GulfofMexicoSPU

bp

Drilling & Completions

Recommended Practice for Risk Management

Implementation Draft

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1 Introduction

The need to standardize the risk management process was driven by the requirement to conform to OMS, to increase the transparency and manageability of risks across GoM D&C, and to move away from the multiple approaches that existed to manage risk. This led to the development and implementation of an aligned GoM D&C risk management Recommended Practice and an enhancement to the risk management tool — the BP Risk Assurance Tool (bpRAT)—to manage all identified GoM D&C risks.

The Recommended Practice and the enhanced risk tool will simplify the risk management process by enabling a collaborative environment across all of GoM D&C. This will allow risk information to be shared across projects; it will provide standard risk libraries for selecting common risks; and it will promote opportunities for users to benefit from previous lessons learned.

This recommended practice shall be used by GoM D&C teams to manage all risks. bpRAT is the standard risk management tool and ALL identified risks shall be entered into, and managed through this tool.

1.1 Reference

- E&P OMS Manual
- GDP 3.1-001 Assessment, Prioritization and management of Risk
- GDP 4.5-001 Control of Work
- GRP 3.1-001 Selection of Hazard Evaluation and Risk Assessment Techniques
- GoM SPU Risk Management Policy (2010-T2-IM-RP-000010)
- E&P Drilling and Completions Beyond the Best Common Process (2008) (BtB) - June 08
- E&P Risk Management Guidelines for Major Projects (MPcp) - 2007
- GoM SPU D&C Risk Management Implementation and Training Plan (2200-T2-IM-PN-001)
- GoM D&C Risk Management Plan - Assessment, Recommendation and Implementation (2200-T2-PM-RP-000000 Rev 8)
- D&C Recommended Practice for Management of Change (2200-T2-PM-PR-000001)
- BP Training Packages in bpRAT
  http://projects.bpweb.bp.com/bprat/logged_out/training.asp
- GP 48-0005 - Guidance on Practice for Hazard Identification (HAZID) Study - July 2008

1.2 Nomenclature

Shall - Mandatory requirement

Should - recommended

bpRAT - BP Risk Assurance Tool

Business Unit (as defined in bpRAT) - is the D&C Function and Leadership Team

Program (as defined in bpRAT) - is the asset or field development

Project (as defined in bpRAT) - is the lowest level at which risk registers will be developed and maintained. This is at the well level.

Sensitive risks - Risks that have restricted access.

Non-sensitive risks - Risks that have unrestricted access for viewing

CVP - Capital Value Process

CPC - Common Process Coordinator

WBS - Work Breakdown Structure within bpRAT (see 12.6.1)

PDC - Project Defined Category (see 12.6.2)

ECS - Enterprise Categorization Structure (see 12.6.3)

RBS - Risk Breakdown Structure within bpRAT (see 12.6.4)

ERM - Enterprise Risk Management Structure (see 12.6.5)

2 Objective

The objective of this Recommended Practice (RP) is to provide a set of guidelines that will enable project and rig teams within GoM D&C to manage identified risks using a standard approach and common risk management tool. The RP provides a road map to managing risk, integrates recognized procedures, and removes many of the complexities that exist in the other approaches previously employed

The RP covers two key components of risk management: Process and Tool. The RP

- Outlines a stepwise approach to the management of risk throughout the risk life cycle from initial risk identification through close-out. The process follows the Capital Value Process (CVP) stage gate process.
- Provides guidance on the use of bpRAT, the tool of choice to manage risk within GoM D&C. It covers the application of bpRAT from initial setup of risk registers, populating registers, and managing risk through the tool up to final close out.

The RP will not supersede existing procedures that are in place to manage projects or well delivery (see reference) but will complement them by providing the required guidance to ensure consistency and simplification of the risk management approach and conformance to OMS requirements.

3 Conformance Requirements

There are a number of requirements that the GoM D&C needs conform to. Appendix A provides a summary of each.

The overriding requirement is OMS which requires that each entity/facility identify, understand and manage its risks consistently and at the appropriate level within the organization.

Figure 1 provides GoM D&C's alignment with OMS 3.1.001 with regard to organizational levels.

Entity	Entity Leader	SPU - SVP			SPU Register
Facility	Facility Leader Risk Owners, Action Owner & Risk Champion	DC Function – VP			D&C LT Risk Register
			Rig Teams / Assets and Programs (Assets 5.2)	Team Leads	Risk Registers
			Wells	Team / Project Leads Risk Owners, Action Owner & Risk Champion	Risk Registers for wells

Figure 1. GoM D&C Alignment to OMS.

GoM D&C's definition of "facility" as defined in OMS is the "D&C Function (referred to from hereon as "GoM D&C)." This is the level at which the major hazard risk register shall be maintained. The D&C Leadership Team (LT) have ownership of this register and shall conduct periodic reviews to assess risks and associated mitigation for appropriateness.

The existing practice within GoM D&C is to manage risks at a well and project level. To reflect this mode of operation, risks registers will continue to be developed and managed at the well and project level by the GoM D&C rig teams.

Each team shall continue to use the BtB and MPcp to support the design, construction and delivery of wells, and the planning and delivery of projects, respectively. The risk management approach as outlined in both these procedures shall be used to assess impact and probability of standard operating risks and to close-out HAZIDs.

Both conformance to OMS and ensuring consistent application of a standard risk management approach across the function require that the D&C LT and each rig team within the function manage risks per this Recommended Practice (RP).

4 Risk Type Summary

There are two types of risks that the D&C Function deals with. These are categorized by their impact type, consequences, and the level of organization at which the risks are to be managed. They are major risks, which include Major Accident Risks (MARs), which have HSE impacts, and non-major risks (or standard risks) that have business impacts. These two risk types are differentiated by their impact type as shown in ***Figure 2***.

