



Gavels In The Gulf

In Review: The Second Month of the BP Gulf Of Mexico Oil Spill Trial

By Derek Park

Presented by OilandGasIQ.com

GAVELS IN THE GULF

IN REVIEW: THE SECOND MONTH OF THE BP GULF OF MEXICO OIL SPILL
TRIAL

CONTENTS

WEEK 5 IN REVIEW	2
WEEK 6 IN REVIEW	4
WEEK 7 IN REVIEW	7
WEEK 8 IN REVIEW	11
About The Author	15

WEEK 5 IN REVIEW



Transocean Rest Their Case

Week 5 saw Transocean completing their case and Halliburton starting on theirs. Some issues which have previously been raised were flogged even harder and some new ones emerged. Transocean fielded two further witnesses, a current MODU Captain who was Chief Officer on the night of the disaster and their Maintenance and Technical Support Director, who also led their internal investigation. The key themes for this week were

Deepwater Horizon Maintenance

This issue was again picked over at length. The lawyers bash this backwards and forwards and it resembles a never ending base line tennis rally. We have heard testimony before about the unseaworthiness of the rig amounting to 'reckless neglect' but Transocean were able to show an extensive catalogue of inspections and audits, all done by reputable bodies including DNV, ABS, USCG, MMS and BP themselves.

Transocean claim that nothing was hidden and point to the reputations of these bodies. They say that any one of them could have had the rig taken out of service had they felt the need.

The vessel never lost its classification and no auditor, including BP, ever said the rig was unsafe.

In its lifetime the rig had been visited 88 times by the MMS who would have taken any issues of non-compliance straight to BP. There were none.

Transocean said that there were no corporate budget constraints which could lead to any 'run it hard and fix it fast' philosophy. Their position remains that whilst there were outstanding items, none of them contributed to the blow out in 2010.

Marine Operations and Chain of Command.

A key issue in the trial is going to be the apparent ambiguity in the command structure, particularly regarding the Captain and the OIM. Transocean explained that on the Station

Bill the Master always had the over-riding authority but the 'person in charge' changed depending on whether the vessel was underway or drilling. But it was pointed out that a DP rig is always technically underway so where does that leave us?

The plaintiffs' lawyers are focussing on the OIM being driven by commercial considerations rather than the safety of the operation. They wanted to know exactly when the authority shifted from the OIM to the Master as well control was lost on the night. It will be really interesting to see what the court makes of this.

Irrespective Transocean said the key thing was communication and that on the night, considering the speed and the severity of events, things worked well and 115 people got safely off the rig.

Transocean's Incident Investigation

The court also heard testimony and cross examination of Transocean's internal investigation.

The key findings included:

- The cement used on the final cement job was not lab tested properly and Transocean were not advised that this could be a problem.
- The float collar didn't convert. This was disputed by BP.
- The hydrocarbon route to surface was through the casing and not via the annulus.
- There were six changes to the temporary abandonment procedure in the days before the incident.
- Both BP and Transocean misinterpreted the negative test. Some of the confusion stemmed from the use of 'redundant' kill fluid as a spacer.
- Fluid tracking during well displacement was confused by other operations.
- The drill crew should have spotted the signs of a kick and closed in the BOP before the well got out of control.

That concluded Transocean's case and the court moved on to witnesses called by Halliburton. These included their cement services co-ordinator who was on-board *Deepwater Horizon* for the cement job followed by an expert witness who testified about the hydrocarbon intervals in the well.

Well Cementation

We didn't hear a lot that was new, but Halliburton highlighted their concerns about the decisions made by others, particularly BP. These included the fact that a full bottoms up circulation was not done and that only six centralisers were run, both of which could have compromised cement integrity.

It took nine attempts before the float collar converted and subsequently the circulation pressure was low. Conversations had been overheard that 'we may have blown something

higher up the casing'. However the job was pumped and the plugs bumped as expected. All seemed good and a waiting time of around nine hours followed.

