

**Notes of the Pipeline Integrity Working Group Meeting
held at the Makeney Hall Hotel on 25th March 2015****PIWG/15/019****Present:**

Graeme Pailor	Sabic (Chair)
Neil Jackson	Independent Consultant (Secretary)
Graham Goodfellow	Penspen Group
Jane Haswell	PIE
Robert Owen	National Grid
Steve Potts	National Grid
Ben Morgan	Wales & West Utilities
Walter Gaffney	SGN (for Barry Mackay)
Barry Dalus	Northern Gas Networks
Nancy Leek	Penspen
Timothy Rudd	Valero
Chris Lyons	PIE

1 Apologies

Richard Price	BPA
Roger Ellis	Essar
Fridolin Jenny	Swissgas
Barry Mackay	SGN
Graham Canty	Gas Networks Ireland
Arnaldo Latas	BP
Richard Sellen	Perenco
Jon Anstee de Mas	Exxon Mobil
Stephen Humphrey	Oil and Pipelines Agency

2 Minutes of Last Meeting & Matters Arising**2.1 Minutes of Last Meeting**

Accepted – a couple of typographical errors were identified by Graham Goodfellow which Neil Jackson agreed to correct.

2.2 Matters Arising

1. NJ to update the list of documents for the UKOPA website based on comments received at the meeting and to request DNV-GL to provide versions of the documents that can be published on the open section of the website.

Mike Acton had identified a concern with regard to documents referenced in the DNV-GL reports. It was agreed to discuss this item at the FARWG meeting the following day when Mike would be present.

2. NJ to circulate a questionnaire asking the current members of the RAIWG group to confirm their company's future representation on each of the 2 new groups.

Complete

3. NJ to issue the final agreed Terms of Reference for the 2 new Groups to the UKOPA Secretary for the Board to note.

Complete

4. GG agreed to forward a copy of the Penspen report that had been previously produced to support the inspection of Transco pipeline sleeves.

Complete

5. RO to review the scope of the next phase of the sleeve work with Macaw in light of the conclusions from Phase 1A.

Covered under agenda item 11.

6. RO to discuss the proposals for the further sleeve work with the Sleeve Working Group and produce an expenditure request for Board approval.

Complete and covered under agenda item 11.

7. NJ to update list of Good Practice Guides and replace the current high, medium and low priorities with suggested completion dates and include Ethylene.

Complete and covered under agenda item 8.

8. Members of the group to review and comment on the list of Good Practice Guides and add any additional topic areas that they were interested in that were not currently captured.

The documents were reviewed under agenda item 8.

9. Members were asked to consider whether there was any planned work in 2015 that could include the extraction and provision of relevant weld sample data to support the Penspen dent work.

Complete and covered under agenda item 12.

10. JH to ask Penspen to develop a work proposal to cover the development of a dent investigation protocol.

JH reported that there had been no progress with this to date. It was agreed that this item should be included in the overall schedule of work for the group that was reviewed under agenda item 6.

3 Update on Seismic Work

Geoff Leach gave a presentation on the work that he had completed for UKOPA that had assessed the seismic hazards to welded steel pipelines. A summary of this work had previously been circulated to members of the group in the draft technical report (UKOPA/PO/14/84). The work had concluded that although the seismic risk in the UK was inherently low there were areas of the UK where significant earthquakes were predicted to occur with a return frequency that could be of concern. A copy of Geoff's presentation would be circulated to the group once Geoff had agreed the release of copyright with the relevant parties.

It was agreed that all members of the group would review the draft report and provide comments by the 30th April. **Action All**

It was also agreed that the members who had contacts with pipeline companies in Northern Europe, with a similar seismic risk profile to the UK, should make enquiries w.r.t to their current approaches to assessing seismic risk. **Action All**

It was also agreed that David McCollum from National Grid should be invited to the next meeting so that the group could understand how the UKOPA work could be aligned with the work currently being undertaken by National Grid in this area. **Action NJ**

4 Assessment of pipeline construction stress – J Haswell

JH reported that with the development of the inertial mapping unit (IMU), inspection providers are now able to offer accurate pipeline location information. The IMU pipeline survey data can also be processed to identify longitudinal curvature features on a pipeline. As a result of making use of this facility on some recent ILI runs Northern Gas Networks (NGN) has received a strain curvature assessment that identified a significant number of features on a pipeline. NGN is currently assessing these features in terms of their origin and significance for the structural integrity of the pipeline. It was suggested that if UKOPA members were able to pool their inspection data it may be possible to identify the levels of curvature that would be of concern and subsequently allow curvature related features to be characterised.

