Aberdeen Evening Meeting Report
Pipeline Management

Evening Meeting, Aberdeen
Robert Gordon University

Wednesday 21st June 2017

By Martin Harley

A total of 37 people listened to three speakers discuss one of the oldest problems in pipeline management, with some innovations that testify to the industry's continuing inventiveness. The majority of subsea pipelines are silent, giving up information about their status only when inspected by internal pig or external survey. Sensors on wells and platforms at either end tell what's going on, but conditions in-between must be inferred. So how do we improve matters so that we can reveal what we have only so far been able to guess at i.e. show whether internal corrosion and freespans are under control?

Adrian Griffiths of Shell discussed improvements to existing technology. Adrian covered a complicated series of previously un-piggable pipelines, inspected by simultaneous ultrasonic and magnetic flux on the same pig. This required de-oiling, wax solvents, subsea launch and receive operations, finishing up with de-watering to allow hydrocarbons back into the pipelines. At low speeds, over distances that generally give problems for battery life, Shell managed to complete the inspection of over 100km of pipelines and many hundreds of degrees of bends.

Damian Ling of Chevron briefed on new innovations in autonomous vehicle technology for pipeline survey. The ability to follow the actual pipe, not just follow the previous survey co-ordinates, means AUVs may soon compete with conventional wheeled ROVs rolling along the top of the pipeline. The vehicle adapts to momentary burial, mattresses, crossing pipelines and re-acquires the target pipeline if lost. The results include the pipe co-ordinates, meaning the pipe location and significant features can be overlaid on mapping applications.

Brendan Hyland of WFS-Tech discussed subsea wireless automation and its implementation, available products, and how it could improve pipeline internal conditions in near-real time. Underwater, radio can transmit moderate bit-rates over distances up to 100m, and existing wall thickness, vibration and temperature monitors have been adapted to take advantage. Brendan described how this allowed for a network off battery-powered sensors at regular intervals along subsea pipelines, removing the need for cabling at remote distances. Connected to the existing controls system, this allows for real-time monitoring of pipelines where it has previously been impractical.

Having discussed the internal, external inspection and wireless data management, the subject seemed to have been well covered and we had to wrap up the questions to avoid dinner going cold. All three of our speakers were kept busy during the networking buffet afterwards, answering further questions there hadn't been time for in the auditorium.