That was despite evidence we have seen from others that lab tests showed that the cement would only develop full strength 24-48 hours after pumping.

We will hear much more about cement testing before this trial is through.

That aside, it was claimed that the cement job went fine. There were full returns and the pressures during pumping were as predicted.

On cross examination BP confirmed that Halliburton did not raise any safety concerns arising from the lack of centralisers and full bottoms up circulation. Halliburton replied that these were not issues of safety but they could lead to remedial work if the cement integrity could not be proved by logging or by means of the negative test. The negative test and the cancellation of the cement bond log was not down to them

Hydrocarbon Intervals

Halliburton's final witness of the week was an expert petro physicist. He had reviewed all the logs and documentation relating to the hydrocarbon bearing sands in the Macondo well. Using the wire line logs he demonstrated that there was another gas bearing sand approximately 300 feet above the highest interval identified by BP. This compromised the MMS regulation that says top of cement must be 500 feet above the uppermost hydrocarbon zone.

Analysis of the documentation showed that BP was aware of this additional zone because it was factored into the well kill analysis done immediately after the incident.

The expert made no claim as to whether this additional sand was causal to the blowout but no doubt we will hear more in due course.

WEEK 6 IN REVIEW



Halliburton Case Concludes. Case Against Cameron Dismissed.

The trial in New Orleans is really moving on. Halliburton completed and rested their case this week. The Judge dismissed the case against Cameron, having decided that there no issues with the BOP manufacture and that the problems stemmed from selection, operation and maintenance over which Cameron had no control.

We heard from three Halliburton witnesses, their cement designer for the well, and further experts regarding the BOP and the well itself.

Cement Job

Halliburton's first witness was the cement designer embedded in the BP offices at the time of the disaster. He made recommendations to BP regarding cementing, but whilst these were always fully discussed they were not always followed. This was the contractual position and it had to be the case because BP alone knew all the facts affecting the integrity of the well.

His first concern was BP's decision to only run six centralisers on the production casing, despite modelling which showed the potential for severe gas flow.

Secondly the decision not to circulate bottoms up further increased the risk of channelling and cement contamination. Furthermore BP specified a late increase in the amount of retarder and on completion of the job decided not to run a cement bond log to verify top of cement.

On cross examination Halliburton were asked why they didn't raise these as major safety issues but explained that these decisions were operational. If the cement failed on test then a remedial squeeze could have been done to establish integrity and doing so was fairly common practice. Failed cement job does mean blowout.

The Halliburton designer had been happy to use the cement leftover from the previous (Kodiak) well despite the fact that it contained defoamer. It could be 'designed around' by increasing the amount of surfactant (foaming agent) in the final mix and the properties of the cement could be confirmed by laboratory testing.

It has to be said that Halliburton's lab testing evidence seems flaky. Full testing was not done on the cement actually pumped because of the late BP request to increase the amount of retarder. Halliburton maintain that successful tests, including those for strength and curing time were done on the mix but this did not include a test for foam stability. For this they relied on the test with original retarder and claim that the different amount would not have affected foam stability,

Full details of the slurry design, the testing results and the risks were shared with BP and the witness maintained that if the job were done again today be would change nothing.

On cross examination the plaintiffs' lawyer referred to evidence given earlier by a Halliburton executive who had testified that the cement design used had a low probability of success. The inclusion of the defoamer meant that the cement was designed to do the opposite of what was intended.

There were also questions about the lack of Halliburton management involvement in the decisions made at working level.

The embedded rep did not have routine technical supervision from Halliburton although he could call on help if needed.

The court was shown three Halliburton manuals which specify that cement containing foaming agents should never be used for foam applications, irrespective of the fact that the effect can be neutralised. The fact that the witness was able to deviate from these standards and justify doing so by laboratory testing, showed a lack of corporate control by Halliburton.