It was agreed that Jane would send out a questionnaire asking UKOPA members to identify the strain data that was currently available, the data that could be made available from the relevant inspection companies, and at what cost. **Action JH**

5 Dent Management

Chris Lyons from PIE gave a presentation on the spreadsheet based dent assessment tool that he had developed. The software included the flow chart from the UKOPA dent strategy document as a built in feature. The software would generate a priority ranking for dents that was consistent with the dent management strategy document. The tool initially uses a conservative approach but if it is calculated that the fatigue life is exceeded then a dent SCF is calculated, using the Class B S-N curve from BS 7608 for a more realistic fatigue life assessment.

It was agreed to send the tool out for members to trial once it had been completed.

BD of NGN and NL of Penspen agreed to trial the tool when it came available.

JH explained that the UKOPA Dent Management Strategy allows the use of finite element analysis (FEA) for dent fatigue assessment. FEA allows accurate assessment of the dent shape, the stress field and the stress concentration factor. A study to validate the fatigue life of dents determined using FEA and published SN curves against full scale test data has been carried out by Penspen for UKOPA.

The results of the work have been documented in Penspen Report 13131-RPT-002 which had been circulated to the group for comment. JH reported that the FEA results show good agreement with the full scale test results with the fatigue life being conservative for all dents. The work concluded that the PD 5500 SN 'C' curve should be used for plain dents, 'D' or 'E' for dents on welds. The work also validated the application of FEA in the estimation of dent fatigue life.

All members of the group were asked to review and comment on the draft report by the 30th April. **Action All.**

6 Review of work programmes and associated budgets

The spreadsheet summary document detailing the current work programme and associated budgets was reviewed by the group. It was agreed to review the programme for the remaining dent and seismic work at the next meeting. It was noted that part 1A of the sleeve work had been completed and that the further work phases were on the meeting agenda for discussion.

NJ agreed to separate the PIWG items and the FARWG items onto separate spreadsheets.

Action NJ.

7 Feedback from UKOPA workshop

Graeme Pailor gave feedback from the UKOPA strategy workshop that had taken place in Newcastle in February. The key areas that affected the work of the PIWG included pipeline repairs and asset management. Graeme believed that UKOPA needed to be more proactive in identifying the work areas that UKOPA needed to focus on to address potential issues that might impact upon pipeline operators in the future. Graeme also believed that UKOPA should identify the external groups it needs to influence.

It was agreed UKOPA should explore the option of UKOPA representing the UK Pipeline Industry on Groups such as PRCI and EPRG. Graeme agreed to make some initial enquiries on behalf of the Group. **Action GP**

8 Review of the Proposed UKOPA Good Practice Documents

The group reviewed the current proposed list of good practice documents that were relevant to the group. It was noted that the document covering managing pipelines with reduced cover had now been finalised and that Roger Ellis was arranging publication.

Documents covering the management of pipeline dents and managing pipeline sleeves were in development. It was agreed that the a document covering Stress Corrosion Cracking (SCC) based on the work carried out for UKOPA by Ian Thompson should be progressed. Barry Dalus was currently developing a governance process for UKOPA that covered the development and formal approval of the documents.

9 Review Maintenance Good Practice Document

NJ reported that Tony Stonehewer from National Grid had expressed some concerns about the draft Maintenance Good Practice Document. This document had been developed from the previous UKOPA guidance document. Tony supported the development and publication of UKOPA good practice guides where the guidance is recognised "good practice" and provides additional advice to UKOPA members over and above existing code of practice or engineering standards, however he did not believe that the proposed document currently fitted either of these criteria.

Members of the group were asked to review the draft document with a view to identifying whether they believed it represented current good practice and to identify any concerns and areas where the document could be improved. **Action All**

10 PD8010 update

JH reported that the revision of PD8010 had now been published. The document had been updated to include CO₂ pipelines, the management of infringements around pipelines based on the work UKOPA had done for ethylene pipelines, and distances from Wind Turbines, again based on the work undertaken by UKOPA.

