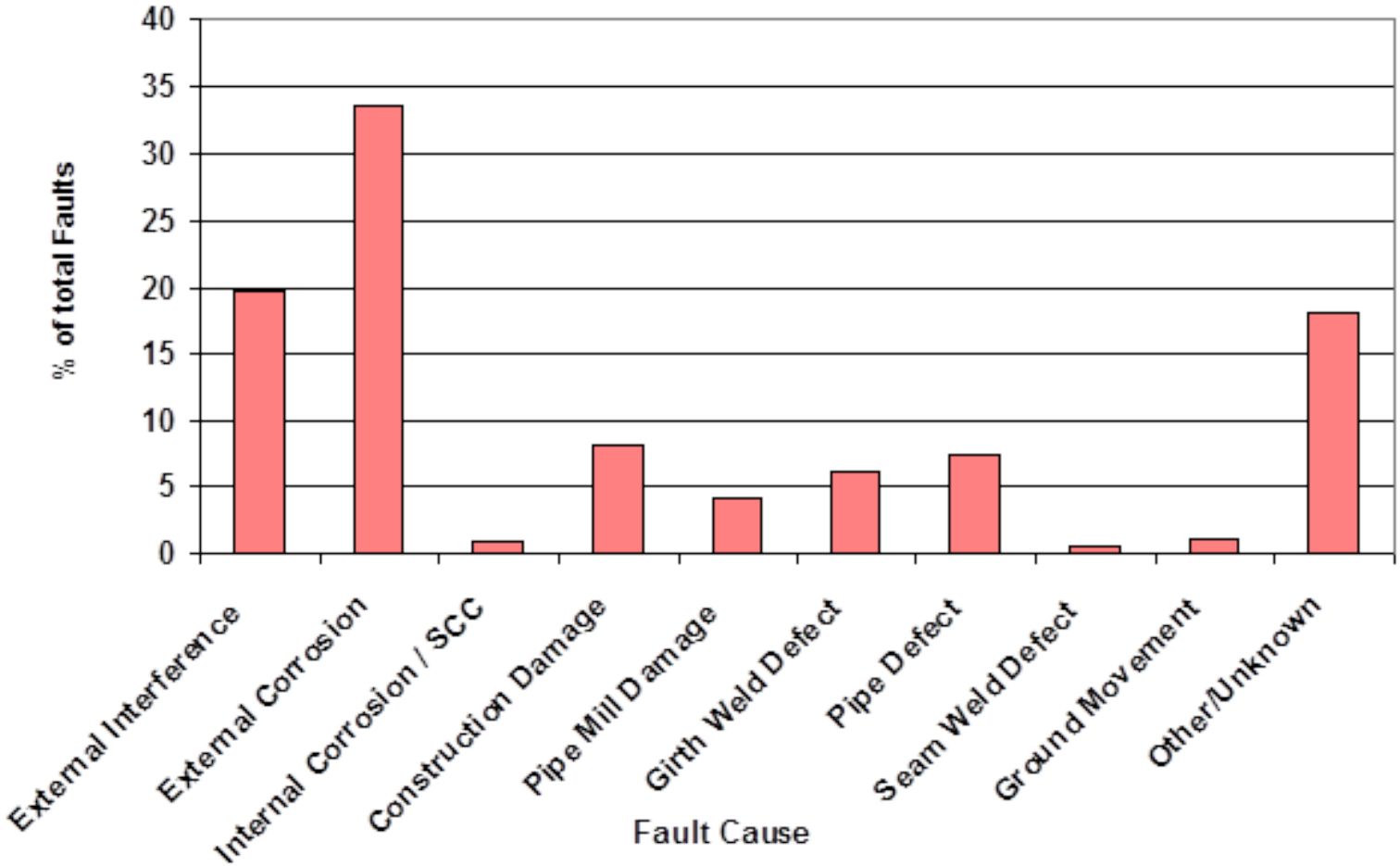
Incident Frequency by Cause



2014 MAHP Fault Data

Fault	2014	2013
Ext corrosion	33 (39%)	40 (42%)
Ext interference	7 (8%)	10 (10%
Girth weld defect	2 (2%)	8 (8%)
Original construction	12 (14%)	7 (7%)
Material (pipe defect)	5 (6%)	4 (4%)
Dents	11 (13%)	11 (12%)
Ground movement	1 (1%)	
Other/unknown	11(13%)	15 (16%)
No fault	2 (2%)	
Total	**84**	**95**

