PIPELINE INDUSTRIES GUILD

ONSHORE TECHNICAL PANEL

MEETING OF 14TH OCTOBER 2004 AT ENTERPRISE UK, LEYLAND COMBINED WITH THE VISIT TO THE PIG NORTHERN BRANCH'S PRODUCTS INNOVATION DAY

KEY POINTS

1. ATTENDEES (8)

Brian SPENCER (Chair)	Bill HUGHES
Graham WILCOCK	Dick GRAY
Chris MOVLEY (for Alan THAYNE)	Russell DEARDEN
Phil PARKINSON	Richard BROUGHTON (for Jason Evans)

Presentation by Denise PAUL (Robert Gordon University, Aberdeen)

APOLOGIES (18)

Mark JORDAN	Phill JONES
John COPPACK	John BARR
Eric MARTIN	Roger SARGOLOGO
Richard ESPINER	Richard PRATT
Dave WILLIS	Alan THAYNE
Paul GODDEN	John VARDON
Paul O'CONNELL	Andrew JACKSON
Ernie HOLDEN	Stephen BLACKMAN
Jason EVANS	Richard GLENISTER

2. NOTE OF THE MEETING OF 25TH MAY 2004: COMMENTS / ACTIONS

Item 2.1: Correction requested by Ernie HOLDEN (e-mail, 28th May 2004) to the reference to WERC, Cranfield being the "only welding research centre in the UK" to point out the similar role of TWI Ltd, the operating arm of The Welding Institute.

Item 3.1: Trans-Canada Pipeline: corrosion defects were reported to have caused the two failures that occurred virtually simultaneously.

Phil PARKINSON was asked to contact Stephen BLACKMAN to provide a note giving an update for circulation to all Panel members.

3. UKOPA UPDATE

Phill JONES was unable to attend this Panel meeting. The most recent UKOPA meeting (at BG Group) had included:

- **Gas incident, Belgium**: Neil JACKSON (Transco) gave a presentation with full details of design parameters, chronology of the incident, response, etc. (See item 4, below.)
- **Land use planning near pipelines**: Jane HASWELL had spoken on changes to the role of the HSE, with responsibility passing to local authorities and making greater use of commercially available modelling packages.

- **Gasoline Pipeline Study Group**: (comprising operators, HSE, local planning authorities, civil defence, etc) had been disbanded after nine years pending clarification of the EU Directive. It was understood that all amendments to this had been shelved.
- **Working with people**: presentation by the HSE (Steve CHATFIELD).
- **Near miss data**: high pressure (non-water) incidents are reported to UKOPA (statistics and culprits). These data were expected to be published annually via Huntsman.

The notes of the meeting received from Phill JONES (e-mail 22nd October 2004) are attached (after Appendix 3).

4. THIRD PARTY INTERFERENCE:

4.1 ATH, BELGIUM – LESSONS LEARNED

26 killed. A road compacting machine caused mechanical damage to the pipeline (by the prismatic teeth on the roller) leading to a delayed failure (after a week). The 1,025mm (40") pipeline, 7.5 m from a building, had been operating at reduced pressure. It failed at 70 bar (NOP 80 bar) while being re-pressurised (at 62% SMYS). The public had reported a smell of gas. This implied an escape from the odorised, low-pressure system rather than a high pressure pipeline. The distributor, Electrobel, responded but didn't have plant in area. The principal casualties were among the fire and police personnel who attended, looking for the source.

Two gas transmission pipelines were affected with 7.5 m separation. Both were Fluxis-operated pipelines. The second showed signs of damage. Together, they provided the principal natural gas supply to France.

The accident took place in an industrial estate with a car park over the pipelines. The contractor operating the road machine reportedly knew of the pipelines' presence. Questions have been raised as to whether they were supervised adequately. The operator didn't seem to have been present when the damage was caused.

Further details are likely after the Public Inquiry (that's expected to take about two years).

The only previous lost gas incident occurred in the early 1970's at Yarm (UK) when failure occurred due to damage sustained after the hydrostatic test. The rupture occurred when the pipeline was being pressurised to operating pressure. This was, at that time, the only serious lost gas incident on a gas transmission pipeline.

