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**Dr David Borthwick Montara Inquiry**  
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21 December 2009  
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**REFERENCE: COMMISSION OF INQUIRY: MONTARA WELL  
HEAD PLATFORM UNCONTROLLED HYDROCARBON RELEASE**

**1. Investigate and identify the circumstances and likely cause(s) of  
the Uncontrolled Release.**

Oil exploration carries certain risks and complexities due to the variations of geological formations and the fluids within them. The drilling and completion strategies are designed to optimise the extraction of the hydrocarbons in the porous rocks that sit within large bodies of impermeable rocks, often in a pressured condition. The greatest risk is with handling the gas as it not only carries the highest pressures in the formation but it migrates vertically through any fluids and carries its pressure with it, applying increasing pressure on the permeable reservoir and squeezes the liquids away, leading to an increasing gas column and increasing service pressures.

Well Control Incidents where a gas influx occurs is commonly known as a kick. It is the most hazardous component of an oil and gas drilling and completion activity. Kicks occur when wellbore pressure is less than pore pressure that causes hydrocarbon (HC) fluids to flow into the wellbore.

Drilling operators take all precautions possible to prevent kicks as it is both hazardous to the well assets and personnel involved. With this is the Non-Productive Time (NPT) that is required to circulate out the influx from the well

and replace it with an appropriately weighted drilling fluid to maintain the balance against reservoir pressures created by various hydrostatic columns of liquids and gas.

Research by the CSIRO has identified some 50 kicks in and around the Australian continent over the last 20 years. Examination of these incidents highlights that the Montara region has had numerous kicks. It could be surmised that the high number of kicks within this region indicates that there would be thick, highly permeable reservoirs of hydrocarbon bearing fluids.

Normal operating procedures would dictate that with the nature of this type of reservoir, with possible overbalanced drilling fluids, where a plug is put in place above them, will swap out the drilling fluid to formation gas as the plug prevents the hydrostatic fluid from replacing the fluids lost at the bottom of the reservoir. It can be suggested that if the plug above the reservoir that leaked on Montara was not put in place following a particular practice, it would leak. So even though the plug might have been placed in the approved position with approved volumes of cement, if there was not a certain practice followed, gas could migrate through the plug allowing high pressured gas to reach the surface of the well.

Procedurally this can only be verified by reviewing time vs activity data, which is recorded on all drilling and completion operations. The complexity of making such data available for review is made even more complex because of the data security procedures followed by an operator. However, we would like to emphasize that with current technology and collaboration processes available on line, the inquiry would be able to review the root cause and impact of every action taken during the Montara field development and during the response to the Uncontrolled Release.

**2. Review the adequacy and effectiveness of the regulatory regime applicable to operations at or in connection with the Montara oil field, including under the Offshore Petroleum and Greenhouse Gas Storage Act 2006, and including the adequacy and effectiveness of all safety, environment, operations and resource management plans, and other arrangements approved by a regulator and in force at relevant times.**

In this submission we can only suggest that the inquiry thoroughly investigates the level of standards and appropriate safety planning that was in place at the time of the incident.

As part of that investigation it is suggested that a determination on the level(s) of induction and orientation provided for well crews and technical staff particularly in regards to HESQ, evacuation procedures, KICK controls and reporting structures were adequate.

**3. Assess the performance of relevant persons in carrying out their obligations under the regulatory regime.**

In the past industrial accidents were reported more in terms of technological malfunctions with the human element in accidents causation tending to be ignored. With the reduction of technological failures the role or level of human errors has become much more obvious.

We are suggesting that the inquiry examine some of the following issues to assist in its determination:

- Profiling each position
- persons involved
- contractual terms
- regulatory terms
- decisions and actions taken during planning and during operations,

All of the above should be related to a range of issues for each activity and phases of planning, procurement, facilitation and finally verification of competency.

As a guide the UK A1 Level accreditation process for assessing competence (or an Australian equivalent) could assist the inquiry.

Labrador Holdings WA is pleased to offer this input as a submission to the inquiry and is most interested in the outcome. Upon the release of the inquiry findings Labrador Holdings WA is prepared to assist any and all organizations in developing an effective solution to the Australian Oil Industry particularly regarding Expert gateways and digital collaboration

About the Author

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Mr.Needoba has over 35 years of international petroleum industry planning, engineering and well control. He is highly skilled in all aspects of well construction, evaluation, completion and well intervention operations. He has worked onshore and offshore, shallow and deep water, normal and HT/HP environments. Mr. Needoba is currently responsible for assessing offshore oil and gas workers competences to OPITO standards, IWCF subsea well control assessing and HESQ awareness.

He holds a Bachelors degree in Petroleum Engineering and is IWCF Certified.