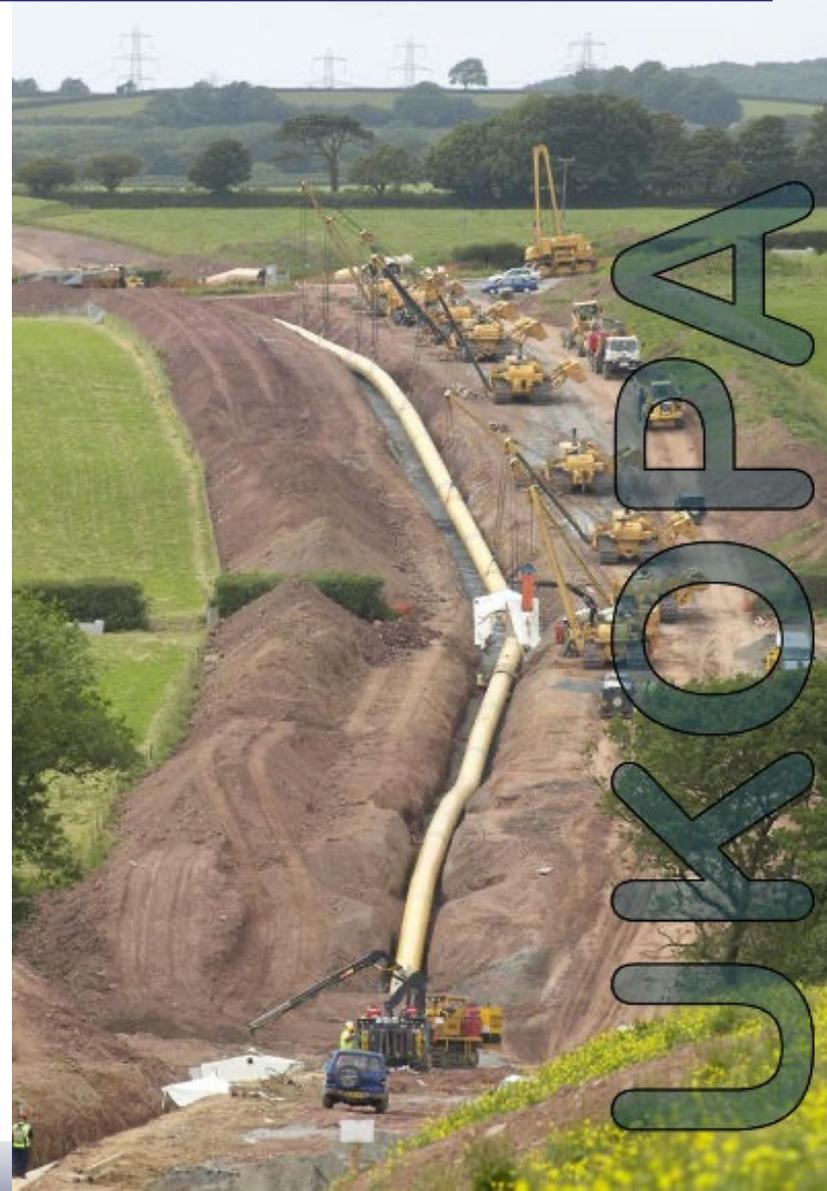


UKOPA

United Kingdom Onshore Pipeline Operators' Association

FARWG Update 28th February 2023

Graham Goodfellow of
behalf of Darren
Cushen FARWG Chair



FARWG – Current Membership

- | | |
|------------------------------|--------------------------------|
| 1. Darren Cushen | Wales & West Utilities (Chair) |
| 2. Nikki Barker | PIE (Secretary) |
| 3. Richard Price | BPA |
| 4. Sean Bunker | Cadent |
| 5. Lewis Hancock | Cadent |
| 6. Freya Matthews | Cadent |
| 7. Stephen Humphrey | Exolum |
| 8. Lar English | Gas Networks Ireland |
| 9. Sean Patterson | Ineos FPS |
| 10. Jody Harrison | National Gas Transmission |
| 11. Kristina Brazenaite | Northern Gas Networks |
| 12. Simon Joyce | SGN |
| 13. Fridolin Jenny | Swissgas |
| 14. Daniel Milne | Valero |
| 15. Pamela Colgan | Mutual Energy |
| 16. Dave Brown | Shell |
| 17. Nick Procter | Wood/CATS |
| 18. <i>Michael Acton</i> | <i>DNV</i> |
| 19. <i>Karen Warhurst</i> | <i>DNV</i> |
| 20. <i>Graham Goodfellow</i> | <i>PIE</i> |