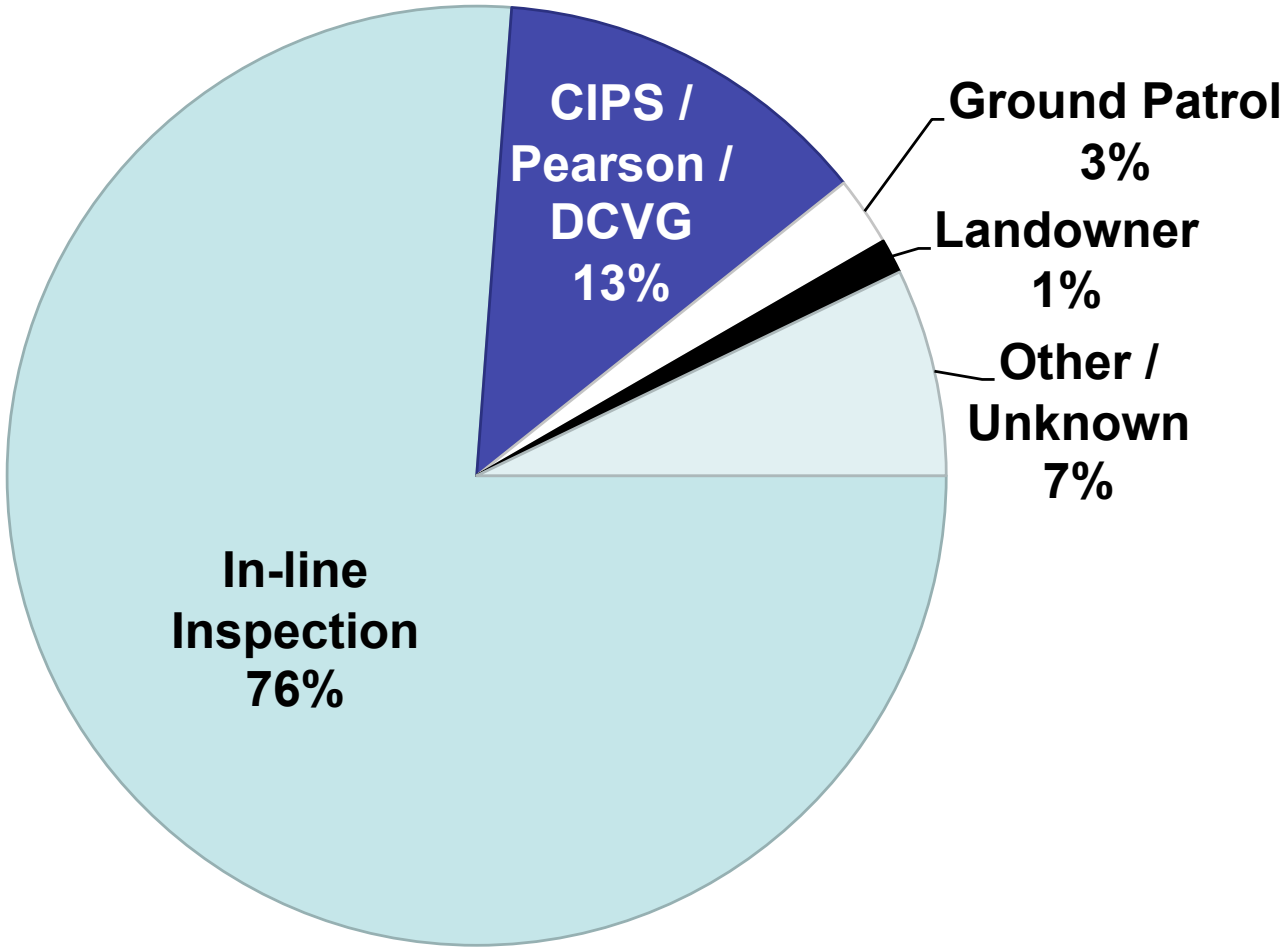
Fault Causes (1962 – 2014)



Total number of faults = 3544

How Faults were Discovered in 2014

In-line Inspection	64
CIPS/Pearson/DCVG	11
Ground Patrol	2
Landowner	1
Other/Unknown	6
TOTAL	84



2014 MAHP Fault Data – next steps

- UKOPA Pipeline Fault Database Report will be issued for FARWG approval by 31st October 2015
  - Final data check & sweep up
  - QA of draft report