The court also heard of concern that unloading the well started less than 10 hours after the completion of the cement job, despite some tests showing that the cement would not have developed sufficient strength at this time.

On cross examination BP lawyers were keen to stress the importance of Halliburton's expertise. They were a 'trusted advisor' but had not highlighted to BP the fact that the job they provided was designed contrary to their own best practice contained in their manuals.

BOP

Halliburton's BOP expert covered much of the ground already visited by other expert witnesses. He criticised the sequencing of the AMF (deadman) function saying that better cutting and sealing would have been achieved if the casing shear ram had activated before the blind shear ram. This would have substantially stemmed the flow from the well and allowed the blind shear ram to cut and seal without the danger of being eroded by the huge flow of well fluids and debris.

He said the set up at the time was hardly best and safest technology (BAST), as required by MMS regulation because this better functionality was available. It could have been realised for the price of some software reconfiguration and extra accumulator bottles. Simple adherence to industry practice and citing widespread similar configurations was not good enough. The engineering facts speak for themselves and BP was deficient in not specifying the BOP

configuration which gave the best chance of sealing the well in all circumstances.

Previously in the case we had heard two different theories as to when the AMF function did activate.

There is no doubt that whether it fired at the time of the disaster or two days later by means of ROV, the blind shear ram did not cut the drill pipe and seal the well. All witnesses agree that this was because the pipe was off centre in the BOP at the time of activation. But was the pipe off centre at the time of the blowout or not until the drifting wreck of the Deepwater Horizon dragged it off centre?

Halliburton agreed with the theory put forward by Transocean that the flow at the time of the blowout was so strong that it lifted and helically deformed the drill pipe, forcing the pipe off centre also ramming a tool joint into the upper annular. The velocity of the fluid was sufficient to erode the ram elements and the tool joint, restoring the annular flow to surface because the eroded drill pipe effectively bridged the variable ram.

Halliburton however dismissed the Transocean claim that the AMF worked despite a flat battery and a mis-wired solenoid. Halliburton's belief is that at the time of the explosion the pipe was off centre and the controls didn't work; both factors that on their own would have stopped AMF from functioning.

Well Design and Construction

Halliburton's expert witness criticised many aspects of the Macondo well itself, much of which we have heard before. The drilling margin was almost non-existent and the court how this influenced BP's decisions in nine key areas.

These included the decisions to run only six centralisers, not to run a cement bond log, not to circulate bottoms up before cementing and to use a long string casing instead of a liner. These decisions did result in time and cost savings and much was made of this by the plaintiff's lawyers during cross examination.

The witness also had an alternate theory as to what actually happened in the well to cause the blowout. The casing landed on debris in the bottom of the well causing the shoetrack to buckle.

When BP reported that the float collar had converted at over 3,142 psi in reality the sudden loss of pressure was the result of the ball extruding from the bottom of the autofill tube, the tube itself being unable to shear because it also was sitting in debris.

This sudden release of pressure was sufficient to rupture the damaged casing if it hadn't already failed due to the buckling.

This explains the lower than expected circulation pressure because it was now possible to circulate through the hole in the casing rather than via the flow ports in the shoe, which itself was sitting in debris!

The cement job now had little chance of success and the breach in the casing, together with an unconverted float collar explains the almost unrestricted flow when control of the well was lost.

But all this doesn't explain why the negative test was deemed to be a success. The witness said that the failure to call a halt at that stage to assess the situation amounted to recklessness on behalf of BP and Transocean, with BP bearing the most responsibility as it was their decision alone to move on and unload the well.

Halliburton are trying to convince the court that whilst they are a world leader in cement, they were only part of a team led by BP. BP was free to accept or ignore advice from contractors and as such it made the final decisions.

Whilst Halliburton had concerns, they maintain that these were operational matters and not safety issues warranting the use of a 'Stop Work' authority.

If the cement job failed it would be picked up by a cement bond log or the negative pressure test and if needed a remedial squeeze would be done. None of these concerns were causal to the blowout. That happened because BP and Transocean misinterpreted the negative pressure test and BP decided to unload the well.