4.2 OTHER CASES

It was reported that in the US, there had been cases (not in Exxon Mobil) of pipeline failures and loss of life due to operating at increased pressures. In such cases, there were examples of the plant room operator and the firm's CEO being prosecuted.

Ironically, a commonly reported factor was that most people who damage a pipeline knew it was there: one example quoted from an excavation company was that "we've never hit a service that we didn't know was there".

5. PROMOTION OF A ONE-CALL SYSTEM

Despite the very useful discussion at the Technical Forum held at Birmingham Airport on 17th February 2004, no definite proposals were being progressed. The suggestion to make this the subject of the Prestige Lecture for 2004 had not been progressed.

Brian SPENCER suggested that the Ordnance Survey's (OS) presentation at Pipelines 2004 might provide a useful and practical basis for promoting the initiative. There were practical problems: the PIG cannot fund a One-Call system: the OS can manage data but can't

manage or fund a One-Call system. The key issues seem to be a lack of coordination / project management and funding. The technology exists. There is a need to agree the scope of work and funding for the system.

Brian SPENCER would invite Roger HUNT of the OS to give a presentation to, and an invitation to join the Panel.

It was agreed that there is a need to promote contacts with government (£20,000 to arrange meetings - 6 to 7 months timescale). Members were surprised at the lack of coverage in the UK Press following Ath accident and the complete absence of questions by MPs or the government. (The Ath accident had major implications for the maintenance of gas supplies to France.)

Wilf GREEN has asked for areas of common ground between the three Technical Panels: It was agreed that issues related to establishing a One-Call System should be the subject of a joint session with the Utilities Panel. Their Rob WILLIAMS (Chair) was reported to be keen to happen. Brian SPENCER would contact him to progress this.

6. STANDARDS UPDATE

6.1 INTRODUCTION OF PD8010

Two seminars organised by BSI through their Pipeline Committee PSE 17/2 had been held in London and Aberdeen in September 2004 to launch the new "published document", PD8010. Details are summarised in the Appendix 1 to this note in the form of a draft article written by David WILLIS (Chairman of PSE 17/2) that is planned for publication in *Pipelines World*.

The seminars included presentations by Dave WILLIS as Chairman with an introduction on national and international pipeline standards development, Alan THAYNE on behalf of HSE, Jane HASWELL for UKOPA, John LAWSON for UKOOA, Paul DOCHERTY representing the onshore section of the PD and Bob INGLIS representing the offshore section. Further seminars are being considered by BSI and will be advertised through PIG and other organisations if they go ahead.

6.2 COMMENTS INVITED ON ISO LINEPIPE STANDARD CD 3183

Russell DEARDEN reported that the new combined API and ISO linepipe standard was now published for comment. BSI Committee PSE 17/2/2 would be meeting on the 9th November to collate the UK view.

Those wishing to review ISO CD 3183 were asked to contact him at:
Russell.Dearden@corusgroup.com

7. UPDATE ON PREVIOUSLY REPORTED ACCIDENTS

7.1 ALGERIA – SKIKDA

Reports taken from the Internet are summarised in Appendix 2. There seems to have been little recent coverage. The consensus is that pipeline failure was the root cause, leading to ignition in a boiler rather than the failure in a boiler *per se*.

7.2 PIPELINE AND CABLE STRIKES

Following two recent strikes on buried services that were Reportable Dangerous Occurrences (on a 250mm Transco PE pipeline and an 11kV cable) when carrying out geotechnical borehole surveys, Phil PARKINSON asked for help in identifying where to obtain photographs of service apparatus (cable- and pipe-markers, duct covers, etc). These were needed to provide guidance to field engineers and could perhaps also be made available on the PIG's website.

Reference was made to the information provided in the Linewatch brochure on the Internet. It was suggested that information may be available by contacting NJUG and contractors (eg Murphys and others) for help.

Concern was expressed that the HSE's guidance in HS(G)47 seemed not to include specific reference to borehole and trial pit work, though the principles in the guidance were clearly applicable. Practical problems arose from the non-availability of drawings in sufficient time to meet (typically house building) clients' requirements and the poor accuracy of the information shown.

Chris MOVLEY explained that the HSE's construction field teams (rather than his colleagues who deal with pipelines) would be able to advise further.