2023 Meetings

- 10th January – Teams
- 4th May – WWU Depot Bristol
- 12th September – venue tbc

2023 Workplan – Issues Identified by Members



- River Xing Management & Remediation
 - Lack of regulator consistency on what is acceptable / best practice / 'ALARP'
- Qualitative Risk Assessment for above-ground xings
- Guide to IGEM/TD/1 Ed. 6 H area (TBN)
 - On hold till IGEM/TD/2 Update published
- Increase relevance/support to LVP operators

2023 Workplan – Ongoing Workload



- Development of TBN/GPGs
 - 1 TBN proposed & 1 outstanding
- Improvements to UKOPA Product Loss & Fault Database
 - Composite repair data options added
- Product Loss & Fault Data Report
- *5-yearly Update of Fault Data Distributions*
- Support IGEM/TD/2 Update
- H2/CO2 Projects
 - Watching brief

Good Practice Guides & TBNs

- 2023
 - No GPGs or TBNs for 5 year review
 - 1 TBN outstanding

Technical Briefing Note		Complete	Progress
1	Oil Pipelines Drain Down Study	85%	Draft to be updated following input from Richard Price & Stephen Humphrey

- 2024
 - 7 TBNs and 1 GPG for 5 year review

IGEM/TD/2 Update

- Panel Chaired by Mike Acton (DNV)
- Representatives from
 - IGEM
 - NGN
 - SGN
 - WWU
 - HSE Science Division
 - DNV
 - PIE
- Progress to date
 - Majority of text updates completed
 - Figures, Tables & Examples based on predictive external interference model updated
- 9th Panel Meeting – 7th March
 - Tables of historic failure data to be drafted

UKOPA

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UKOPA MAHP 2021 Product Loss & Fault Data

Graham Goodfellow
Principal Consultant – PIE



UKOPA Product Loss & Fault Data

- UKOPA collects product loss and fault data on MAHPs to support
 - Pipeline QRA & QRA Code Supplements
 - Fault data distributions used in external interference failure frequency predictive model
 - Predictive model and historic data (corrosion and material & construction defects) used in IGEM/TD/2 & PD 8010-3
 - Land Use Planning (LUP)
 - UK specific external interference data accepted by HSE
 - Previously HSE used higher European data
 - Increased individual risk based LUP zones, more development compensation, more risk mitigation
 - Integrity Management of Ageing Assets
 - Trends in faults can be identified
 - IGEM Standard & GDN Policy & Procedure Changes
 - Evidence of issues that need to be addressed or lack of issue currently 'overmanaged'

MAHP Pipeline Population

Operator	Length (km)
National Gas Transmission	7648.7
Cadent	4952.2
Scotia Gas Networks	3065.7
Gas Networks Ireland	2476.7
Wales & West Utilities	2359.8
Northern Gas Networks	1191.1
EOn	107.9
Shell EPE	18
Ineos	11.5
Wood	7.8
Essar	0.45
NATURAL GAS TOTAL	21,839.85

Operator	Fluid	Length (km)
Sabic	Ethylene	490
Shell	Ethylene	459
Shell EPE	NGL	226
INEOS FPS	Spiked Crude	224
Ineos	Ethylene	191
Ineos	Ethane	38.1
Essar	Propylene	36
BP	NGL	25.2
Shell EPE	Condensate	24
Shell EPE	Propane	19.5
Shell EPE	Butane	19.5
Sabic	Hydrogen	14
SGN	Propane	1.7
OTHER FLUID TOTAL		1,767.70

