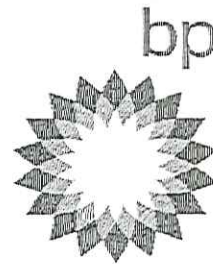


Gulf of Mexico SPU



Gulf of Mexico SPU

D&C Guidance Document

Drilling Engineering BtB Stage Gate Process (Well Level)

EXH
1515

1	11/30/2009	Issued for Use	Charles Taylor/Greg Waltz/David Sims	Jon Sprague
Rev	Date	Document Status	Custodian/Owner	Authority

Document Control Number	Organization ID	Sector ID	Discipline ID	Document Class	Sequence Number	Document Revision
	2200	T2	DO	RP	0003	1

AMENDMENT RECORD

Amendment Date	Revision Number	Amendment Initials	Amendment
11/30/2009	1	TJ	Applied minor formatting changes and moved the signature page to the back.

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Authority:	Jon Sprague	Revision:	1
Custodian/Owner:	Charles Taylor/Greg Walz/David Sims	Issue Date:	11/30/2009
Retention Code:	ADM3000	Next Review Date (if applicable):	1/1/2011
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1 Introduction

The Beyond the Best common process (BtBcp) is how we plan and execute wells in BP. This document seeks to clarify how this process will be implemented in the Gulf of Mexico (GoM) Drilling Engineering Delivery Teams.

The GoM D&C organization is creating "The Way We Work" manual. This manual will have standardized plans for Risk Management, Knowledge Management, Management of Change, Technical Limits, D&C's Continuous Improvement Process, and other aspects of BtBcp that are developed on a Strategic Performance Unit (SPU) basis. This document will not describe these plans; they can be referenced separately.

The Drilling Engineering Major Projects team follows the Major Projects common process (MPcp). This document will not discuss the interaction between MPcp and BtBcp.

The following table shows the five stages of the Stage Gate Process and the four stage gates that review these stages. Note that both the Execute and Review stages are reviewed in one final Review stage gate.

Table 1.1: Stage Gate Descriptions

Stage Gate Descriptions			
Stage Gate 1	Appraise	→	Select
Stage Gate 2	Select	→	Define
Stage Gate 3	Define	→	Execute
Stage Gate 4	Review (Final Closeout)		

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2 Roles and Responsibilities

2.1 Gatekeeper

The Gatekeeper is the individual accountable for the stage decision, and for securing resources and funds for the next stage. Gatekeeper selection will be asset driven for the Appraise to Select, Select to Define, and the Define to Execute Stage Gates. The Gatekeeper will be identified and agreed upon by SPU leadership, and the decision will be communicated to the team. The Gatekeeper may delegate authority for Stage Gate approval. Examples of gatekeepers are the Asset Manager or Vice President, Appraisal General Manager, and Exploration Manager.

2.2 Endorsers

Endorsement is made by the Drilling Engineering (DE) Team Leader prior to all Stage Gates and by the Wells Team Leader prior to the Define to Execute and Review Stage Gates. This person's endorsement signifies to the final Endorsers (Operations Manager and/or Drilling Manager), and Gatekeeper that the necessary engineering work has been completed, and that all due diligence has been done. Any gaps or outstanding items should be signified by a yellow or red light on the decision support package summary page (examples are in the appendix of this document). The final Endorser is the person who authorizes the color of the traffic lights and provides additional functional expertise during the Stage Gate meetings or SPU Well Review Meeting (WRM). The Endorsers may delegate authority for Stage Gate approval.

2.3 Approvers

At the Review Stage Gate only, the Drilling Manager and the Well Operations Manager approve this stage gate to ensure all key aspects of the post well review process have been completed. The Approver may delegate authority for approval.

2.4 Single Point of Accountability

The Well "Single Point of Accountability" (SPA) is the person assigned to steward the well through the project stages. The SPA is the drilling engineer responsible for coordinating activities and completing deliverables required in each stage. There is only one SPA for well delivery during the drilling planning and execution; this person will be assigned by the DE Team Leader.

