bp

Drilling & Completions MOC Initiate

MOC #: DCMOC-10-0069
Date Initiated: 4/14/2010
Initiator: Hafle, Mark
Stage: Review
Status: Unapproved

Asset/Project:	GoM	Type of Change:	Technical
Rig:	Horizon	Well (i.e., GC 823 #1 or N/A):	MC 252#1 Macondo
Verifier:	Hafle, Mark	Priority:	A (High) - Immediate
Coordinator:	Hafle, Mark		
Desired Completion Date:	04/15/2010		

Proceed with MOC? ○ Yes ◉ No / Cancel ○ Clarify

Title:
Production Casing for Macondo

Scope:
Macondo is a successful exploration well. The primary objective has been met.

A secondary objective is to make this a keeper well, for a future sub-sea completion and tie-back.

The current plan we are seeking approval for is to run a tapered long string of 9-7/8" x 7" production casing.

If the wellbore conditions deteriorate (additional losses, wellbore stability, hole fill, etc..) during the planned conditioning trip, then the recommendation will be made to run a liner instead of the long string.

Justification (include financial impact where appropriate):
The current cement model suggests that we should be able to achieve a successful primary cement job on the long string. (see attached design document in the .pdf file)

The long string provides the best economic case and well integrity case for future completion operations.

The liner, if required, is also an acceptable option, but will add an additional $7 - $10 MM to the completion cost.

The complete summary of the options and current wellbore conditions are attached in the .ppt file.

The plan forward decision tree is also attached.

Risk/Mitigation (attach risk documentation where appropriate):
Lost circulation during the cement job:

The model estimates the maximum ECD to be 14.582 ppg. The FIT on the previous shoe was 16.0 ppg. There have been two lost circulation events in this hole section: The first occurred when ECD exceeded 14.9, prior to drilling the pay sands. The second event (major losses) occurred when ECD exceeded 14.7+. Losses for this event were cured with Form-a-Set and MW reduction. Since that second event, we have been using a 14.5 arbitrary frac gradient that we are attempting to abide by based on actual circulating conditions we have put the wellbore under since having losses and fixing them. The cement job has been designed to minimize the ECD as low as practical: Foam cement, light weight spacer, and a small base oil spacer, along with low pump rates, will be used together to keep ECD below an acceptable level.

Single barrier in annulus for TA:

If losses occur during the cement job, possible cement evaluation, remedial cement operations, dispensations and/or MMS approvals will be required prior to performing TA operations due to a lower than required Top of Cement in the annulus. Possible hydrocarbon zones could be left exposed in the annulus with only the casing hanger seal as the single barrier for the TA. The attached decision tree addresses these options. A perf and squeeze operation could be performed to add a second barrier in the annulus.

bp

Drilling & Completions MOC Review

MOC #: DCMOC-10-0069
Date Initiated: 4/14/2010
Initiator: Hafle, Mark
Stage: Review
Status: Unapproved

EXHIBIT # 901
WIT:

Level 1 Reviews

Review	Responsible Person	Disposition	Completed By
Engineering	Walz, Greg	◉ Agree ○ Disagree	Walz, Greg
Operations	Sims, David C	○ Agree ◉ Disagree	Sims, David C
Engineering Authority	Sprague, Jonathan D	◉ Agree ○ Disagree	Sprague, Jonathan D
Asset	Reiter, Dons	○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	

Level 2 Reviews

Review	Responsible Person	Disposition	Completed By
Operations	Frazelle, Andrew E	○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	
		○ Agree ○ Disagree	

C Agree C Disagree

bp

Drilling & Completions MOC Pre-Approval Actions

MOC #: DCMOC-10-0069
Date Initiated: 4/14/2010
Initiator: Hafle, Mark
Stage: Review
Status: Unapproved

Action Item Description	Responsible Person	Due Date	Check to Complete	Completed By

bp

Drilling & Completions MOC Approval

MOC #: DCMOC-10-0069
Date Initiated: 4/14/2010
Initiator: Hafle, Mark
Stage: Review
Status: Unapproved

Please select the approval levels required for this MOC.

- [x] Level 1
- [ ] Level 2
- [ ] Level 3

Level 1 Approvals

Approver	Disposition	Date	Approved By
OBryan, Patrick L	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		

Level 2 Approvals

Approver	Disposition	Date	Approved By
	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		

Level 3 Approvals

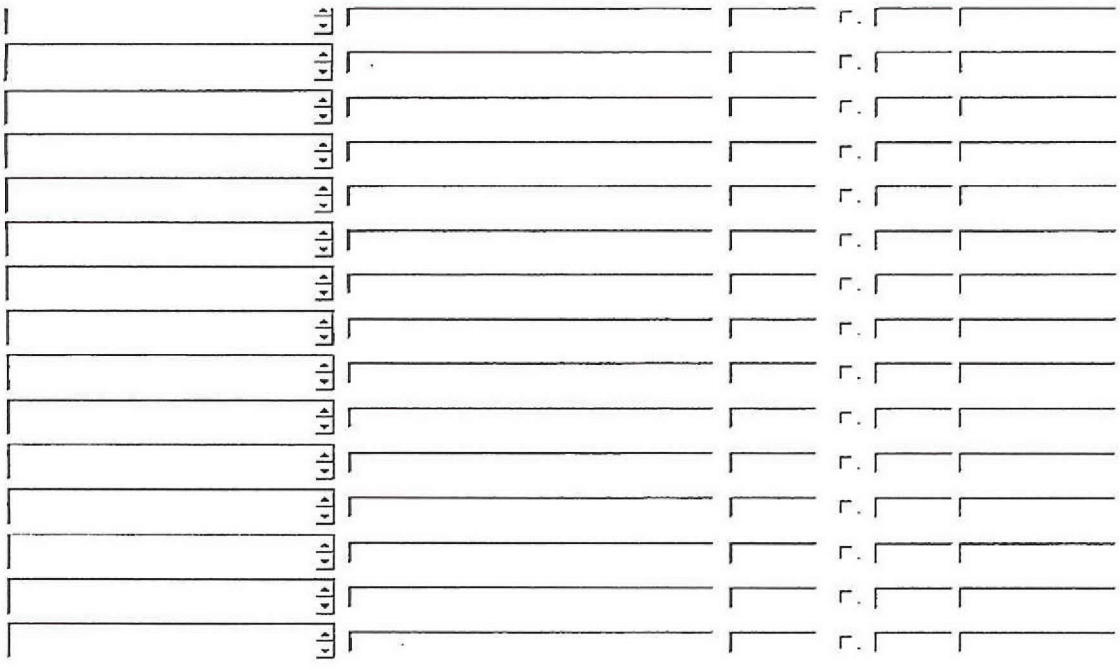
Approver	Disposition	Date	Approved By
	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		
	C Approve C Cancel C Clarify		

bp

Drilling & Completions MOC Post-Approval Actions

MOC #: DCMOC-10-0069
Date Initiated: 4/14/2010
Initiator: Hafle, Mark
Stage: Review
Status: Unapproved

Action Item Description	Responsible Person	Due Date	Check to Complete	Completed By



bp

Drilling & Completions MOC Close Out

MOC #: DCMOC-10-0068
Date Initiated: 4/14/2010
Initiator: Holle, Mark
Stage: Review
Status: Unapproved

Completion

☐ MOC is complete

- Documentation finalized and uploaded to appropriate repository
- Communication (including training) to affected personnel complete

Date

Approved By