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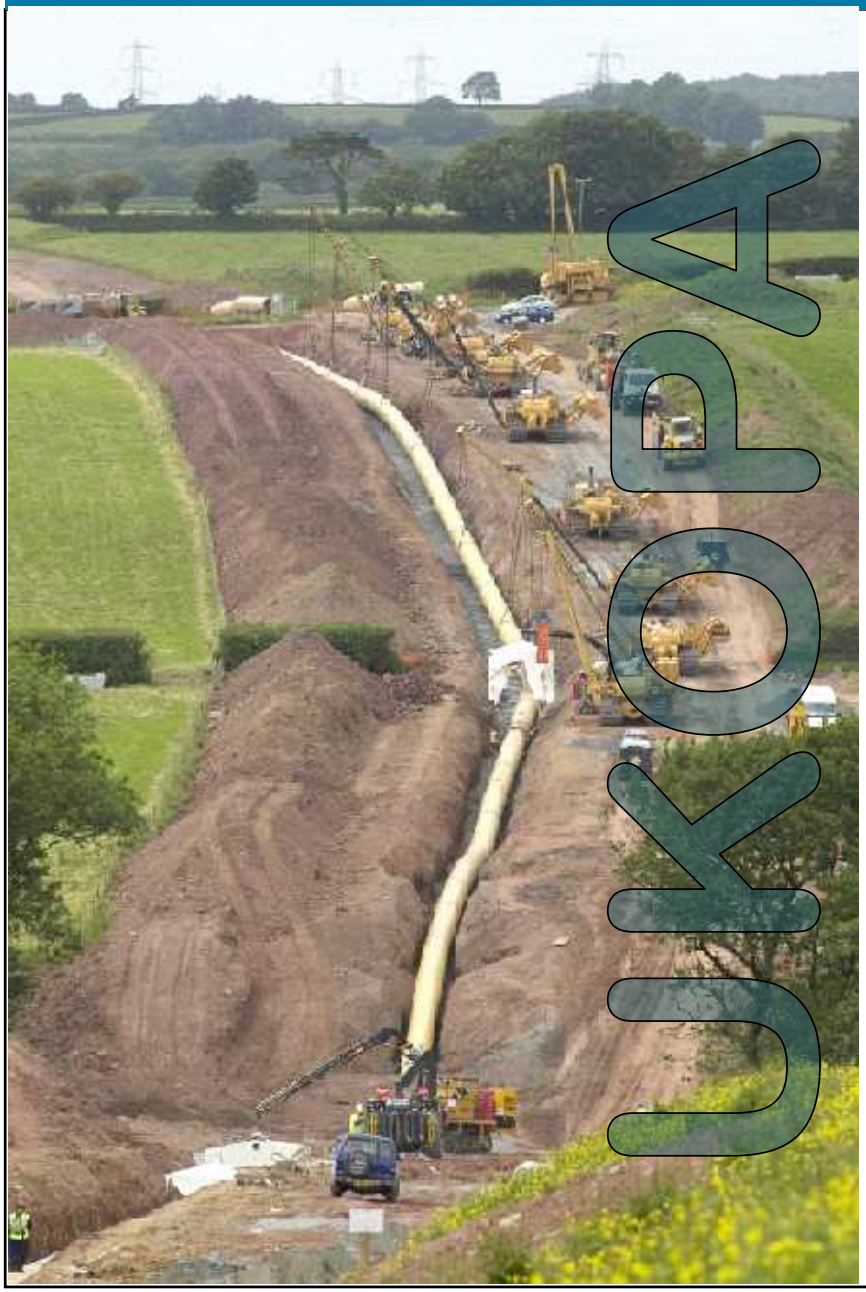