2.5 Common Process Coordinator

The role of the Common Process Coordinator is to assist the engineering staff in the consistent application of the Beyond the Best process by:

- Facilitating and preparing for well planning meetings
- Assisting staff with decision support deliverables and Stage Gate reviews
- Maintaining action item logs, risk registers, planning spreadsheets
- Assisting in the development of documents and deliverables in support of BtBcp

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3 Stage Gates and Deliverables

3.1 Sign-off Cover Sheets

The Stage Gate sign-off cover sheet is the formal approval that progresses the project to the next stage. The individual sign-off sheets provide a list of expected deliverables for each respective gate for the GoM SPU. When coupled with the actual gate deliverables, they comprise the Decision Support Package (DSP). The DSP should be made available to the Gatekeeper 48 hours prior to the commencement of the Stage Gate review meeting. They should be presented to the Drilling Engineering Team Leader in a weekly team meeting prior to being presented at the Stage Gate meeting.

It is in this weekly team meeting that the Drilling Engineering Team Leader will assign colors to traffic lights based on the supporting engineering work. These DSP Summary Sheets should be filled out and presented for signature in the Stage Gate review meeting. **A gate has not been passed until all necessary signatures have been obtained on the DSP sign-off sheet.** None of the deliverables listed on the sheets shall be removed, but it is acceptable to label a deliverable as N/A if appropriate.

3.2 Guide to "Traffic Lights"

Below is some general guidance to the color of traffic lights. Many of the Stage Gate deliverables have more specific guidelines for traffic light color, which will be provided later in this document.

- **Green Light**—indicates the project deliverable is complete and fully meets expectations.
- **Yellow Light**—indicates the project deliverable is incomplete, but there is an achievable plan in place to close the gap(s).
- **Red Light**—indicates the project deliverable is incomplete and significant challenges need to be overcome before the project can enter the next stage.

The Gatekeeper will determine if the project can progress to the next stage. All lights do not have to be green to go to the next stage. The Gatekeeper may decide that the team can proceed with conditions. When these conditions are satisfied, the Gatekeeper will be informed that the conditions have been met.

3.3 Stage Gate 1 (Appraise to Select)

The objective of the Appraise Stage is to develop well objectives which may include general well targets, and well design options that have technical objectives aligned with asset and/or SPU Strategy. This stage is usually completed by the Multi-Discipline team before the well is drilled. Some common questions asked in the Stage Gate 1 review meeting are given below.

- May I see your Project Initiation Document (PID)/preliminary SoR?
- What is your main objective and value driver? How did you identify them?
- How do you ensure these are clear and aligned within the team?
- What do you consider a successful project?
- Can you describe your critical path in your schedule? Is this coming from a Work Breakdown Structure? (If not, why?)
- What is your work plan, and is it based upon your No Drilling Surprises (NDS) Assessment?

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- How did you identify the risks which are populated in the Risk Register?
- What are your top five risks? Why are they considered top risks?
- How are you going to incorporate learnings into your plans? May I see your Knowledge Management Plan?
- What upsides have you considered for your project that might be realizable through the application of technology?
- How did you identify the options that you are carrying into Select?

Table 3.1: Stage Gate 1 (Appraise to Select)

Decision Support Package (Key Components)	
SG1-1	Team Org Chart with identified Single Point of Accountability (SPA)
SG1-2	Right Scoping Workshop Output (Value & Objectives)
SG1-3	Project Initiation Document (preliminary SoR)
SG1-4	Geological Assessment/Description of Prospect
SG1-5	Well Options Matrix
SG1-6	No Drilling Surprise (NDS) Scorecard (update as needed)
SG1-7	Long-Lead Equipment AFE/PO (as needed)

SG1-1—Team Org Chart with identified Single Point of Accountability (SPA)

To display a green traffic light, The SPA will need to have a single slide that depicts the people who are contributing to the project. If a Completion is planned for the well, the Completion Engineer who will be the SPA for the completion operations needs to be identified. This Completion Engineer should be associated with the project from the start of project planning until the completion review stage is finished (except for Exploration wells and only as needed for Appraisal wells).

SG1-2—Right Scoping Workshop Output (Value and Objectives)

"Right Scoping" is the process which ensures that individual wells are designed to meet the needs of the asset depletion plan. A Right Scoping Workshop is carried out in the Appraise Stage in conjunction with the Subsurface and Drilling teams, HSSE, Commercial, Completions, Production, Operations and Subsea teams. This workshop develops and prioritizes drivers and objectives for both individual focus areas and the well as a whole. The process is facilitated by the Common Process Coordinator in a 1-3 hour session involving the multi-disciplinary team (partner representation is encouraged). Generating and prioritizing a list of objectives is required prior to the workshop. In cases where the objectives and value of the well are easily understood and agreed upon, it may be possible to conduct the Right Scoping Workshop during a team meeting where the outcome consists of statements of the value and objectives.