Halliburton may be making this case pretty well, but unfortunately they have upset the Judge. He is frustrated by what he calls the 'drip, drip' of evidence still being revealed, particularly at their testing laboratory.

We have previously seen before evidence that, in the aftermath of the disaster, tests were run and the results destroyed. Remember that in this case the Judge is also the jury; he is not the guy to make angry!

BP of course is anxious to keep Halliburton in the 'blame frame', whilst MI-Swaco and Cameron have already escaped with the Judge's blessing!

Next week BP will begin their case. Believe me, **You Ain't Seen Nothin' Yet!**

WEEK 7 IN REVIEW



BP On the Stand

Week 7 saw BP field a string of witnesses; outside experts as well as its own people. We visited many of the topics from previous week and saw BP having to defend its corporate management practices, despite its attempts to confine the trial scope to the operational activities around the well.

Drilling and Well Construction

BP's first witness was a well-respected expert in petroleum engineering, drilling operations, well monitoring and well control. He believes that the *Deepwater Horizon* was a 'top of the line rig with a top of the line crew'. The well was drilled safely and consistent with industry standard. However the temporary abandonment phase was not consistent with that standard; had it been the well would not have blown out.

The major contention is with earlier testimony from an expert on behalf of the US government who said that BP was outside the safe drilling margin on the final section of the well. BP disagrees that safe drilling margin is defined in reference to the weakest zone in the open hole. They claim it relates to the shoe test or formation integrity test done when drilling out of the shoe into the new section.

The US witness had also said that shoe test itself was invalid because it was too good to be true and had suggested that the leak off had been measured whilst still within the casing or cement. This led to a belief that the formation was stronger than it really was. BP contested this and also the earlier testimony that drilling of the final interval made the well unstable and dangerous.

They cited MWD technology which allowed the drillers to be fully aware of the changing conditions and to make appropriate adjustments to mud weight as they drilled. The witness said 'the well was talking to them and they were listening'.

The government lawyers insisted that safe drilling margin is the difference between mud weight and weakest fracture gradient. MMS depositions to the trial showed that BP had drilled the last section with much less than 0.5 ppg margin required by regulation, and they had also failed to notify the MMS accordingly. It is worth remembering that subsequent to the blowout, MMS issued an Incident of Non-Compliance notice (INC) to BP regarding the drilling of this interval.

Other experts included a witness from Weatherford who had managed the team that designed the float collar. He confirmed that Weatherford had run tests on identical equipment which demonstrated that the float collar had converted and that the flapper valves would have held. He dismissed the theory that the ball had somehow extruded from the bottom of the auto-fill tube whilst the tube itself remained in place.

On cross examination Halliburton pointed out that these tests had not considered the possibility of debris inside the float collar which could have jammed the tube. They also raised an interesting question which the judge didn't allow (but I will!). *'If the float collar converted, how come 1400psi was seen on the drill pipe during the negative pressure test?'*

BP also fielded an expert on casing design. Both the long string and liner casing designs were good, well within industry and BP standards.

The long string offered advantages regarding the control of annulus pressure and has fewer components to fail, so on balance it was a good option.

Temporary Abandonment

BP accepted that the negative test had been a failure and that they bought into it, not because they were reckless but because they genuinely believed there was an explanation. Lawyers for the plaintiffs pointed out that a successful test has no flow and no pressure and 'a moron would have spotted it'. They said that BP had allowed the well displacement to proceed and did so knowing that the negative test was a failure. A Transocean lawyer pointed out that whilst everyone had 'stop work' authority only BP had 'go forward' authority.

One of the BP witnesses was a trainee Well Site Leader who had been a 'fly on the wall' at key meetings and discussions on the rig. He maintained that the cement job went to plan with no apparent concerns about the float collar. There was no confusion about the temporary abandonment procedure but there was much discussion about the results of the negative test.