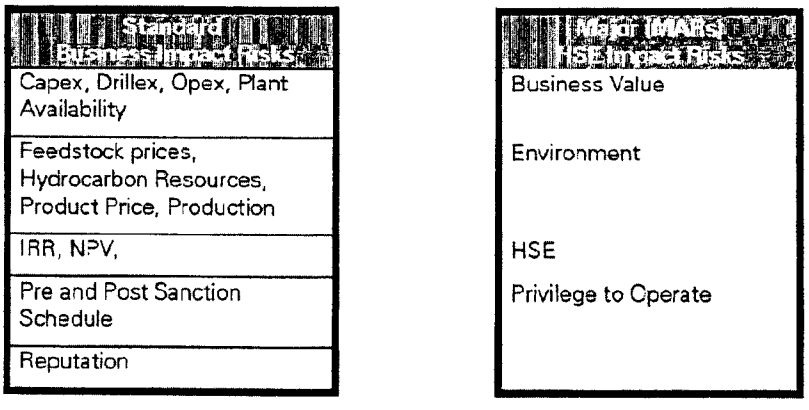


Figure 2. Risk Type.

4.1 Major Risks

Major risks are those with potentially high consequences that can detrimentally affect GoM D&C, the SPU, and ultimately BP's license to operate within the GoM. Major risks as shown in ***Figure 2*** comprise HSE, Environmental, and Privilege to Operate, and shall be quantified using the OMS assessment frameworks contained within GDP 3.1.001, shown in ***Appendix B***.

Risks that fall in this category shall

- Be managed at the D&C LT level, or SPU level depending on the exposure level.
- Require an approved risk mitigation plan that is periodically reviewed and amended to reflect current risk status and appropriateness of mitigations.
- Be reported against the OMS 8X8 matrix and associated impact and probability scoring.

4.2 Non-Major Risks

Non-major risks are standard operational risks that generally affect the well or project delivery and performance. These risks are managed at the rig team or project team level.

Non-major risks shall be assessed using the 4x4 matrix and guidance outlined in BtB or MPcp. Risks are assessed on predefined probabilities and project-defined low, medium, high and very high impact thresholds.

The 4x4 matrix contained within BtB and MPcp will continue to be used to manage standard risks (well or project risks) as it provides a greater level of granularity for impacts and probabilities compared to the OMS 8x8 matrix. Consequently the 4x4 renders the management of standard risks easier and is therefore more appropriate to use.

Continuous risk reduction efforts should be put in place to lower the likelihood and impact of these risks. Probability Impact Grids (PIGs) that map the risks to a 4x4 matrix to show pre- and post-mitigation impacts will be generated as required by procedure.

There is a mapping feature within bpRAT that maps risks from the 4x4 matrix over to the OMS 8x8 matrix based on a quantified impact level. This feature will be used to report risks with a higher impact up through the organization.

Irrespective of the risk impact type, the risk identification process remains the same for each category of risk. Appropriate risk identification sessions as outlined in ***GRP 3.1.001 Selection of Hazard Evaluation and Risk Assessment Techniques*** shall be used to identify potential risks.

bpRAT accommodates the identification, assessment, and management of both categories of risk. Based on the impact type, bpRAT defaults to the corresponding assessment method.

A standardized Excel-based workbook shall be used to capture risks during a risk identification session. To support the effective management of risks, each risk requires the capture of a minimum set of data during risk identification sessions, and prior to uploading risks into bpRAT. Minimum data set requirements are provided in Section 12.9 and ***Appendix C***. Further discussion on the use of the workbook and risk data requirements is provided in this RP.

5 Roles, Responsibilities and Process Governance

To ensure risks within the D&C Function are managed consistently using the approach outlined in this RP, the D&C LT shall create and sustain an organization that supports and is conducive to the management of risk. The organization is as show in ***Figure 3*** and roles and responsibilities are outlined in ***Appendix D***

A ***D&C LT Risk Champion*** shall be the VP Drilling and Completions or the Wells Director. The D&C LT Risk Champion's responsibilities include the management of all D&C risks and governance of the risk management process.

A ***D&C Risk Technical Authority (TA)*** shall be appointed by the VP Drilling and Completions or Wells Director and will report to the D&C LT Risk Champion. Responsibilities include ensuring all teams are managing risk consistently across the function in accordance to this RP and each team is using bpRAT as planned. The D&C Risk TA will also work with other teams within and outside the SPU to oversee and to promote the risk process. Revisions to the risk process or enhancements to bpRAT will be coordinated and prioritized through the D&C Risk TA.

Project Risk Champions will be the Project, Engineering or Wells Team Leads. Responsibilities include managing all risks within their respective projects in accordance with this RP and preparing for stage gate evaluations.

Engineers reporting to the Project Risk Champion will be responsible for managing actions and mitigations assigned to them, in accordance with this RP, in a timely manner. Project Risk Champions and engineers with assigned actions and mitigations shall update risks within bpRAT.

Risk Coordinators are the Common Process Coordinators and will be assigned to each project. They will report to the D&C Risk TA, and to the Project Risk Champion. Risk Coordinators shall provide guidance and support to their respective teams in the application of the risk process as outlined in this RP, BtB and/or MPcp procedure, and in the use of bpRAT. Risk Coordinators may have a number of projects that they support.

Systems Administrator will be assigned to manage bpRAT and provide application support. In this part time capacity, the administrator will oversee the system, provide user support, provide training, and assist in identifying, initiating, and managing future enhancements to bpRAT.