SG1-3—Project Initiation Document (PID, Preliminary SoR)

This document briefly describes the proposed well project, identifying the scope, value to the business (the business case), high-level objectives, sponsor and sponsor needs, key stakeholders, risks, schedule for delivery, and the project manager (SPA). This will allow the multi-disciplined wells project team to initiate the wells project and, more specifically, to commence the Appraise and Select activities that will deliver the well's SoR and Select Stage DSP.

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SG1-4—Geological Assessment/Description of Prospect

The Subsurface team prepares this information. It typically includes a reservoir map or multiple images showing the well location and various subsurface features which drive the location and well path decisions. A written report may or may not be required depending on the type of project (a single well project or exploration or appraisal may require more information than a multiple well project well).

SG1-5—Wells Options Matrix

This statement simply describes all the Drilling (well target, well design, etc.) options that are being considered to meet the well/project objectives. This options matrix may also include Completion options that are being considered for the well that may have an impact on the selection of the Drilling option. This can be presented as a "one-pager" or single slide at the Well Review Meeting.

SG1-6—No Drilling Surprise (NDS) Scorecard (update as needed)

The new format of the NDS Scorecard does not require a score. Instead, prepare an overview of potential problems with the project that the multi-discipline team further identifies at the NDS Scorecard review.

SG 1-7—Long Lead Equipment AFE/PO (as needed)

The majority of the required drilling equipment should have been addressed for the options considered via the Long Leads process (typically 5-24 months ahead of required deployment, depending on the type of equipment). Items, if any, that may be required for any of the considered options and which are not covered in the Long Leads process, should be pointed out in this stage and a discussion/decision made as to whether this equipment will be ordered on a contingency basis or deferred until an option is selected. Scoping costs and delivery times for equipment not in inventory or on-order should be investigated. The long lead schedule may dictate whether a particular option is viable.

3.4 Stage Gate 2 (Select to Define)

The objective of the Select Stage is to perform enough work on each option in order to select the one that is the optimal design in terms of the main well drivers (CAPEX, Production, Reliability, Schedule, etc.). The output of the stage is a recommendation to move forward with a single option. Stage Gate 2 is a critical milestone because it represents the point at which well design is frozen. Any change after this point represents a change of scope, which may result in either schedule delays or cost increases or both.

Some key questions that are likely to come up in the Stage Gate review meeting are:

- What is your main objective and value driver? Have they changed from Appraise?
- Have you frozen the concept? (If not, why?)
- What are the key assumptions behind your cost model?
- What actions from your Action Tracker have yet to be closed out?
- Where are you now with the five top risks from the Appraise stage? What new risks have you identified?
- What is your FEL score? Where are your major gaps?
- What is preventing you from having a higher score now?

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- How did you choose your Peer Reviewers? What were their recommendations? Did you action them all?
- What contingencies do you have in place to ensure you achieve your main objective?
- What are your three main lessons learned so far?
- When was your last team building activity?
- Do you have a Technical Limit Plan?
- Is your SoR completed and ready for sign-off?

Table 3.2: Stage Gate 2 (Select to Define)

Decision Support Package (Key Components)	
SG2-1	Shallow Hazards Identification
SG2-2	Well Ranking Justification
SG2-3	Output from Pore Pressure Peer Review / Output from Subsurface Hazards (as needed)
SG2-4	Drilling Statement of Requirements/Well Planning Data Package
SG2-5	Risk Register
SG2-6	Drilling Uncertainty Statement/Single Well Estimator (Preliminary)
SG2-7	Peer Assist Output – Casing Design/Drilling Strategy (E&A wells)
SG2-8	Front End Loading Assessment (E&A, as needed)
SG2-9	High Level Vendor selection (E&A wells)

SG2-1—Shallow Hazards Identification

The shallow hazards assessment is completed by a Geoscience Specialist in the GoM SPU Tiger Team. The assessment is reviewed with the Subsurface Team, peer reviewed with the Tiger Team and assurance is provided by the Marine Geohazards Technical Authority. Shallow Hazards identification and assessment shall follow comply with Engineering Technical Practice (GP 10-20).

For well projects that have the shallow surface casing intervals already drilled, the Shallow Hazards Identification may not be relevant.

SG2-2—Well Ranking Justification

The ranking of options is intended to highlight the option(s) that best fit the particular well application. The outcome of this exercise is to identify the drilling option(s) that best fit, and then make a decision as to which drilling option will be employed. Once the drilling option is selected, it will be the subject of detailed engineering in the next stage.