He saw the drill pipe bled off and the pressure return to a steady 1400 psi. The Transocean driller had put forward the theory that pressure on the drill pipe was the result of heavy mud in the riser somehow transmitting pressure across the closed annular element in the BOP; the so called 'bladder effect'. The well site leaders seemed happy to accept this explanation.

BP onshore engineers had been aware that initially the negative test had failed but subsequently accepted assurances from offshore that the problem had been solved.

BP conceded that if it had not proceeded to displace the well at that stage then blowout and explosion would not have happened. But if others had caught the kick, or if the BOP had worked or if the flow had been quickly diverted then the situation would not have escalated either. Continual monitoring and control of the well is

not the responsibility of the company man; he hires competent contractors to do that.

The line-up of the diverter was again raised by Transocean. It was a BP principle to routinely line up to the mud gas separator to minimise the environmental risk, but surely it should have been lined up overboard prior a critical activity such as displacement? The evidence suggests that the drill crew did manage to get the flow diverted overboard but it was too little too late.

Flow Modelling

BP produced an expert witness in flow modelling who had run the simulations for the BP internal investigation. Taking all the data he had modelled the flows and timings from mid-afternoon until the real time data stopped just before 10pm on the night of the disaster. The pressure on the drill pipe was seen as the key parameter and the simulated case was able to match the records perfectly.

The bottom-hole conditions were however only simulated in terms of 'net pay zone exposed'. The model was accurate if around one fifth of the interval was assumed to open. There was no detail of what this represented in reality; it could have been a partial cement job and a clean flow path through the shoe track, or less cement and some blockage further up the well (or anything in between!)

The only way the model could replicate the recorded conditions of the blowout were if the flow path was inside the casing. It was impossible to replicate the data using any other scenario such as flow via the annulus to the surface or a breach at the 9"/7" casing crossover. One exception to this however, was Halliburton's theory that there was a failure in the integrity of the casing below the float collar. He conceded that this could possibly be modelled to fit the data.

Safety Management System

The GoM performance unit leader from 2007-09 was another BP witness.

He detailed BP's full commitment to safety and refuted that the organisation was driven by an 'every dollar counts' culture.

BP's new Operational Management System (OMS) had been implemented as soon as he took over, a demonstration that safety was a key enabler of the business. This process had started in 2008 with a detailed gap analysis leading to a program of improvements.

The production areas had been the first to change to the new systems with the drilling areas starting to implement OMS in 2009. The plaintiffs tried to exploit the time delays between identification of problems and implementation of solutions; this was 'all analysis and no action'.

He said it was true that between 2008 and 2009 production was up and costs were down, but this was the result of new production coming on stream and some extraordinary expenditure on refurbishment coming to an end. It had nothing to do with operations on 'Deepwater Horizon'.

The 'every dollar counts' programme was a justifiable focus on not wasting money, within the boundary of safety always being the number one priority.

The plaintiffs raised the question of why BP's internal investigation had not looked at how its management systems had failed to prevent the incident. BP claims that this was not causal to the blow out but I am sure the court will be looking closely at the evidence.

Next week will see evidence from the well team leader onshore amongst managers closer to the front line; I am sure there will be rigorous cross examination

Batteries and Solenoids

BP called their own expert witness to testify whether the AMF/deadman function of the BOP worked on the night of the disaster.

You may recall the Transocean story that, despite a flat battery on one control pod and a mis-wired solenoid on the other, the AMF did fire on the night but the pipe was not cut because it was off-centre in the rams.

We have heard hours of testimony on battery and solenoid testing during the trial. The judge even rebuked a lawyer for falling asleep during this latest evidence!

Suffice to say that this expert testified that there was no way the BOP could have functioned given the faults in the control systems and so he agrees with all the other experts except Transocean's. They are on their own here I am afraid.

Next week sees more from BP and perhaps we can glimpse the light at the end of the tunnel! More to come meanwhile!