11 Update on pipeline sleeve work – R Owen

RO updated the group on the progress with the pipeline sleeve work. Phase 1 of the work was to investigate the use of pipeline ILI data and phase 2 was to refine the work to develop a risk ranking model. Phase 1 had been split into 2 stages Phase 1A which was a feasibility study and Phase 1B which would involve the collection of a larger sample of data. The Macaw work for Phase 1A was reported at the last meeting. This work indicated that there were a number of instances of corrosion close to, but not under the sleeve (based on an assessment of data from 4 pipelines). A teleconference had been organised which had concluded that a closer look at the corrosion outside of the sleeve would be too expensive and so it had been agreed not to investigate this further at this stage.

RO agreed to ask Macaw to confirm that they are also looking at the features further away from the sleeves in addition to in the vicinity of the sleeve in order to be able to see whether the features near the sleeve are representative of the whole of the pipeline. **Action RO**

It was agreed to give the Sleeve Working Group some more time for comments on the Macaw proposal for the next phase of the work and then RO would submit an expenditure request for approval.

Action RO

12 Assessment of Weld Quality – J Haswell

JH proposed that UKOPA undertake a programme of work to inspect pipe weld samples from operating pipelines constructed in the 1970s and earlier. The pipe pup samples containing a girth weld and pipe material either side of the girth weld would be required. The welds will be inspected to confirm quality against a published standard appropriate to the commissioning date, following which samples for destructive testing in accordance with the UKOPA specification PIWG/15/001 will be taken.

JH reported that she had received a good response to date w.r.t. companies that are able to provide weld samples. The intention was to use PMC Ambergate to inspect and assess the welds on these pipe samples. JH had a meeting at PMC Ambergate on the 26th March to discuss the contractual arrangements and costs. It was agreed that a specification would be required to identify how the samples should be labelled.

JH agreed to report back to the group on the proposed project management arrangements and costs. **Action JH**

13 Network Rail electrification

Ben Morgan asked if any members were aware of any specific arrangements that should be put in place where electrified railways crossed buried steel pipelines. Ben was advised that if there was believed to be a potential impact upon the CP system then local monitoring would be put in place. Barry MacKay in SGN was suggested as a potential source of additional information in this area.

14 Solar farms

Solar farms were also identified as a potential source of CP interference, if they produced too much electricity then there could be a DC current spike to ground. Valero identified that they had been monitoring AC and DC current at a location on their network.

It was agreed to produce a short scope of work for further technical studies that could be funded by UKOPA in this area. **Action NJ**

15 Date of next meetings

The next meeting would be on the 24th June, location to be confirmed but probably at Sabic's offices in Wilton.

Summary of Actions		
No	Action	By
1	It was agreed that all members of the group would review Geoff Leach's draft seismic report and provide comments by the 30 th April. Action All	All
2	UKOPA members that had contacts with pipeline companies in Northern Europe with similar seismic risk profile to the UK to make enquiries w.r.t to these companies' current approaches to assessing seismic risk.	All
3	David McCollum from National Grid to be invited to the next meeting so that the group could understand how the UKOPA seismic work could be aligned with the work currently being undertaken by National Grid in this area.	NJ
4	W.r.t the assessment of construction stresses it was agreed that JH would send out a questionnaire asking UKOPA members to identify the strain data was currently available and the data that could be made available from the relevant inspection companies, and at what cost.	JH
5	All members of the group were asked to review and comment on the draft Penspen Dent Report 13131-RPT-002 by the 30 th April.	All
6	NJ agreed to separate the PIWG budget items and the FARWG budget items onto separate spreadsheets.	NJ
7	It was agreed that UKOPA should explore the option of UKOPA representing the UK Pipeline Industry on Groups such as PRCI and EPRG. Graeme agreed to make some initial enquiries on behalf of the Group.	GP
8	Members of the group were asked to review the draft Operations and Maintenance document with a view to identifying whether they believed it represented current good practice and to identify any concerns and areas where the document could be improved.	All
9	Ask Macaw to confirm that they are also looking at the features further away from the sleeves in addition to in the vicinity of the sleeve in order to be able to see whether the features near the sleeve are representative of the whole of the pipeline.	RO
10	Submit the UKOPA expenditure request for the next phase of the sleeve work for approval.	RO
11	JH to report back to the group on the proposed project management arrangements and costs for PMC Ambergate to assess the weld sample data provided by UKOPA.	JH
12	Produce a short scope of work for further technical studies that could be funded by UKOPA to assess the potential impact of solar farms.	NJ

NW Jackson, Meeting Secretary 30th March 2015