Ranking criteria should consider cost, drilling design technology maturity, resource requirements, equipment requirements and delivery lead times, production impacts, drilling design historical success, subsurface requirements, risks, etc. Identification of geologic uncertainties that may impact or change the selected option should also be identified.

SG2-3—Output from Pore Pressure Peer Review/Output from Subsurface Hazards (as needed)

Pore Pressure Peer Reviews are conducted to determine if the pore pressure prediction is appropriate for proceeding with well execution and that the methods used meet the Engineering Technical Practice on Pore Pressure Prediction (GP 10-15). In addition, Subsurface Peer

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Reviews or Peer Assists may be conducted if specific subsurface or geological hazards (in addition to shallow hazards or pore pressure) are identified as major hazard risks. The Peer Review or Peer Assist feedback will be shared with WRM as appropriate.

SG2-4—Wells Statement of Requirements/Well Planning Data Package (Well SoR/WPDP)

The Drilling SoR is in essence a contract between Subsurface, Engineering, Ops (and other) teams for what will be delivered. It is the foundation for the drilling design. The required information for the drilling event is in the Well SoR. A Well Planning Data Package will need to be completed. If this is a standalone operation, an SoR with a Well Planning Data Package will be required before leaving this stage. These may be separate or combined documents depending on the particular project. The design is considered frozen once signed, and changes after signature will require a MoC. These changes should be noted and reviewed.

SG2-5—Risk Register

The SPA shall ensure that the BP Risk Assessment Tool (RAT) is used to capture and prioritize the various risks associated with the delivery of this well, or another tool and process with similar functionality until the BP RAT tool and process are standardized and approved. Particular attention should be paid to risks that are different or are unique to this well. In the Stage Gate meeting it is not necessary to review every risk in the register. At a minimum, those risks that have a high probability and high impact should be discussed.

SG2-6—Drilling & Completion Uncertainty Statement (DCUS) (for cost estimate of recommended option)

Use the Single Well Estimator to provide input into the DCUS. Show the results of the DCUS Summary sheet as a part of the Stage Gate presentation, along with project economic information as appropriate.

SG2-7—Output from Peer Assist – Casing Design/Drilling Strategy

In the event that any of the drilling options considered are outside the Basis of Design or differ significantly from any of the previous drilling done in the field, the SPA will convene a Peer Assist made up of a multi-disciplinary team to obtain external insight and experience into the decisions. The major suggestions or results of this Peer Assist shall be reported in the WRM.

SG2-8—Initial FEL

The Front End Loading (FEL) Assessment is an assurance tool used by D&C leadership to gauge how well a team is organized and how well they have planned and engineered. The FEL is very helpful to new teams for identifying gaps and developing plans to close the gaps before going into Define. This review is typically facilitated by the CP Coordinator.

SG2-9—High Level Vendor Selection (as needed)

GoM SPU standard vendors should be used where possible. Any required exceptions and the rationale for such should be presented, discussed and approved at the WRM.

3.5 Stage Gate 3 (Define to Execute)

At the third stage gate when moving from Define to Execute, the team has to demonstrate that all of the work and preparation of the Define Stage including the well program, contingencies and risk mitigation are complete and that they are prepared to execute the drilling program. The team

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must also be able to show that they understand and control the economics and performance metrics for this drilling operation.

Key questions include:

- Did you utilize your Management of Change process? To what extent?
- What new technologies have you investigated for this plan?
- What actions are not yet closed out on your Action Tracker?
- What is your FEL Score? How does this compare with your expected target? Are you satisfied with your level of FEL?
- Did you hold a Peer Review? What were their recommendations? Did you action them all?
- Let's review the five top risks. Are you comfortable with the residual risk? What percentage of NDS risks have been closed out?
- Is all the documentation in a single place?
- How are you capturing the learning from this planning phase?
- Let me see your Drilling & Completion Uncertainty Statement (DCUS)?
- Is your drilling program completed?
- Show me your Basis of Design for casing, cement, mud, and directional drilling.
- What critical decision(s) do you have to make while executing the plan?
- How will you implement Technical Limit or a Crew Engagement session?