WEEK 8 IN REVIEW



BP Rests Its Case

Week 8 of the trial saw BP complete its case. Witnesses included the onshore Well Team Leader (WTL) and their Gulf of Mexico Vice President, Wells and Completions, at the time of the disaster. Expert witnesses covered the blowout preventer (BOP) and the International Maritime Code (ISM) regulations.

Drilling and Well Construction

BP's WTL was responsible for operations on the Deepwater Horizon as line manager of the Well Site Leaders (WSL's). The WSLs will not appear at this trial as they have invoked the fifth amendment of the US Constitution which allows that no one shall be compelled in any criminal case to be a witness against himself. The WTL is therefore the BP manager 'nearest to the action' that this court will be able to examine. He confirmed that Deepwater Horizon was seen within BP as the 'best in the business'.

He gave a deal of evidence as to how effectively and safely the offshore and onshore teams, BP and contractors, worked together. He had been disappointed with the slow response to a kick in the month before the incident, as much with the performance of the BP pore pressure prediction team as the Transocean drill crew.

In cross examination the lawyers for the US Government raised the fact that the MMS permit to drill the well showed an expected fracture gradient of 16ppg on the final interval and that BP had been using around 14.5 ppg ECD based on actual circulation conditions. Continuing last week's debate about safe drilling margin, they asked if BP believed that 16ppg was the actual fracture gradient at the final interval.

Much has been made previously about BP's decision to select a long string casing design instead of a liner, the suggestion being that this was done purely on grounds of cost (estimated savings of \$m 7-10). BP maintained that the selection was made purely on engineering grounds and that the long string casing provided a better option than a liner, not least because it avoids the split seal arrangement on the liner tieback.

Furthermore, the material and the crew to run the liner had in fact been mobilised to the rig, incurring a considerable cost but allowing the liner option to be kept open. The casing selection had been made on the basis of sound engineering and nobody on or offshore had suggested that it was the less safe option.

BP also justified their decision to use only six centralisers despite Halliburton's recommendation to run twenty one. It was not uncommon to run casing with no centralisers on deepwater wells drilled from MODUs as this avoided the risk of damage as they passed through wellhead and BOP.

The WTL also had experience of centralisers being lost in the well when casing had to be pulled, leading to abandonment of the section. BP did not believe at the time that this decision was increasing the risk of a blowout, because any cement problems would be shown up by the casing testing. Remedial squeeze work could be done, and again this was not uncommon.

Lawyers for the plaintiffs asserted that BP knew the well was a problem and had been described as 'the well from hell'. Evidence showed that one BP drilling engineer had gone as far as recommending that the well be plugged and abandoned. This was explained as being just a last resort option that was always a possibility, but the preferred option had always been to complete the well.

BP confirmed that during the cementing of the production casing nobody on the rig believed the float collar had not converted or that a CBL log was needed. CBL's were usually run during the completion phase and as there had been no losses, and the plugs had bumped as expected, it was decided that the log would not be needed. This was not uncommon on an exploration well but the kit and the people were offshore if needed, hardly an example of excessive attempts to minimise costs.

Much has already been said about the negative test; suffice to say that BP onshore management agree that the acceptance of the test both by BP and Transocean was a grave mistake. The WTL said he had not been called on the night of the blowout to discuss the results or the decision made offshore to accept the test.

Flow Path

There was little evidence this week concerning the path to surface taken by the well fluids.

BP did highlight however that when the casing hangar was retrieved after the well was killed there was no evidence of erosion. BP's position is that with flow via the annulus, erosion similar to that seen on the BOP would have been evident.

BP Onshore Organisation

BP had changed the Drilling and Completions organisation weeks before the incident. Operations and engineering had been separated and this meant that the WTL no longer had line authority over the drilling engineers working on the Macondo well. This had led to some frustration during the drilling of a somewhat difficult well and was seized upon by the Plaintiffs' lawyers who tried to paint a picture of a dysfunctional organisation.