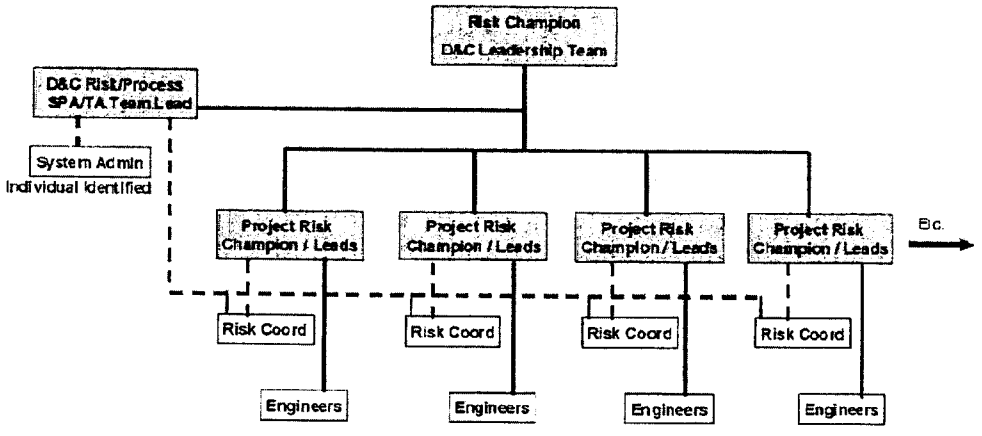


Figure 3. Risk Management Organization.

Risk Library Champions from Drilling, Completions, and Subsurface (NDS) will be assigned to manage their respective discipline risks within the GoM Risk Library. They will ensure that new standard risks applicable to GoM are added to the library as well as to ensure existing risks are updated as necessary. They should assign library risks to individuals within their teams to support the updating of standard risks (See section 11 and ***Appendix D***).

Library Risk Owners are those individuals assigned by the Risk Library Champion to manage and update risks with the risk library

6 Risk Management Process Overview

Figure 4 provides a high level road map of the risk process that shall be used within GoM D&C to capture and manage risks for a new project. This process covers both the capture of major and non-major risks.

An important feature of this process is the use of the newly developed GoM D&C risk library to capture standard risks at the initial stages of a new project that are common within many projects.

Another important feature is the use of a standardized Excel-based workbook that shall be used during a risk identification session to capture and quantify risks. ***This book shall NOT be changed or reformatted without the approval of the SPA/TA as it is synchronized to Sharepoint and supports the electronic upload of risks to bpRAT.***

A summary of each step in the process is provided below with additional details provided further in this report as indicated.

Step 1: Create a new register within bpRAT

Step 2: Review and select risks from the GoM D&C risk library

Step 3: Copy over selected risk into the Project risk register

Step 4: Conduct a risk identification session to validate and update risk and risk data

Step 5: Conduct a risk identification session to identify additional Project specific risks

Step 6: Update and validate risk categorization and tagging data

Step 7: Upload risk into bpRAT

Step 8: Complete all remaining data fields and manage risk through bpRAT

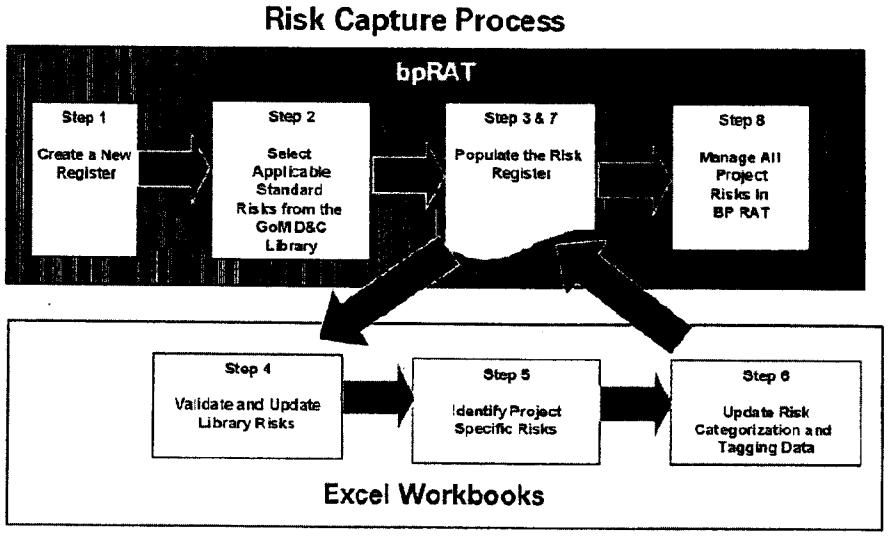


Figure 4. Risk Capture Process.

7 Major Accident Risks

There are two Major Accident Risks identified within the GoM SPU which the GoM D&C is responsible for managing. They are:

- Loss of Well Control
- Loss of Drilling Riser (leading to infrastructure damage)

Both risks represent major exposure to GoM SPU with an OMS severity level of D and above.

Project teams that identify exposure to these risks or any other risk with a similar severity level within their projects are to capture, assess and work these risks within the registers. By default any risk that is at a level D or above will escalate up the D&C LT risk register. However, if a risk does not meet this threshold value yet the team is sufficiently concerned with it, they are to escalate the risk to the D&C LT risk register using the manual escalation feature within bpRAT.

All major accident risks shall have a risk mitigation plan approved by the SPU Leadership Team. These risks shall be managed according to the risk mitigation plans developed.

Teams shall assess each major accident risk using the barrier approach contained within bpRAT, in addition to the standard assessment process. The barrier assessment process provides the opportunity to identify barriers, to determine the strength of the barriers, and to develop response plans to help manage barriers.