Table 3.3: Stage Gate 3 (Define to Execute)

Decision Support Package (Key Components)	
SG3-1	Regulatory Permits
SG3-2	Risk Update with Mitigations and Risk Status
SG3-3	Contingency Plan/Decision Tree
SG3-4	Final Basis of Design (BoD)
SG3-5	Equipment SoR's
SG3-6	Final AFE supported by DCUS & Single Well Estimator
SG3-7	Final Drilling Program
SG3-8	Action Tracking Review
SG3-9	FEL Update (E&A, as needed)
SG3-10	Tech Limit/Crew Engagement Plan (as needed)
SG3-11	Output from Drilling Peer Review (as needed, E&A required)
SG3-12	Communication Plan (update as needed)
SG3-13	Management of Change (MoC) Log (as needed)
SG3-14	BP Dispensation Summary (as needed)

SG3-1—Regulatory Permits

The SPA shall be responsible for obtaining the necessary regulatory permits:

- Submission of Application for Permit to Drill (APD) to MMS
- Submission of Application for Permit to Modify (APM) to MMS
- Submission of subsequent Sundry notices to MMS

In all cases, the SPA will communicate to regulatory bodies through the BP Regulatory Team. It is not acceptable for drilling engineers to be in direct contact with the MMS without the presence and/or advice of a member of the Regulatory Team.

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SG3-2—Risk Update with Mitigations and Risk Status

The SPA will be responsible for addressing the major risks and ensuring the proper mitigations are in place. The following steps should be completed to pass the Stage Gate:

- BP RAT is populated and all action items closed out, or another tool and process with similar functionality until the BP RAT tool and process are standardized and approved
- All residual risks are either within lower left quadrant of the risk matrix (no red risks) OR the residual high level risks are clearly stated, addressed, and signed off as part of the Stage Gate process
- Include a snapshot of the risk matrix and discuss the high-level, well-appropriate risks and their associated mitigations
- Review peer review input (if appropriate)

SG3-3—Contingency Plan/Decision Tree

GoM drilling has contingency plans in place for all standard operations. The SPA is responsible for ensuring that any well-specific risks and mitigations that require new contingency plans (or changes to existing ones) are fully documented. This section usually can be combined with the above risk and mitigation issues.

- Summarize peer review input into contingencies
- Review procedure and equipment required for new contingencies and specify which major risks they address

SG3-4—Final Basis of Design (BoD)

The SPA is accountable for preparation of the final BoD. This may be for a multi-well project or a specific well in a multi-well project or a stand alone single well project.

SG3-5—Equipment SoR's

Note that this is for specific equipment and not the project or well SoR. It may be important to discuss critical equipment issues with the team. If no critical issues arise, provide a general update (e.g., perhaps a slide with a table of the equipment and status).

SG3-6—Final AFE Supported by DCUS

The final AFE should be signed just prior to the SG3 meeting. If this cannot be done, be sure that the Asset VP, Wells Manager, and Drilling Team Lead are aware of the expected AFE cost and time. The final AFE must be supported by the DCUS estimate that is generated. The timing may be affected by the Partners' needs to review and approve the AFE, or other factors.

SG3-7—Final Drilling Program

The SPA is accountable for delivery of the drilling program. The SPA compiles the procedures from each subject matter expert (SME) and modifies them to fit the respective well. There are SMEs for various well phases. Each SME is responsible for writing (or modifying) the procedure for their respective phase. The SMEs will keep their procedures in alignment with the recommended practices and current with the latest local and global lessons learned. Lessons learned from previous wells in a multiple well program should be used to continuously update the new program.

The drilling program should include attachments, especially a detailed well schematic. The well schematic should be supported by a detailed list of all equipment, both purchased and rental,

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needed to deliver the drilling event. The drilling program format should follow the new Recommended Practice for content, available at this SharePoint site in the D&C Portal:

<http://gomdnc.bpweb.bp.com/bam/RP/Wiki%20Pages/Well%20Program%20Format%20Standardization.aspx>

or

[Home > Processes > Recommended Practices > Wiki Pages > Well Program Format Standardization](#)

If any portion of the drilling is significantly different from previous wells, then a procedural review and possibly a "Drill the Well on Paper" session should be carried out. These sessions will help ensure that all steps are complete, efficient, and as operationally friendly as possible. Finally, after the program is vetted, it is sent to the rig. The procedures should be sent to the rig at least 30 days prior to the commencement of drilling operations.

SG3-8—Action Tracking Review

A review of the action tracker should be completed to demonstrate progress on identified actions. It also can be used to highlight issues/actions that will carry higher risks and uncertainty so that they can be worked and flagged in order to carry more visibility for management awareness.

SG3-9—FEL Update

This update is a review of the initial FEL assessment that measures the progress that the team has made. This review, like the original FEL assessment, is facilitated by the CP Coordinator.