Documents and emails produced in court, including an email that was never actually sent, were used to infer problems in the BP onshore organisation. The lawyers highlighted comments such as 'flying by the seat of our pants' and 'paranoia from engineering is causing chaos'. In its defence BP explained the frustration as being the result of all the options that engineering were keeping open, such as mobilising and holding an alternative casing string on an already crowded deck. This was the source of the unease felt by the operations people but it had no implications for safety. Nonetheless it gave the plaintiffs an opening and allowed them to place some pretty uncomfortable evidence before the judge and claim that 'a dysfunctional leadership team is exactly what led to the explosion'.

Process Safety

It has been a theme of the trial that BP's safety focus was on personal rather than process safety. BP tried to make the point that process safety in well operations is built in to the design and execution of the well.

Process safety is what drilling engineers and well site leaders do continuously in their professional lives and is not visible in the same way as say a dropped objects campaign. There was a rigorous project control procedure with stage gates and external peer reviews meaning that hundreds of people inputted into process safety throughout the design and drilling of a well.

Safety Management Systems

Much has also been made of the safety management system (SMS) which applied on *Deepwater Horizon*. BP's corporate system is the operations management system (OMS) which was developed in the aftermath of the Texas City refinery accident in 2005. However the rig, being owned and operated by Transocean, used its own corporate system.

There was contractual bridging document which analysed and filled in any gaps, ensuring that the overarching requirements of OMS were met. The plaintiffs however pointed out that BP's own Chief Executive had determined that OMS be used for all work undertaken in their name and cited this as a failing by the BP Macondo team to implement their own policy.

BP's marine expert said it would in fact have been illegal under international maritime law for BP, as the customer, to impose OMS on a vessel that they had on a time charter. BP's only obligation under OMS was to verify that the vessel SMS was certified against the IMS code, as part of its classification.

BP's case was not helped by the fact that five years after Texas City, OMS was only being implemented in GoM D&C at the time of the blowout, and this had been put on hold whilst the reorganisation took place.

Perhaps there is a lesson there for us all; is it appropriate that it takes five years to implement the lessons of a major incident and is ripping up and starting again the best way to go with safety management systems?

Plaintiffs' lawyers argued that the delay in implementing OMS had contributed to the disaster. BP denied this saying that perfectly good systems were in place which OMS would only have improved.

BOP

BP fielded its own expert to testify why the BOP failed to sever the drill pipe and close the well. In his view the well would have been sealed if the AMF/deadman had worked as intended when power was lost at the time of the second explosion.

You may recall that despite a flat battery and a mis-wired solenoid on the BOP control pods, Transocean maintain that the controls did function, but that the blind ram was unable to shear because the extreme flow from the well had pushed the drill pipe off centre. The BP expert said that in his opinion the pipe was centred at the time of the explosion and was only pushed off centre by the travelling block when it fell sometime after the explosion. Hence the controls must have failed.

These are the so called 'force from below' and 'force from above' theories. BP and Transocean experts agree that the pipe was forced and stayed off centre but how and when this happened is a key contention. If the controls had worked and the pipe been centred then the AMF would have functioned when communication to the rig was lost at the second explosion.

However, had the pipe been off centre, the controls could have worked but the pipe would still not have been sheared.

The rub here is that if control failure is the reason the AMF failed then that is down to Transocean maintenance. The experts agree that if the reason for failure was the pipe being forced against the walls of the BOP then that is something beyond the norm and less of a liability.

No one disputes that the pipe was off centre when the autoshear failed on activation by ROV nearly two days after the blowout. The court will have to plough through mountains of evidence regarding the BOP controls and the behaviour of the drill pipe before they can decide on this one! BP also maintained that the BOP selection and configuration was fit for purpose at Macondo and indeed had been approved as such by the MMS.