It was pointed out that these issues were likely to become more significant with three new pipeline operators and asset managers being responsible for gas distribution in place of Transco following the sale of their Networks from April 2005.

Phil PARKINSON was asked to pass details on this issue to the Utilities Panel, for information.

8. ROBERT GORDON UNIVERSITY'S INVOLVEMENT WITH PIPELINES – DENISE PAUL (Business Development Executive)

Denise PAUL represented "Univation", the wholly owned subsidiary of the university (that had itself been established for 260 years and that had a current academic staff of 458 in ten schools teaching over 10,000 students). Univation had a staff of 25 with a turnover of £11.2 million in 2003.

The University offers MSc courses in Asset Management Course that comprise eight modules. This is the only course at this level: others tend to be engineering, not management. Their principal competitor is the HNC course at Loughborough, but not this is not for an MSc. The course may be one year (taught) or longer for part-time and online teaching using the "virtual campus" (two to five years with three modules per year, to be completed within five years).

The course targets middle to senior managers (engineers with >5 years experience) looking to get more experience of asset management. Industry-specific modules (eg on pipelines) can be developed to meet demand.

Further details can be seen on the website (eg for oil and gas modules) at
www.univation.rgu.com
or by contacting Denise at d.j.paul@rgu.ac.uk

9. RECENT ACCIDENTS & INCIDENTS AND LESSONS LEARNED

Transco MP incidents: no details were available. No incidents affecting high pressure pipelines had been reported over the past six months

See also Section 7, above.

10. ONSHORE PANEL'S CURRENT TERMS OF REFERENCE: REVIEW

A draft of the Terms Of Reference for the Onshore Technical Panel (produced by Brian SPENCER) had been circulated before the meeting. This is reproduced in Appendix 3, below. Proposed changes are highlighted.

All Panel members were asked to pass their final comments to Brian SPENCER by 29th October 2004 when they would be passed to Wilf GREEN.

11. CONFERENCES AND COURSES

The PIG's annual diary of technical papers had been published.

The PD8010 seminars were to be repeated. Phil PARKINSON was asked to obtain details from David WILLIS and to circulate these separately.

12. PIG UPDATE (PIPELINES 2004, etc)

Richard GLENISTER was not present to give a report on current PIG issues.

List of Guild members: This was not available. Midlands Branch's new list bore little relation to previous details. The PIG website had not updated in 2004.
Co-operation with other Panels: Wilf GREEN was keen to progress this and to promote synergies between the Panels. A potential area was in lobbying and being more proactive and more vocal in promoting a One-Call System with the Utilities Panel (see Section 5).
Joint meeting of Panels: This was suggested once per year with the potential for a joint meeting in December when all would be present in London for the Christmas lunch. Brian SPENCER would suggest this to Wilf GREEN.
Publicising Panels' Terms Of Reference: Brian SPENCER will also suggest to Wilf GREEN that the Terms Of Reference for all three Panels should be published in the next edition of *Pipeline World*.
Feedback: The question was raised of how feedback was sought / obtained from members. Social / networking was seen as a priority for most members.

13. ANY OTHER BUSINESS

Cryogenic pipeline: is under construction on Isle of Grain, Kent.
Transco's five alliance contacts: the companies that had bid successfully were new to this type of work. It was expected that their new management would include separate managers: some from NGT, some from contractors. Appointees may be known by the next Panel meeting. This subject may be of interest for a presentation to the Panel, such as an explanation of how H&S competences were included in the assessment of potential alliance contractors.

Brian SPENCER had so far failed to get a Transco representative for this Panel (previous suggestions has included Mark SPARY or Julian BARNETT): fewer people were available and they're too busy to attend. He may approach new alliance companies and Transco to nominate attendees post their reorganisation on 1st April 2005.

Graham WILCOCK was asked to find out about a possible presentation from Transco on data management.

12. VIEW EXHIBITS – PRODUCTS INNOVATION DAY & PLUTO PRESENTATION

After the meeting, members viewed the exhibits and heard a series of ten-minute presentations from each of the companies that attended the Products Innovation Day and saw Corus' film on the laying of the cross-Channel, reeled pipelines in September 1944 ("Operation PLUTO").