8 BowTies

BowTies provide an effective tool for communicating risk through graphical means. They identify the main hazard, potential causes, mitigation barriers (to prevent the risk from materializing) and control barriers (to lessen the consequence of a risk should the risk materialize).

BowTies shall be developed for all major accident risks and used by teams to communicate details of the risk to both their onshore and offshore teams, and to senior management as deemed necessary.

Generic BowTies have been developed for the two major accidents risks identified above. Teams exposed to these risks shall review these BowTies and extract from them the causes, barriers, controls, and consequences that are applicable to their project. In addition, they shall add project-specific causes or barriers if not already defined.

The use of BowTies for the management and control of other non-major accidents risk will be at the discretion of individual teams. However their use is promoted as they provide an effective communication tool.

9 Management of Change (MoC)

Changes to a procedure, plant or process shall be managed according to the ***D&C Recommended Practice for Management of Change (2200-T2-PM-PR-000001)***. Each MoC shall go through an assessment to determine if the change introduces additional risks. If so, a risk assessment session should be conducted to identify and assess the risks. Prior to the assessment, the type and extent of the risk assessment should be determined by ***using GRP 3.1.001 Selection of Hazard Evaluation and Risk Assessment Techniques*** as a guide.

The risk identification and assessment process for MoC risks shall follow the same risk life cycle and CVP process as outlined in this RP. The standard risk workbook should be used to capture, assess and categorize identified risks. The MoC number shall be recorded within the comments field of the workbook to enable future retrieval.

Once the risk data has been validated, the workbook shall be uploaded into bpRAT, where the risks shall be managed.

10 Detail Process Flow

The GoM D&C Recommended Practice, in conjunction with bpRAT, standardizes and simplifies the process and the use of the tools used to manage risk at the various levels within GoM D&C. It provides ownership and accountability while allowing for transparency and knowledge sharing across the function.

BtB and MPcp both contain sections on managing risks but provide limited direction, particularly on the use of an appropriate tool. This recommended practice provides a best practice that leverages these procedures, addresses the use of bpRAT and provides a bridge between them and the OMS Risk Management Process

10.1 Risk Process Workflow

The workflow for the new GoM D&C Risk Management Process is shown in Appendix E1. Appendix E2 supplies a narrative that supports the workflow by defining the roles, responsibilities, and expectations for each step in the process

The following subsections provide an overview of the risk requirements within each stage.

10.1.1 Appraise

The focus of the Appraise Stage is to set up the project risk register and to capture an initial set of project risks. At this stage risks are not necessarily captured through a formal risk identification session.

The Project Risk Coordinator shall work with the System Administrator to create the project risk register and with team members to select a standard library. Standard risks shall be copied over into the risk register, ready for validation at the risk identification session. The Project Risk Coordinator should also work with the System Administrator to prepare the project risk workbook for the risks session to capture project specific risks.

The Risk Champion with support from the Risk Coordinator shall hold an initial Risk Identification Session with the team to confirm the applicability of the template/library risks and identify additional project-specific risks with their multi-disciplinary team. This session will be conducted by a session facilitator using a Risk Workbook that will later be uploaded into bpRAT. Mandatory fields as shown in Section 12 9 and in ***Appendix C1*** shall be populated.

If risks do not exceed established management thresholds but represent a concern to the project or are deemed to have a sufficiently high impact value, they may be escalated up to the Leadership Team Risk Register.

10.1.2 Select

The main focus of this stage is to capture risks and consolicate them into the Risk Workbook. All the relevant risk information and mandatory fields as shown in *Section 12.9 and* ***Appendix C1*** shall be populated prior to uploading risks into bpRAT.

Any identified MARs will be reviewed to ensure the appropriateness of risk mitigation plans that are in place.

Risk mitigations and actions shall be developed for each risk and assigned to individuals to work and to update bpRAT accordingly.

10.1.3 Define

A second risk session shall be held to continue work on the identified the risks and associated mitigations and actions. As in the previous stage, the risk and mitigation owners are responsible for working their assigned risks and providing any clarification deemed necessary from management prior to moving into the Execute Stage.

Again, risks may be escalated for D&C LT visibility if deemed necessary and will be reworked if more clarity is needed.

10.1.4 Execute

A third risk session shall be held to understand, agree upon, and confirm the status of identified risks and associated mitigation measures. This will ensure all operational risks are accounted for and being managed.

Again, risks may be escalated for LT visibility if deemed necessary and will be reworked if more clarity is needed.

10.1.5 Review

The final risk session, post project execution, will be held to close out all risks and capture any learnings that may have been identified during operations. All final risk documents should be completed and final risk status documented prior to the End of Well Review. Final risk status shall be captured in bpRAT under "Risk Outcomes."

Additionally, the GoM D&C Risk Library should be updated in bpRAT to include those risks identified as new standard template risks and therefore applicable to other projects and wells. Successful completion and close-out of the Review Stage will ensure all risks are managed with continuous improvement objectives.

10.1.6 Tool

bpRAT will be managed by a Risk Coordinator for each team. The Risk Coordinator will be responsible for creating and managing risks registers for his/her area of responsibility and preparing for each stage gate approval.

The functionality of bpRAT will ensure that risks are categorized with consistency and transparency across the function and upon template/library maturity, will streamline the risk management process. This common tool, in conjunction with this defined process, will drive standardization within the organization and assist to create a best practice in risk management for GoM D&C.

11 Library

A Risk Library is a special risk register that resides in the bpRAT tool. It provides an efficient mechanism for storing and managing risks and their associated data (e.g. descriptions, mitigations, tags etc.) so they can be used by teams as a starting point for the creation of new risk registers.