Emergency Response

BP's Drilling and Completions VP had been visiting the rig and was on the bridge at the time of the disaster. He confirmed that the Master of the *Deepwater Horizon* had waited for permission from the OIM to initiate an emergency disconnect (EDS) even though mud was being blown out from the well and raining down on deck. It wasn't until after the explosions that the OIM had arrived on the bridge and ordered an immediate EDS.

This was taken up by the BP marine expert witness. He was highly critical of the dual command structure and claimed that the Captain should have used his overriding authority to EDS as soon as mud was seen to be blowing out from the well, irrespective of any activity by the drill crew .

The vessel's major accident hazard risk assessment had identified blowout as a major risk and the ability to move off station as the mitigation. Critical minutes were lost awaiting a decision from the OIM and the best chance to seal the well was missed.

Under maritime law, a dynamically positioned MODU remains a ship underway and the ultimate authority can never be delegated.

Operating procedures designating the OIM in command at any time are overridden by international maritime law which says the Captain is always in command.

With that, BP rested its case and the first phase of the trial came to a close. Phase two will follow in the autumn and will look at the aftermath, most notably the attempts to kill the well and the containment and clean-up operations.

WATCH THIS SPACE!

ABOUT THE AUTHOR

Derek Park has 35 years experience of operational and organisational management in the oil, process and utilities industries. A chartered mechanical engineer, he spent time as a construction and commissioning manager on major offshore projects and was later an OIM in the North Sea.

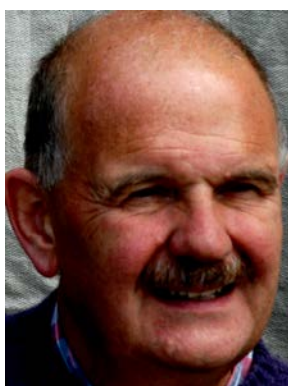
He has also managed operations on major pipelines and at onshore petrochemical facilities. During this time he realised that whilst the actions of people are key to the performance of any organisation, this is often not fully appreciated by managers and management systems.

He is a creator and developer of effective organisations and is driven by a belief that too many people spend too much of their time working on things that simply make no difference.

He works directly with front line staff and advocates a 'bottom up' approach to transformation, complementary to the usual structural techniques. He specialises in engaging people in the change process, recognising that sustainable cultural change can only happen when people are prepared to take personal responsibility for transformation process itself.

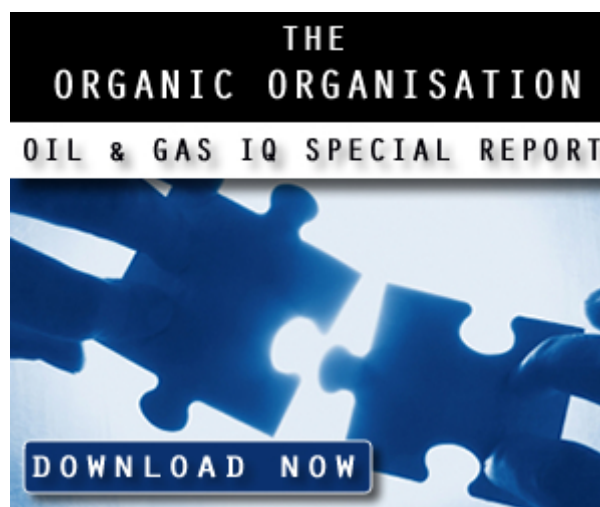
Derek now works as an independent consultant and you can learn more about him at

www.OpsIntegrity.com



[Read the original report "Never Say Never Again"](#)

Downloaded over 50,000 times since its publication in late 2011, the report has become required reading for HSE professionals in the Oil & Gas industry.



[Read "The Organic Organisation"](#)

In this e-book, Derek Park, examines why that happens, and looks at how our organisations could protect themselves.

If Never Say Never was the "what", "where" and "when", then this piece is the remedy to the "how" and "why" disasters strike.