13. NEXT MEETING
Christmas lunch meeting: **Tuesday 14th December 2004** at PIG Headquarters, London starting at 10h30.

Members were asked to confirm attendance at the lunch to Richard GLENISTER.

Phil PARKINSON
29th October 2004

APPENDIX 1 TO PIG ONSHORE TECHNICAL PANEL MEETING, 14TH OCTOBER 2004

ITEM 6: PD8010 - NEW STANDARDS FOR OIL AND GAS PIPELINES

DRAFT ARTICLE FOR PIPELINE WORLD (BY DAVID WILLIS)

A major step forward has taken place for pipeline standards with the introduction of BS EN 14161 and the publication of PD 8010. BS EN 14161, which is based on ISO 13623, gives guidance and recommendations for the design, construction, commissioning, operation, maintenance and abandonment of steel pipelines used for the conveyance of hydrocarbons. It was introduced for use in the UK through agreements that are in place between ISO and CEN and between CEN and CEN's European members that are represented by their national standards organisations.

The main difference between ISO 13623 and BS EN 14161 is that the latter does not apply to gas pipelines on land which continue to be covered by BSEN 1594. In addition, the agreements also dictate that member countries withdraw their own equivalent national standards. Hence, BS 8010 was withdrawn earlier this year.

ISO 13623 is a worldwide standard and in its European form as BS EN 14161. It cannot fully cater for accepted industry practice of individual countries such as the UK. For this reason the opportunity was taken by BSI through their Pipelines Committee (PSE 17/2), and also with support from the Health and Safety Executive, to update those parts of BS 8010 not covered by the ISO or BS EN and to publish them with “published document” status as PD 8010. The Foreword for BS EN 14161 and PD 8010 suggest that PD 8010 can be used together with BS EN 14161, and the provisions for design factors and other important differences are clearly set out in the form of guidance and recommendations.

PD 8010 also takes into account IGE's TD1 standard for gas pipelines on land, and relevant information from BS EN 1594. As a consequence it can be used in conjunction with BS EN 14161 for gas pipelines on land. It also covers industrial gases and is published in two parts - offshore and onshore.

To mark the launch of PD 8010, two seminars were held in London and Aberdeen in September chaired by PSE 17/2 chairman David Willis of RSK ENSR Group. Presentations were given by David introducing the background and relationship with ISO and CEN, Alan Thayne (HM Principal Inspector for HSE) on the regulators position, Bob Inglis of JP Kenny on the offshore content, Paul Docherty of SembCorp covering onshore pipelines, Jane Haswell of Pipeline Integrity Engineers Ltd on the relationship with UKOPA and IGE TD1, and John Lawson of Chevron Texaco on UKOOA's position.

Over 80 engineers representing owners, operators and designers of pipelines attended. John Lawson chaired a closing discussion group at both venues and delegates gave very positive feedback on industry reaction to the new PD with suggestions on how it can be developed in the future.

For further information on the above contact David Willis via the Guild offices or Keith Seyde at BSI.

End

APPENDIX 2: SUMMARY OF REPORTS ON THE INTERNET ON THE ACCIDENT AT SKIKDA, ALGERIA ON 19TH JANUARY 2004

[Key points are underlined in the text by Phil Parkinson]

1. Deadly LNG Incident Holds Key Lessons For Developers, Regulators
Jacob Dweck and **Sonia Boutillon, Sutherland Asbill & Brennan LLP**, Washington, DC
Reprinted from Pipeline & Gas Journal / May 2004 / www.pipelineandgasjournal.com

Algerian officials said in mid-February that gas leaked from a pipeline, and the vapors were drawn into a boiler. When workers re-lit the unit's boiler, it exploded.

2. Liquefied Natural Gas (LNG) Import Terminals: Siting, Safety and Regulation
Updated May 27, 2004
CRS Report for Congress
Paul W. Parfomak and Aaron M. Flynn

According to press reports, preliminary investigation indicated that the accident was caused by a leak from a liquefied gas pipeline, which allowed a vapor cloud to form and subsequently ignite.

3. Mobile Register: 14th April 2004

Initial reports blamed a faulty steam boiler for the massive explosion and fire at the government-owned Skikda, Algeria, plant. Those reports were incorrect, according to the new document presented by Sonatrach, owner of the destroyed LNG plant.