A Risk Library Champion shall be assigned to the library for their respective discipline (see Section 5, "Roles, Responsibilities and Process Governance") with the responsibility to proactively promote the ongoing management and development of the library.

Each risk in the library should have an owner (*Library Risk Owner*) assigned by the Library Risk Champion for that discipline. The Library Risk Owner shall be responsible for the reviewing and updating assigned risks during periodic library reviews. The reviews will be organized by the Library Champion and will include the risk owners, discipline representatives, and Technical Authorities as appropriate.

As part of the OMS "Monitor and Review" aspect of the risk management process, risks and their outcomes should be evaluated by the project teams during and after the project to identify any learnings that can be captured, e.g. a better understanding of the risk cause or impact, how well the response actions worked or didn't work, etc. The Library Risk Owner should gather these learnings and bring them to the Library Champion so that the library risks may be updated appropriately.

The goal is to eventually develop a library that contains all possible risks that any team within BP would potentially come across, along with the most current response to each. When a team starts a new risk register for a project, the library risks shall be reviewed in accordance with this Recommended Practice (see section 6). All risks that the team feels are applicable to their project can then be easily copied from the library to another project risk register.

To get to a library, click on the "My Libraries" tab from the main screen in bpRAT.

Users will see the libraries that they have access to listed by organizational level. The organizational level is a hierarchical structure that allows future risk libraries to be placed at various levels within BP depending on whether the scope of the library is more local or more global in nature. The list of library risks can be reviewed and risks that apply to the new project can be selected. They can then be copied to that register by using the "Copy Multiple Risks" link above and to the right of the listing.

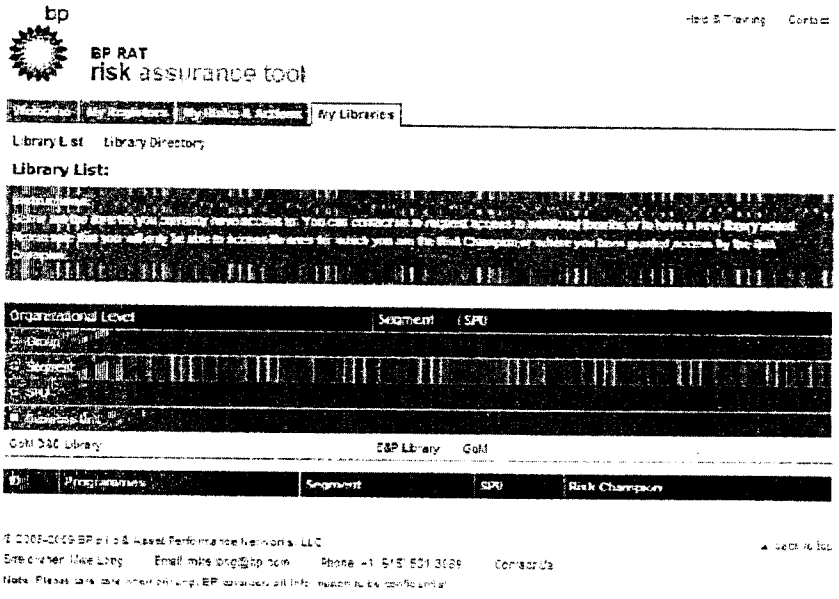


Figure 5. My Libraries Tab in bpRAT.

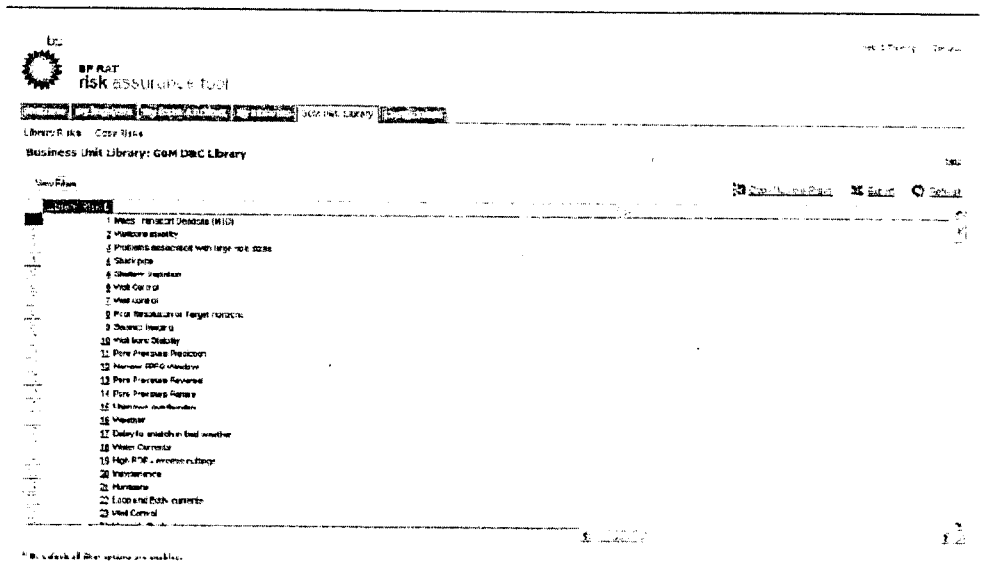


Figure 6. A Library in bpRAT.

Check the box to the left of each risk to be copied to the risk register.

