

**RISK-BASED INSPECTION CASE HISTORY**

**In collaboration with**  
**Wood Group Integrity Management**

Project Name	Clients Name	Year/Status	Work Coverage
Well integrity reviews of sour-gas producing wells for several operators in the Middle East and Azerbaijan.	Confidential	2002 onwards	Evaluated the causes of sustained annulus pressure; wellhead movement; and external casing and tubing corrosion
Purdue Bay	BP Alaska	2005 onwards	<p>Well integrity, corrosion modelling and statistical analysis to establish quantitative models for well lifetime estimation for the Prudhoe Bay field with more than 200 wells. The results of this comprehensive study used as an input to the reference case for renewal plans for the whole fields.</p> <p>The outcome from the work include:</p> <ul style="list-style-type: none"> <li>• Basis for advance planning of future workover activity and rig equipments.</li> <li>• Improved knowledge of the root causes of certain well integrity threats leading to better technical solutions.</li> <li>• Quantitative models for well lifetimes covering the key potential well lifetime threats.</li> <li>• Basis for planning future investment in the field.</li> </ul>
CABGOC Asset Integrity Management Program	Chevron	2002-06	Developed an RBI programme for offshore facilities over a number of years for over 210 platforms, 500+ pipelines, including setup of risk database, prioritisation and inspection models, primarily for pipelines and risers and structures. Develop work-scopes and procedures for inspection, coordinate data and inspection activities and inspection results.
Kalimantan Asset Management	Total Indonesia	2005-06	Developed and implemented Risk Based Inspection (RBI) program and Pipeline Integrity Management System (PIMS) for 213 pipelines (1050km) in Kalimantan. The methodology was developed, and assessed using 4-Site Software to provide a schedule for risk- directed inspection of

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			the pipelines. Procedures developed where needed, including site integrity assessments.
Balikpapan PIMS	Total Indonesia	2004-05	Balikpapan PIMS Contract - Onshore / Onshore Pipeline System
Kikeh Subsea Integrity Management	Murphy Oil	2007-10	Perform risk assessment of subsea flexible risers, flowlines, subsea equipment, develop the RBI programme and interpret the inspection result to provide an integrity status of the subsea equipment.
North Sea Asset Management	Talisman North Sea	2001 onwards	Ongoing contract over 10 years to perform risk assessment of subsea flexible risers, subsea buoyancy structures, flowlines, subsea equipment, develop the RBI programme and interpret the inspection result to provide an integrity status of the subsea equipment.
West of Shetland (Foinaven & Schiehallion) Subsea Integrity	BP UK	1996 onwards	Ongoing contract over 15 years to perform risk assessment of subsea flexible risers, flowlines, subsea equipment, develop the RBI programme and interpret the inspection result to provide an integrity status of the subsea equipment.
East Java Gas Pipeline	BP Indonesia	2006	East Java Gas Pipeline - Offshore QRA Assessment
PETRONAS Corporate	PETRONAS Carigali	2007	Inspection and Maintenance Guidelines & Corrosion Management Guideline for Pipelines Integrity Management System
Tangga Barat Cluster CMP	PETRONAS Carigali	2008	Pipeline Corrosion Management Plan for the Tangga Barat Cluster development project
Asset Management	ConocoPhillips Indonesia	2008	Developed methodology for risk assessment and inspection planning for over 40 pipelines for ConocoPhillips (Onshore and Offshore operations), build up the risk models inside the '4-Site' RBI software, conduct Risk Workshops, develop inspection plans, and assist with scheduling and implementing recommendations

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Ohanet Gas Plant	BHP Billiton	2007	Review pressure envelope integrity data at the design and construction phase, developing RBI methodology and reviewing corrosion and other primary damage modes. This review addressed gathering pipework, gas plant piping, and pressure vessels, and involved development of written schemes of inspection for approx 500 vessels and about 2000 lines.
Woollybutt FPSO	Australian FPSO Management	2004	FPSO Risk Assessment & Re-lifting Risk based erosion/corrosion management plan for the FPSO, including considerations of corrosion & erosion monitoring, expected deterioration rates and failure consequences, and regulatory requirements for inspection.
HBI Facility	BHP Billiton	2007	Integrity-based corrosion engineering services for the HBI facility. The major activity was to establish a Risk Based Inspection (RBI) system for the plant on assets such as various cooling water circuits, boiler feed water supply, inert gas generation, steam circuits, reducing gas generation plant, ore handling systems, vent gas systems and direct-reduced iron pneumatic transfer equipment. 22,000 piping items requiring management approval.