A PowerPoint display titled "The Incident at the Skikda Plant: Description and Preliminary Conclusions" indicates, instead, that a large amount of liquid gas escaped from a pipe and formed a cloud of highly flammable and explosive vapor that hovered over the facility. The cloud exploded after coming into contact with a flame source.

The exact nature of the cloud is likely to be sharply debated as industry advocates and even a number of independent scientists have argued that an LNG vapor cloud, if it were to form, would be relatively small and would not explode.

Most of the 27 people who died were killed by the force of the blast, according to the report. The report lists a "few casualties by fire," though the fire burned for eight hours.

The Sonatrach report was presented at an international LNG conference held in the Middle Eastern nation of Qatar in late March. Officials with the U.S. Department of Energy, the Federal Energy Regulatory Commission and ExxonMobil Corp. declined to discuss the document with the Mobile Register.

…. the report is missing a critical piece of information: Whether the fuel that leaked from the pipe at the plant was liquefied natural gas or a liquefied petroleum gas (LPG), such as propane, or some combination of both. LNG and LPG were present in some quantities at the Skikda plant, the report said, though the damage to the facility was so extensive, it may be impossible to know exactly what kind of gas formed the vapor cloud.

Few would be surprised if liquefied petroleum gas proved to be the culprit -- the vapors are known to be highly volatile, and prone to explode when exposed to flame. Pure LNG -- which is almost 100 percent methane -- usually is thought to explode only in confined spaces, such as a building or the hull of a ship, according to scientists

4. http://www.harpswell.info/frwds/frwds-news-articles.htm

February 18 2004: Agence Algérienne d'information
Skikda's LNG plant explosion is due to gas leak in one pipe Algiers, (AAI) - The preliminary results of the inquiry opened further to the accident occurred in the Skikda's plant of gas liquefaction revealed that the cause is not due to the defective state of the boiler but to a liquid gas leak in one pipe, Chakib Khelil Minister of Energy and Mining announced ….

APPENDIX 3: TERMS OF REFERENCE FOR THE PIG's ONSHORE TECHNICAL PANEL

The Onshore Technical Panel is made up of a group of Pipeline Industry experts with experience in the manufacture, construction, operation, maintenance, design, construction, commissioning, decommissioning and health, safety and environmental aspects of pipeline engineering. Its members include practitioners, managers, legal representatives and consultants. The primary roles of the forum are as follows:

- To act as a focal point for technical issues related to pipelines on behalf of Guild Members
- To meet on a regular basis and discuss current areas of concern to members
- To propose solutions to both individual members and to the Guild Board
- To provide information to allow lobbying of appropriate bodies on any pipeline related issues
- To liaise with the Utilities and Offshore Panels on areas of common interest
- To propose topics and assist with the organization of six monthly Technical Forums on subjects of key interest to Guild Members
- To consider recent incidents from around the world and to assess with the UK pipeline industry is taking sufficient precautions to prevent similar occurrences – the most urgent of these is still the matter of a One Call System
- To consider any forthcoming changes to legislation and how that may impact on members
- To review presentations from external experts such as the Health & Safety Executive on possible future issues or areas of interest with a view to inclusion in future Technical Forums

United Kingdom Onshore Pipeline Operators' Association

Summary of Key Points from the Notes of the Meeting held at BG's Offices, Reading on 15th/16th September 2004.

Present:

P. Brown, Transmission Policy Manager, National Grid Transco (Chairman).
R. Ellis, Manager, Pipeline Group, Shell UK Ltd.
L. Boswell, Pipeline Availability Team Leader, bp FPSI.
N. Jackson, Transmission Policy Adviser, National Grid Transco.
K. Curtis, Pipeline Engineer, Powergen Gas Ltd.
P. Davis, Director and General Manager, BPA.
M. Price, Operations Manager, BPA.
D. Gray, Pipeline Protection Engineer, Esso Petroleum Co. Ltd (16th).
R. White, General Manager, Total (UK) Ltd.
D. Cullen, Senior Pipeline Supervisor, Shell Expro.
P. Docherty, Mechanical Engineering Manager, Semcorp Utilities.
S. Kennedy, Design Manager, Network Policy, National Grid Transco (15th).
R. Michie, Transmission Operations Manager BG Group.
D. Wilkes. BG Group (16th).
S.Chatfield, Health and Safety Executive (16th).
R.McConnell, Consultant.
J. Haswell, Consultant, Pipeline Integrity Engineers Ltd.
W. P. Jones, Pipeline Integrity Engineers Ltd. (Secretary).