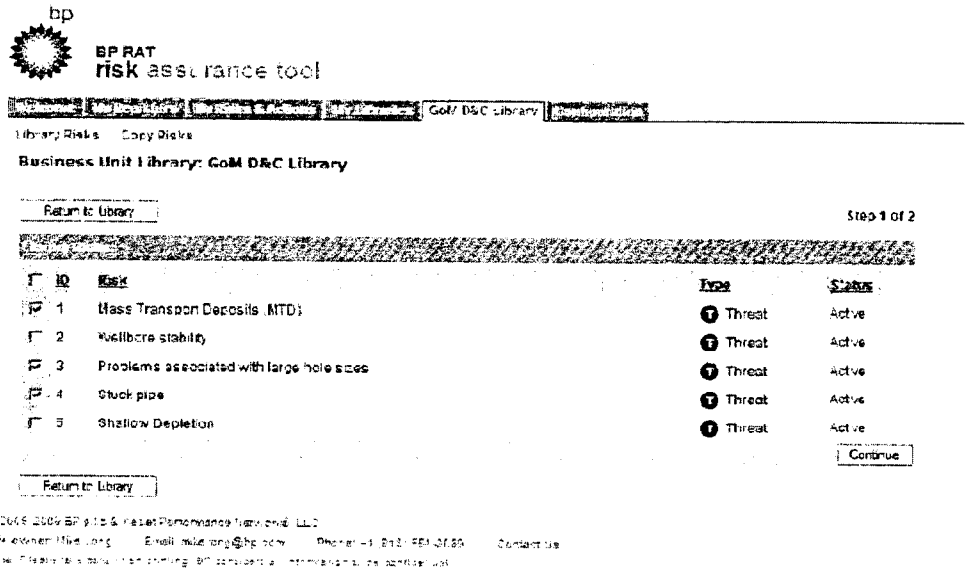


Figure 7. Copying a Risk from the library to a risk register.

See the *bpRAT User Guide* for more detailed instructions on using this tool

The Project Risk Champion shall ensure that lessons learned are captured and incorporated back into future planning and execution. This is a key element of Knowledge Management. The risk library offers an effective means of implementing a rigorous and disciplined lessons learned methodology as it applies to the Risk Management process.

A benefit of having a single database where all these risks are housed is that it makes it easier to manage and access this information. This promotes sharing of knowledge and a common approach to how risks are managed across all of BP, both from a local and global perspective.

The coding capabilities within bpRAT allow the library risks to be broken down and identified by region, asset, discipline—almost an unlimited number of ways. Filtering and tagging functionality provide capability to drill down and locate what you are looking for.

The library provides three key advantages:

- Provides efficient storage, updating, and retrieval of risks, thereby helping to streamline and simplify the creation of new registers. Developing a new risk register is no longer "reinventing the wheel."
- Provides users with the most current view of any given risk by supplying the latest lessons learned, new technologies, or other innovations that may impact the understanding of or response to risks. The risk library allows the register to be initially populated with risks that are being actively reviewed, evaluated and updated.
- Facilitates a quick, less burdensome way to identify and mitigate the more common risks, which allows more of the team's time to be spent working on more challenging, higher rated risks.

12 bp Risk Assurance Tool (bpRAT)

12.1 Introduction

bpRAT (Risk Assurance Tool) is a web-based application which provides a platform on which project teams can effectively manage risk. It is recognized across all BP Segments as a key component for the delivery of world-class projects. bpRAT provides teams with a consistent and effective tool by which risks can be identified, evaluated, managed, and communicated. The RAT application can be found at: http://projects.bpweb.bp.com/bprat. A link to bpRAT can also be found under the tools menu of the GoM D&C SharePoint portal http://gomdnc.bpweb.bp.com.

The bpRAT application provides the Risk Champion with a tool to ensure that all risks are reported in a single place rather than in multiple spreadsheets. It provides individual team members with the means to understand what risks they are responsible for and to communicate the status of a risk on an ongoing basis. bpRAT also provides rollup/aggregation reporting capabilities that give identified risks and opportunities wide visibility across GoM D&C and the SPU, and which also provides the organization the ability to filter high impact risks so leadership can manage them accordingly. The bpRAT risk management tool is aligned with:

- GDP 3.1-0001 Assessment, Prioritization and Management of Risk
- GDP 3.6-0001 Environment for Access, Major Projects, Non-major Projects in Sensitive Areas and Acquisition Activities

- GDP 5.0-0001 Integrity Management
- Drilling and Completions Beyond the Best (BtBcp) - Element 5 - Risk Management
- MPcp Risk Management Guidelines for Major Projects
- Enterprise Risk Management Admin Instruction

bpRAT enables project teams to track and share information about risks including the Initial, Current, and Residual Impacts on a project, the probability of occurrence, response and contingency plans, and expected outcomes. Many team members, in addition to the Risk Champion, will be involved in using bpRAT. These include the following:

- Project Managers: Responsible for initiating and leading the risk management process.
- Leadership Team: Is involved in assigning risk owners, performs regular reviews of risk status and response progress, and identifies risks.
- Risk Owners: Identify response plans, assign action owners, perform regular reviews of risk status and response progress, and identify new risks.
- Action Owners: Implement response actions, perform regular reviews of risk status and action progress, and identify new risks.

12.2 bpRAT Access and Permissions

The security system of bpRAT leverages the single sign-on capability of the BP internal network. There is no separate account and password to remember. In order to enable wide visibility of risk across the function, access to the Library, and facilitate risk management within respective project teams, bpRAT user permissions are centrally governed by the GoM D&C bpRAT system administrator. If an authorization error is received when attempting to access the bpRAT, or if users feel they have insufficient capability to carry out their job responsibilities, they should contact the bpRAT system administrator for resolution.

12.3 GoM D&C Risk Registers and Library

The architecture of the GoM D&C risk registers is designed to promote wide visibility and sharing of best practices for risk management. Several risk registers (risk information repositories) compose the risk management solution for the GoM D&C function.