SG3-10—Tech Limit/Crew Engagement Meeting (as needed)

The standard GoM D&C Tech Limit Plan will be utilized as applicable.

Note: Recommended Practice on Technical Limit Plan is under development.

SG3-11—Output from Drilling Peer Review (as needed)

The Drilling Peer Review, if completed, should include recommendations from the Peer Review team. A summary of these recommendations should be communicated to the WRM.

A Drilling Peer Review's purpose is to vet drilling design changes, identify key risks and suggest potential mitigations. These should only be held where a substantial change in design is made. This meeting should include the project Ops DEs, DE from other assets, SMEs, partners, and vendors associated with the potential change and others as appropriate.

SG3-12—Communication Plan (update as needed)

A typical Communications plan may include the following type of information: who is SPA, accountabilities, roles and responsibilities, who to call, how to handle changes, leading management, morning (and other regular) meetings, weekend operations, etc. The details will be too much to review in a Stage Gate meeting, but the SPA should be able to confirm the status of the plan.

SG3-13—Management of Change (MoC) Log (as needed)

The attached link is the GoM standard for Management of Change.

<http://gomdnc.bpweb.bp.com/docs/Documents/Processes/MoC/2200-T2-PM-PR-000001%20D-C%20Recommended%20Practice%20for%20Management%20of%20Change%20Rev%200.doc>

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MoC's may have been prepared by the SPA or other team members. Provide a summary of any MoC's prepared. Include MoC number, title, and brief description.

SG3-14—Dispensation Summary (as needed)

The SPA will typically be responsible for reviewing the BP policies and preparing any dispensations. Provide a summary of any dispensations prepared. Include a reference and brief description.

3.6 Stage Gate 4 (Review)

This is the final closeout review which should occur approximately two months after the drilling operations conclude. In this review, all lessons that were learned need to be captured and/or identified for readiness to transfer to the federal community either via TeamLink or a modification to the recommended practice. Risk mitigations and contingency procedures should be reviewed for effectiveness.

- How does the FEL score correlate with the KPIs you achieved?
- What happened differently from the work defined based on your NDS Assessment?
- Can you show me the reconciliation of scope and time?
- Can you show me the cost reconciliation bridge plot (estimate vs. actual)?
- How successful was your implementation of Technical Limit in this project?
- What risk events were not anticipated in the Risk Register? Why not?
- Have you incorporated your lessons learned into TeamLink?
- When did you capture all these learnings?
- What one lesson could make the difference to other BUs?
- What three things are you going to do differently in your next project?

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Table 3.4: Stage Gate 4 (Review)

Decision Support Package (Key Components)	
SG4-1	End of Well Report – Drilling
SG4-2	Materials Reconciliation
SG4-3	Operational Post Well Review Meeting
SG4-4	Handover Documentation to Completion Team
SG4-5	Risk Register Update
SG4-6	DIMS/Open Wells QA/QC'd and Performance Benchmark Report
SG4-7	Closeout Co-owner Issues (as needed)
SG4-8	Drilling EoW Scorecard
SG4-9	Closeout Regulatory
SG4-10	D&C SPM Vendor Scorecards Done
SG4-11	Document Management Review

SG4-1—End of Well Report – Drilling

The attached link is the GoM standard for End of Well Reporting and post well review.

<http://gomdnc.bpweb.bp.com/docs/Documents/Engineers%20Tool%20Box/SOP/2200-T2-DR-PR-000001%20End%20of%20Well%20Report%20and%20Operational%20Post%20Well%20Review%20Rev%200.doc>

SG4-2—Materials Reconciliation

The SPA is responsible for ensuring the as-run equipment is properly tracked (Material Number, Quantity and Serial Number). He/she is responsible for equipment sent back to shore (e.g., Back-Up/Not Used), condition of returned equipment and co-coordinating with Materials Manager that the returned equipment is qualified and good for re-use. The SPA should coordinate cost reconciliation with Materials Management Team and should also ensure cost impact is captured in DIMS.

SG4-3—Operational Post Well Review – Drilling (see PWR RP for content)

This is a meeting to summarize key well information, operational performance (planned vs. actual times/cost, and any modifications to procedure or equipment), and lessons learned (including how risks were mitigated). Separate reviews will be held for the Drilling and Completion phase of a well and for any Major Well Intervention work. These reviews will be completed within two months after the completion of the planned operation. The Drilling/Completion/Well Intervention teams lead these review sessions and involve other key multi-disciplinary team members.