1. Presentations

Presentations were received on:

i) AC corrosion of Pipelines – Two Case Histories – Chris Movely, HSE.
Key Points:
- The possibility of AC corrosion should be considered during the design of a pipeline, and mitigation installed if appropriate.
- The problem is not confined to one type of pipeline coating.
- It is not clear whether AC corrosion is self limiting in some situations.
- Preventative maintenance via an integrity management system is recommended.

ii) HSE's 5-year strategic plan for Workplace Health & Safety to 2010 and beyond – issues for the Pipelines Industry

iii)

iv) – Steve Chatfield, HSE.
Key Points:
- Key drivers to the strategy include identified need to improve health and safety performance.
- HSE will not progress proposed amendments to PSR 1996.
- MAH pipelines will remain core business.
- Intention to develop closer partnerships with stakeholders including a clear decision to support and work with UKOPA, particularly on third party interference.
- UKOPA/HSE meeting to be organised to explore how cooperation the third party issue can be progressed.

2. Incidents.

A number of incidents, including the Belgian incident, discussed and lessons learned shared where appropriate. On the basis of the information available to UKOPA it appeared that the key points are:

- Control of third party activity around pipelines
- Dealing with sub contractors
- Ensuring damage is reported and raising awareness of potential consequences of unreported damage
- Emergency response – safe evacuation distances
- Communication with control room – ensuring pressure is not increased when damage occurs
- Land Use Planning – control of development
- Sharing of pipeline location information with other operators.

3. UKOPA Strategy for Liaison with the HSE, the UKOPA/HSE Working Group on Pipelines, the UKOPA Risk Assessment Working Group and the UKOPA Emergency Planning Work Group.

It was agreed that despite the fact that the HSE has decided not to progress amendments to PSR 1996 for the time being, there is a need to continue to influence the proposals should they be resurrected sometime in the future, possibly in parallel with a European Directive on Pipelines. Key points of the strategy are to:

- Ensure that the Working Group on Pipelines continues to provide an effective interface with the HSE in line with its terms of reference and HSE stated intention of working closer with UKOPA.
- Inform and keep MHSC and ACDS advised of objectives.
- Continue with the technical work programme, funded by UKOPA, and to publish the results through agreed routes.
- Prepare supplements to PD8010 Part 1 and IGEM TD/1 Edition 4 covering a codified approach to pipeline risk analysis, risk based routeing and LUP zones for hazardous pipelines.
- Work done to date on emergency planning should be finalised as a formal UKOPA document and issued to HSE with a statement that if/when the issue is progressed in future, it is based fully on the work already done and agreed by stakeholders.

4. Fault Database Management Group.

Key points:

- Revised terms of reference and membership agreed.
- Peter Rycroft of HSE had joined the group, and Transco is now represented by Robert Owen.
- The new contract with Advantica for support of database has been finalised.
- Main priority of the Group is to ensure that the UKOPA fault database was recognized as fully representing the performance of all MAHPs.

5. Third Party Infringement Database.

Key Points:

- The database is being used to identify companies which are regularly infringing on pipelines.
- The HSE has become involved with one serial offender and are supporting the objectives of the database.
- Consideration to be given to setting up a Third Party Infringement Working Group.

6. PERO (Pipeline Emergency Response Officer) Course

The first UKOPA PERO course given by Sembcorp Utilities (Wilton) has been fully reviewed and minor revisions identified have been actioned. Additional course dates to the end of 2005 have been arranged to accommodate the demand.

Circulation – Pipelines Industries Guild.
Pipeline User Group.

7. UKOPA Contacts

For further information about UKOPA and its activities please contact the Chairman – Phil Brown on 01455 892743, or the Secretary – Phill Jones on 07831 450233. Alternatively refer to the Association's website - http://www.ukopa.co.uk

Date: 15th October 2004