The registers are placed in an appropriate hierarchy to summarize risk reporting aligned with organizational needs. At the top of the register hierarchy within bpRAT is the Business Unit that contains the "GoM D&C" risk register. This is where sensitive and non-sensitive high-level risks are managed. The GoM D&C register also provides a viewing point where anyone within the GoM D&C organization can have visibility to risks outside of the project teams they are directly involved in.

The next layer of registers below the Business Unit / GoM D&C register is the "Program" level of the bpRAT tool. This is where high level project/program risks and drilling & completion program risks are managed. This "Program" layer of registers also provides an aggregate viewing/reporting point for a field/asset.

Specific well-related risks are managed at the 3rd register layer, which is the "Project" level of the bpRAT application. Other risk register repositories have been established for rig-related risks,

special projects, and exploration wells not yet defined to a specific field or asset. These registers are mostly confined to the "Project" level of risk registers within bpRAT.

Users are able to open registers they have access to by clicking on the "My Registers" tab of the bpRAT Application. The "Project" well, Rig, and special project registers are displayed with links to view/manage the risks within. To view/manage "Programme" or "Business Unit" level risks, click on the plus sign beside the appropriate organizational level.

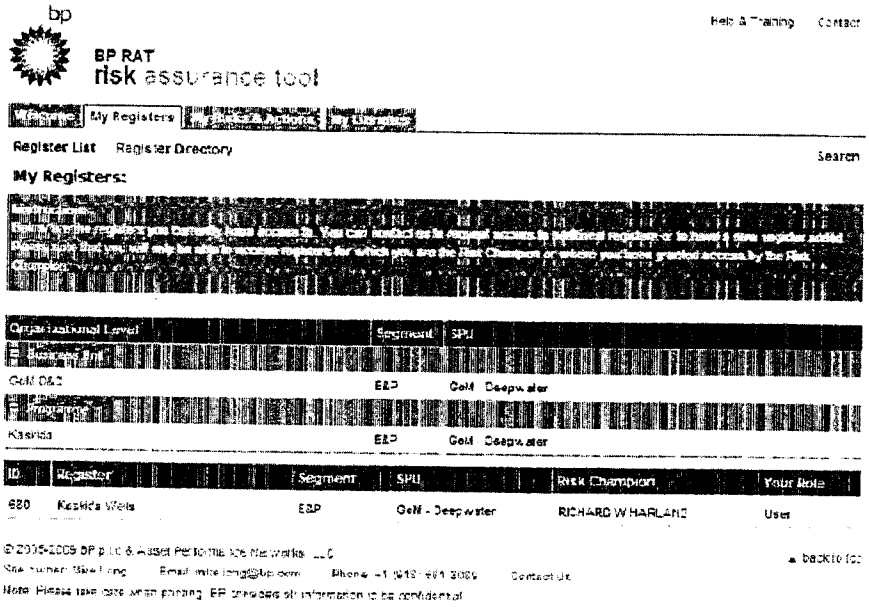


Figure 8. The My Registers tab in bpRAT.

12.4 Impact Boundaries

Risks can be assessed either qualitatively or quantitatively. In order to establish a common baseline for measuring risk impacts, quantitative assessments shall be required, using NPV where it is available or other agreed parameter such as CAPEX.

Prior to assessing risks, impact boundaries need to be established. To do this, the Risk Champion should access the risk register and click the "Configuration" tab and then the "Impact Boundaries' selection. See Figure 9 below. The Project Champion needs to establish Medium, High and Very High thresholds for the applicable impact types.

Where available, an NPV (net present value) or estimate should be provided as it is the NPV value that will normalize impact values across the impact categories and it is the value that will enable standard risks to be mapped over to the 8x8 OMS matrix. Both BtBcp and MPcp procedures provide guidelines on assessing risks.

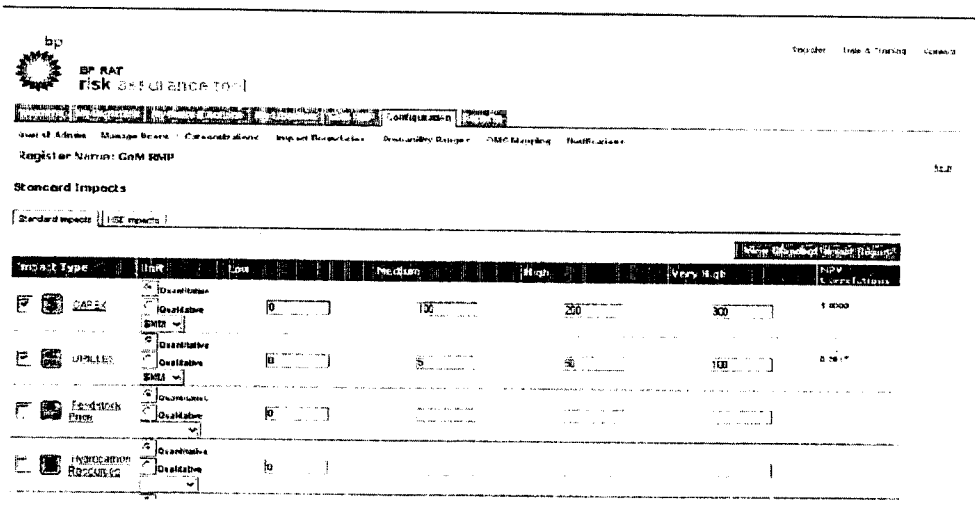


Figure 9. Establishing Impact Boundaries.