SG4-4—Handover Documentation to Completion Team

This is a package of information that is given to the Completions team immediately after the conclusion of Drilling operations, inclusive of well construction validation work. It should include test charts and certificates (where applicable), a summary of fluid in the well and fluid lost to the formation, and much more. A standard handover form is available and should be used as a checklist. Please consult the DEx team for updates.

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SG4-5—Risk Register Update

Following the post well review, the Engineering Team leader ensures the risk register for the field of operation is updated based on the results of the actual operations. Risks may be added or dropped, and the impact level or probability may be adjusted. The team also should identify risks that should be added or removed from the Drilling Template Risks in BP-RAT. Future well program plans should also be updated if significant learnings occurred.

SG4-6—DIMS/Open Wells QA/QC Complete

The DIMS/Open Wells data should be checked to ensure all mandatory fields have data entry, data is accurate and all mandatory reports have been completed as per the GoM D&C Reporting Standards (Red Book). The Rushmore Performance Benchmark workbook should be completed and submitted to the GoM D&C Performance Engineer.

SG4-7—Closeout Co-Owner Issues (as needed)

Requirements typically call for co-owners to receive copies of any data acquired on a well, such as logs, core information, morning reports, etc. They are not entitled to any "interpreted" information. The mutual information is generally captured in the end of well report that is submitted to the MMS.

SG4-8—Drilling End of Well Scorecard

A standard Drilling scorecard (for example, as Completions has) is currently not prepared for the Drilling operations. Instead this type of information is contained in the End of Well Report. In the Comments section show that the EoW report has this information.

SG4-9—Closeout Regulatory

The MMS requires the final as drilled schematic and is due within 30 days after reaching total depth. It is the SPA's responsibility to update and check the final as drilled schematic to ensure complete accuracy, and to provide this to the BP Regulatory Specialist to include with the proper report to the MMS.

SG4-10—D&C SPM Vendor Scorecards Done

The vendor scorecards have to be completed within three weeks of the end of operations. The scorecards are initiated by the vendor and reviewed by both rig supervisor and office (operations DE) personnel. Input from others involved in HSSE, logistics, and planning will be required. These scorecards will be reviewed in the operational post well review and they will be used by PSCM when vendors are evaluated.

SG4-11—Document Management Review

The SPA, assisted by the technical editor, reviews all well program documentation to ensure that all documents have been filed appropriately, and that all controlled documents have been filed in DW Docs.

Note: Recommended Practice on Document Management is under development.

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Appendix 1: Drilling – Stage Gate 1: Appraise to Select

Decision Required: High-graded well options have technical objectives aligned with SPU Strategy.			
Common Well Project Name:		Block + Location-Well Number	
Gate Meeting Date Time/Day/Month/Yr		CAPEX Allocated: (Y/N)	
		Est. Spud Date:	

Decision Support Package (Key Components):	Traffic Light	Comments
1. Team Org Chart with identified Single Point of Accountability (SPA)	●	
2. Right Scoping Workshop Output (Value & Objectives)	●	
3. Project Initiation Document (preliminary SoR)	●	
4. Geological Assessment/Description of Prospect	●	
5. Well Options Matrix	●	
6. No Drilling Surprise (NDS) Scorecard (update as needed)	●	
7. Long-Lead Equipment AFE/PO (as needed)	●	

Gatekeeper Recommendation:	Close Out Date
1.	
2.	

<input type="checkbox"/> Proceed to next stage (Select)	<input type="checkbox"/> Do not pass Stage Gate. Do more work
<input type="checkbox"/> Proceed while completing Recommendations	<input type="checkbox"/> Suspend/Stop

Endorser	Signature	Date
Drilling Engineering Team Leader		
Drilling Engineering Manager		
Gatekeeper	Signature	Date
Asset/Expl/Appraisal Manager		

Title of Document:	Drilling Engineering BtB Stage Gate Process (Well Level)	Document Number:	2200-T2-DO-RP-0003
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Appendix 2: Drilling – Stage Gate 2: Select to Define

Decision Required: A recommended well option and its conceptual design approved for detailed design.

Common Well Project Name:		Block + Location-Well Number	
Gate Meeting Date Time/Day/Month/Yr		CAPEX Allocated: (Y/N)	
		Est. Spud Date:	

Decision Support Package (Key Components):	Traffic Light	Comments
1. Shallow Hazards Identification	●	
2. Well Ranking Justification	●	
3. Output from Pore Pressure Peer Review/Output from Subsurface Hazards (as needed)	●	
4. Drilling Statement of Requirements/Well Planning Data Package	●	
5. Risk Register	●	
6. Drilling Uncertainty Statement/Single Well Estimator (Preliminary)	●	
7. Peer Assist Output – Casing Design/Drilling Strategy (E&A wells)	●	
8. Front End Loading Assessment (E&A, as needed)	●	
9. High Level Vendor selection (E&A wells)	●	

Gatekeeper Recommendations:	Close Out Date
1.	
2.	