2021 Data Collection

Company	Contact	Data		
		Pipeline	Product Loss	Fault
Cadent	Marcin Gwozdz	✓	0	4
E.On	Neil Price	✓	0	0
Essar	John Ferrari	✓	0	0
GNI	Brian Leahy / Lar English	✓	0	4
INEOS	Pauline Scott	✓	0	0
Ineos FPS	Akin Oshinowo	✓	0	4
National Grid	Ikenna Asogwa	✗	0	49
NGN	Andy Middleton / Iain Welldon	✓	0	12
Sabic	Geoff Glover	✓	0	0
SGN Scot	Mark Fisher	✓	0	15
SGN South	Zakir Ali	✗	✗	✗
Shell	David Brown	✓	0	1
WWU	Darren Cushen	✓	1	7
		TOTAL	1	96

2021 Data Collection Timetable

- Initial Data request by Chris Lyons
 - 30th May 2022
 - Later this year to allow operators more time to collate data
- 1st Response – 30th May 2022 
 - Neil Price at E.On
- Majority of responses following 1st chase up email
 - 30th June 2022
- Flurry of late returns following October Main Meeting
 - Mostly confirming they had no faults to report for 2021
- Remaining Outstanding Data Returns
 - SGN South
 - Uniper
 - Wood/CATS

2021 Summary – Contributions

- 9 members have provided fault data
 - Cadent, GNI, INEOS FPS, NG, NGN, Sabic, SGN Scot, Shell, WWU
- 4 members have confirmed they have no data for 2021
 - E.On, Essar, INEOS, Sabic
- 3 members who have previously contributed haven't provided data yet
 - SGN South, Uniper, Wood
- 3 members who (we think) operate MAHPs currently not contributing
 - Drax, ENI, Mutual Energy
- Number of members who don't respond decreased this year after increased follow up
 - Especially from Nikki 
 - If you've done no digs, and therefore have no fault data, telling us you have none is still required – and useful!

2021 Preliminary Fault & Product Loss Data



Cause	Faults	Product Loss
External Corrosion	42	
Internal Corrosion	0	
External Interference	22	
Original Construction Damage	14	
Material defect (pipe, mill damage, seam weld)	6	
Girth weld defect	5	1
Ground movement	2	
Other/unknown	5	
TOTAL	96	1

2021 Product Loss Incidents

- 1 leaking girth weld (WWU)
 - Pontardulais Showground
 - Found during CIPS dig



2021 Product Loss Incidents



2021 Product Loss Incidents

- 1 additional product loss from INEOS
 - Leaking BV flange within Grangemouth site
 - Recorded in database but not in Product Loss report
 - Only product losses that are unintentional, in the public domain and aren't from associated equipment

Comparison with Last 5 Years Data

Year	Product Loss	Faults	Defects
2021	1	96	121
2020	1	87	156
2019	1	18	21
2018	1	115	141
2017	5	65	75
2016	1	84	120
Average (2016 – 2020)	1.8	73.8	102.6

- Product loss trend relatively stable
 - With occasional bad year!
- Number of faults & defects varies more
 - With occasional outlier

Product Loss Incident Frequency by Cause



Cause	1962 - 2021	2017 - 2021
External Corrosion	42	1
External Interference	44	2
Girth Weld Defect	38	1
Ground Movement	7	0
Internal Corrosion / SCC	32	0
Lightning Strike	1	0
Pipe & Seam Weld Defects	16	0
Original Construction Damage	1	1
Other	16	5
Unknown	9	1
TOTAL	206	10

Impact of Missing Data

- Following projects/tasks are on hold until all 2021 data received
 - 2021 Product Loss Report
 - Update to 5-yearly fit of defect distribution parameters
- Update historical data tables for IGEM/TD/2 Ed 3
 - IGEM timescale means data up to 2020 has to be used now

2021 Data Collection & Support

- **If your company has not yet responded, please can we have your data asap!**
 - Let us know if the company contact for pipeline or fault data has changed
- **If your fault data contact is struggling with data collection, classifying faults, new spreadsheets, point of it all or anything else**
 - Myself and/or Chris Lyons are happy to discuss any issues on an individual basis
 - Either by visit or teams call

Changes for Collection of 2022 Data



- FR/1 (& TBN) has been updated to include
 - Composite repair options for defects
 - Factory-made
 - Wet Lay-up
 - *Push for operators to provide more data to composite database*
- Further attempts to reconnect with operators who no longer provide data
 - Remove their pipelines from future years analysis if no response?

Any Questions?