Non-MAHP Database Progress Report

October 2015

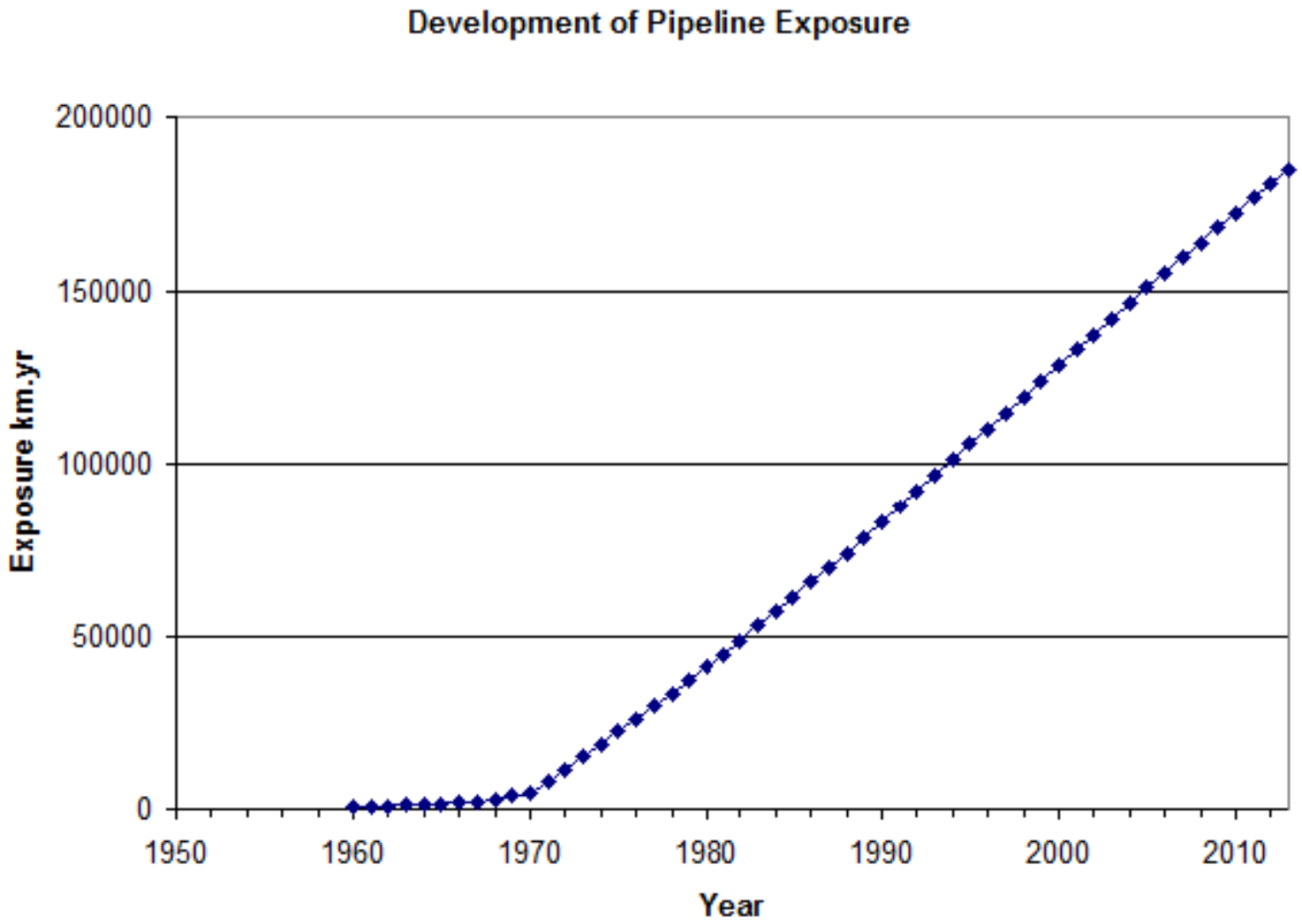
Database Details

- Based on UK oil pipelines – sub-set of CONCAWE database
- 9 Participating Companies
    - CLH Pipeline System (CLH-PS) Ltd (Previous OPA)
    - British Pipeline Agency Limited (BPA)
    - BP
    - Esso Petroleum Co Ltd
    - Petroineos Manufacturing Scotland Ltd
    - Essar Oil (UK) Limited
    - Total (UK) Ltd
    - Valero Energy
    - Perenco UK Ltd

Number of pipeline sections = 112 total in operation = 80
decommissioned = 32

Total length of pipelines = 5009 km in operation = 4234 km
decommissioned = 776 km

Database Details



Initial Headline Results

Number of relevant line pipe leaks = 23

Overall failure rate 1971-2013 = 0.124 per 1000 km.years
(cf overall leak rate of 0.218 per 1000 km.years for MAHPs)

	Proportion	Failure Rate
Rupture	17%	0.022
Hole	22%	0.027
Pinhole	61%	0.076

3 Causes recorded

3rd Party	6	26%
Mechanical	2	9%
Corrosion	15	65%

Further Work / Issues

- Need to confirm data with 6 of the participating operators
  - Confirm which pipelines are in operation
  - Fill in missing pipelines for which leak data exists
  - More data on pipeline details, coating, etc., etc.
  - Add any further data on leaks

- Need to decide how to group data, hot oil, crude oil, white oil, aviation fuel etc. and how to relate to leak data

- Complete and issue reports for comments by participating operators
  - They then need to decide on
    - Whether report is OK / exposure assessment is valid
    - Whether report should be issued more widely
    - When to start recording and sending fault data

- Decision on thefts - CONCAWE data now includes thefts