<input type="checkbox"/>	Proceed to next stage (Define)	<input type="checkbox"/>	Do not pass Stage Gate. Do more work
<input type="checkbox"/>	Proceed while completing Recommendations	<input type="checkbox"/>	Suspend/Stop

Endorsers	Signature	Date
Drilling Engineering Team Leader		
Drilling Engineering Manager		
Gatekeeper	Signature	Date
Asset/Expl/Appraisal Manager		

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Appendix 3: Drilling – Stage Gate 3: Define to Execute

Decision Required: Intend to drill well within 30 days.			
Common Well Project Name:		Block + Location-Well Number	
Gate Meeting Date Time/Day/Month/Yr		CAPEX Allocated: (Y/N)	
		Est. Spud Date:	

Decision Support Package (Key Components):	Traffic Light	Comments
1. Regulatory Permits	●	
2. Risk Update with Mitigations and Risk Status	●	
3. Contingency Plan/Decision Tree	●	
4. Final Basis of Design (BoD)	●	
5. Equipment SoR's	●	
6. Final AFE supported by DCUS & Single Well Estimator	●	
7. Final Drilling Program	●	
8. Action Tracking Review	●	
9. FEL Update (E&A, as needed)	●	
10. Tech Limit/Crew Engagement Plan (as needed)	●	
11. Output from Drilling Peer Review (as needed, E&A required)	●	
12. Communication Plan (update as needed)	●	
13. Management of Change (MoC) Log (as needed)	●	
14. BP Dispensation Summary (as needed)	●	

Gatekeeper Recommendations:	Close Out Date
1.	

<input type="checkbox"/>	Proceed to next stage (Execute & Review)	<input type="checkbox"/>	Do not pass Stage Gate. Do more work
<input type="checkbox"/>	Proceed while completing Recommendations	<input type="checkbox"/>	Suspend/Stop

Endorsers	Signature	Date
Drilling Engineering Team Leader		
Wells Team Leader		
Drilling Engineering Manager		
D&C Operations Manager		
Gatekeeper	Signature	Date
Asset/Expl/Appraisal Manager		

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Appendix 4: Drilling – Stage Gate 4: Review

Decision Required: Final Closeout Review within 2 months after Drilling operations conclude.

Common Well Project Name:		Block + Location-Well Number	
Gate Meeting Date Time/Day/Month/Yr		CAPEX Allocated: (Y/N)	
		Est. Spud Date:	

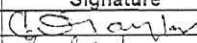

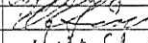
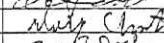
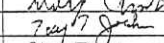
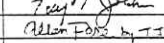
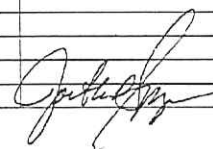
Decision Support Package (Key Components):	Traffic Light	Comments
1. End of Well Report – Drilling	●	
2. Materials Reconciliation	●	
3. Operational Post Well Review Meeting	●	
4. Handover Documentation to Completion Team	●	
5. Risk Register Update	●	
6. DIMS/Open Wells QA/QC'd and Performance Benchmark Report	●	
7. Closeout Co-owner Issues (as needed)	●	
8. Drilling EoW Scorecard	●	
9. Closeout Regulatory	●	
10. D&C SPM Vendor Scorecards Done	●	
11. Document Management Review	●	

Gatekeeper Recommendations:	Close Out Date
1.	
2.	

<input type="checkbox"/> Close out/Review work complete	<input type="checkbox"/>	Do not pass Stage Gate. Do more work
<input type="checkbox"/> Proceed while completing Recommendations	<input type="checkbox"/>	Suspend/Stop

Endorsers	Signature	Date
Drilling Engineering Team Leader		
Wells Team Leader		
Approvers	Signature	Date
Drilling Engineering Manager		
D&C Operations Manager		

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		x	
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	Gregg Walz		12/1/09
	David Sims		12/2/09
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	Terry Jordan		11/30/09
	Allen Pere		12/1/09
Authorizer	Jonathan Sprague		12/1/09
Document Control Use			

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