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## UKOPA Process Safety Annual Report 2010

UKOPA members operate approximately 25,000 km of pipelines in Great Britain and which transport over 75% of the energy used in the UK. These pipelines are generally routed through the rural areas and transport a number of fuels including natural gas, oil, gasoline, ethylene, white oils, spiked crude and natural gas liquids. The pipelines are managed as significant process safety risks and 22370 km of the pipelines are classified as Major Accident Hazard Pipelines in accordance with the UK Pipeline Safety Regulations.

This UKOPA Safety Report provides information on how UKOPA members manage Process Safety Risks on UK pipelines. The data is used to compare performance year on year.

UKOPA uses a Process Safety Self Assessment Tool for members to assess their risk control measures and share information on how these measures can be improved. The performance indicators in this report are a sub set of risk control measures which are employed by UKOPA members to manage the pipeline risk and provide an indication of the overall process safety performance.

The performance indicators selected to assess process safety performance are as follows;

1. **Integrity Management** – One of the key risks to a pipeline is internal or external corrosion which reduces the thickness of the pipe wall and can result in a pipeline failure.

There are two methods by which operators assess the integrity of a pipeline;

- a. Internal Inspection which is carried out by a specialist pipeline inspection gauge (PIG)

Of the 17871 km of UKOPA pipelines which can be internally inspected, this year 2662 km were inspected which is 14.9 % of the internally inspectable population.

- b. External Inspection utilises a number of above ground techniques to assess the effectiveness of the Cathodic Protection system and the condition of the pipeline coating.

3016 km of UKOPA pipelines were inspected externally, which is 14.1% of the pipeline population.

The % of pipelines internally and externally inspected is consistent with the frequency pipelines should be inspected.

Since 1999 UKOPA has been recording the number of pipeline failures and faults. A failure is a product loss incident, a fault is a record of damage which has been verified by field investigation. In 2010, 1 product loss incident and 45 faults were recorded. The 2010 failure data indicates a failure rate of  $4.47 \times 10^{-5}$  failures per km, which is within the confidence level of  $5.9 \times 10^{-5}$  failures per km-yr over the last 5 years reported in the UKOPA 7<sup>th</sup> Product Loss Incident Report (1962 - 2010).

Review of the fault data reported for 2010 shows that the majority of faults were detected by in-line inspection, with only 2 out of the 45 faults reported by other means. In comparison, the 2009 data also shows that 28 of the 51 faults were detected by in-line inspection, the remainder were detected by CIPS (6), site contractors (6), public (5) and other (6).

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2. **Route Corridor Management** – Maintaining a safe and undeveloped route corridor is another aspect of pipeline management which is important. UKOPA members carry out a variety of route corridor surveys which include aerial and vantage point surveys.

In 2010 21,468 km of pipeline were surveyed by aerial or vantage point survey at a two week frequency.

Pipeline operators monitor 3<sup>rd</sup> party activities which are carried out on pipeline route corridors and record infringements which occur. In 2010, 578 infringements were recorded.

A fundamental re-appraisal of the gas operators reporting mechanism has resulted in the apparent dramatic fall in the number of infringement reports. For this reason there is no comparison between the 2010 and 2009 data.

3. **Pipeline Operating Limits** - Ensuring a pipeline does not experience pressures or temperatures or flows above its design limits is a significant aspect of pipeline safety management. To avoid exceeding these operating limits Pipeline Operators monitor these parameters and have protective devices to shut down a pipeline or pipeline section to ensure to the pipeline does not experience a pressure, temperature or flow excursion.

Note that the monitoring and reporting of pipeline operating conditions varies between operating companies. This identified the need to clarify the definition of the primary protective device for a pipeline to be used for the UKOPA report. A specific definition of key protective devices has been applied in 2010. This influences the number of exceedances recorded.

In 2010 59 exceedances of pipeline operating pressure were recorded, but there were no exceedances of pipeline safe operating limits.

Of the 5431 primary protective devices on the UK pipeline systems, 100% were tested under planned maintenance activities in 2010.

4. **Emergency Management** – Whilst it is everyone's aim to avoid an emergency, it is important that all Pipeline Operators have contingency plans in place to deal with a pipeline emergency. These plans are shared with the Local Authority Emergency Planners to ensure that in the event of an incident the Pipeline Operator, Emergency Response Services and the Local Authority understand the risks and how they can be effectively managed.

UKOPA members invest a significant time and effort in training their staff to be able to implement the emergency procedures. A number of UKOPA members hold specific emergency response training courses, in addition to supporting the UKOPA PERO training course provided at the Fire Service College. In 2010, 102 operational staff were trained as Pipeline Emergency Response Officers, including 48 who attended the UKOPA PERO training course

In addition to the training, UKOPA members carried out 55 Emergency Exercises, including 19 live exercises carried out jointly with Local Authorities and Emergency Services to test the emergency plans and 36 internal exercises carried out to test the Pipeline Operators plans and procedures.

5. **Safety Alerts** - In order to share learning from incidents, UKOPA members share Safety Alerts via the website and discuss these at UKOPA Meetings. In 2010 28 safety alerts were shared among UKOPA members compared to 13 in 2009.

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**UKOPA 2010 Process Safety Indicator Report**

PSI Number	Risk Control	Indicator	Safety Performance Indicator
1	Emergency Response	Emergency Testing	Number of Exercises = 55
2	Competency and Training	Emergency Response Training	102 staff trained
3	Operating Procedures	Exceedances of Operating Pressure	59 exceedances reported
4	Route Management	Number of infringements	578
5	Surveillance	Pipelines surveyed by aerial or vantage point every 2 weeks (reference UKOPA best practice)	551,515 kms
6	Integrity	Number of product loss reports in year:-	1 product loss $4.47 \times 10^{-5}$ per km
		Number of damage reports in year:-	45 damage incidents $1.832 \times 10^{-3}$ per km
7	Maintenance	Number of protective devices tested in year (reference UKOPA best practice):-	5431 devices tested
8	Inspection	In-line inspection:-	2662 kms inspected 14.9%
		External inspection:-	3530 kms inspected
9	Safety Alerts	Number of safety alerts shared	28

**CONFIDENTIAL FOR UKOPA MEMBER USE ONLY****Comparison of 2009 and 2010 PSI Reports**

PSI Number	Risk Control	Indicator	2010	2009
1	Emergency Response	No Emergency Exercises	55	43
2	Competency and Training	No Operational staff trained	102	148
3	Operating Procedures	No of Exceedances of Operating Pressure <sup>1</sup>	59	155
4	Route Management	Number of infringements <sup>2</sup>	578	2459
5	Surveillance	Kms of Pipelines surveyed	551,515	531,662
6	Integrity	Number of product loss reports in year:-	4	1
		Number of damage reports in year:-	41	50
7	Maintenance	Number of protective devices tested in year <sup>1</sup> :-	5431	7052
8	Inspection	Kms In-line inspection:-	1287	2662
		Kms external inspection:-	3530	562.5
9	Safety Alerts	Number of safety alerts shared	28	13

## Notes:-

- 1 A more specific definition of key protective devices has been applied. This influences the number of exceedances recorded.
- 2 A fundamental re-appraisal of the gas operators reporting mechanism has resulted in the apparent dramatic fall in the number of infringement reports. For this reason there is no comparison between the 2010 report and previous years.