12.5 Risk Identification and Assessment sessions

Risk Identification and Assessment sessions need to be planned ahead of time to ensure the participation of key individuals. The Risk Champion should determine participants ahead of the session. Sessions need to be carefully structured so that the focus is placed on identifying risks, their causes, events and consequences. ***GP 48-05 - Hazard Identification HAZID Study*** provides guidance on conducting a risk session

An experienced facilitator should be identified to manage the session and the facilitator shall use the Risk Workbook developed for the project to record risks.

Using a set of post-it notes to write down risks and placing these on a matrix is generally a good approach for an initial risk session. If this approach is used, the post-it note formats as shown in ***Appendix F*** may be used. The format of these notes contains the minimum data required for identified risk and as such should provide guidance to users.

12.6 Risk Categorization and Tagging

In order to effectively manage risk across the entire organization, a comprehensive risk categorization structure has been created. By having consistent risk categorizations, the bpRAT system is able to provide mechanisms to promote best practice sharing and continual improvement of risk management. The GoM D&C strategy leverages all of the categorization mechanisms within bpRAT. In brief summary they are:

- Work Breakdown Structure (WBS)
- Project Defined Categorization Structure (PDC)
- Enterprise Categorization Structure (ECS)

- Risk Breakdown Structure (RBS)
- Enterprise Risk Management Structure (ERM)

The Risk Champion or Risk Coordinator shall ensure that risk categorizations are captured with each risk as described below.

12.6.1 Work Breakdown Structure (WBS)

The Work Breakdown Structure (WBS) is a deliverable-oriented grouping of project elements that organizes and defines the total work scope of the project. Each descending level represents an increasingly detailed definition of the project work. GoM D&C has defined a simplified WBS structure in order to make it easy to filter risks for a specific drilling or completion program, project risks, specific well, or sidetrack. The WBS categorization structure also enables easy filtering of risks for specific rig-related events such as engineering, delivery, operation, IAT and audit. Each risk shall capture the relevant WBS category. Please see ***Appendix G*** for an example of WBS values. This list will be expanded by the bpRAT System Administrator as business needs arise.

12.6.2 Project-Defined Categorization Structure (PDC)

The Project Definable Categorization Structure (PDC) is a categorization structure used within GoM D&C to capture a phase of development of a well or major project. When filtering risks within bpRAT the PDC categorization is used in concert with the WBS category to easily obtain the desired subset of risks within a register and its sub-registers. Each risk shall capture the relevant PDC category. This list will be expanded by the bpRAT System Administrator as business needs arise.

12.6.3 Enterprise Categorization Structure (ECS)

The Enterprise Categorization Structure is used to define the specific event/phase of a drilling, completions, or intervention operational event. It is also used to further categorize rig, project, or subsurface related risks. This categorization structure is standardized across all risk registers within the GoM D&C. The ECS category provides a great filtering mechanism for searching for common risks from multiple projects or from within the GoM D&C Library for copying to incorporate within your D&C project. Each risk shall capture the relevant ECS category. Please see ***Appendix H*** for an example of ECS values. This list will be expanded by the bpRAT System Administrator as business needs arise.

12.6.4 Risk Breakdown Structure (RBS)

The Risk Breakdown Structure (RBS) is an organized grouping of elements that details the source of the risk. Each descending level represents an increasingly detailed definition of a risk's source. The RBS Structure is common across all risk registers globally throughout BP. The purpose of the RBS categorization is to allow for broad bucket grouping of risks for high level reporting purposes. Each risk shall capture the appropriate RBS category. Please see ***Appendix I*** for the complete list of RBS values.

12.6.5 Enterprise Risk Management structure (ERM)

The Enterprise Risk Management (ERM) is used to categorize and elevate significant risks and relevant risks to the BP Group level. These categories are common across all risk registers globally within BP. Only risks that need to be visible to the BP Group level will be categorized with an ERM element. Please see ***Appendix J*** for the complete list of ERM values.

12.6.6 Risk Tagging

The Risk Tagging System of bpRAT allows users to group and categorize risks by adding keywords or phrases. To tag a risk, simply type a word or phrase in the "Find Tag" textbox from the Risk Identification Tab. Suggested words will appear as you type so you can select existing "tags." Click the "Add" button after typing or selecting a word or phrase to add it to the risk. The tag will automatically appear in the tag list area. To delete a tag from a risk, click on the "X" button in the tag's upper right corner.

Unlike Risk categories which only allow a given risk to belong to one category value, risks can have many tags. Risks can then be filtered using these tags, both from register lists, and from the GoM D&C Library. This can be very useful when attempting to find a risk relevant to a specific condition. GoM D&C is also utilizing bpRAT's tagging feature to capture the major NPT types related to a given risk.

Standardized Tags will be developed once experience with the system is acquired and an understanding of tagging requirements across the function and segment.

12.7 bpRAT Offline Workbook for Initial Risk Identification

The bpRAT Offline Excel workbook is a tool which can be used to quickly capture key risk information, primary impact and ranking, categorizations and tagging, and a primary response/action plans for many risks. It also provides a rudimentary 4x4 probability impact grid view sheet to perform a cursory view of all risks within the workbook and their relevant ranking to each other. All categorization values, risk owners, and impact types are synchronized to the workbook with information from a target bpRAT risk register. This allows for rapid, easy, and valid capture of risk information from the offline workbook.

A risk coordinator will prepare the risk workbook prior to the risk identification session. After a risk identification session the risk coordinator will assign the appropriate categories, tags, and other BP RAT required information such as review dates and risk status. The risk coordinator will then upload the risk information from the offline workbook into bpRAT, where additional risk impact types, and response/action plans can be entered if necessary. From this point forward the risks shall be managed and viewed within bpRAT. See ***Appendix C-1*** and Section 12.9 for workbook risk identification and categorization information capture.

12.8 Risk Libraries

bpRAT Risk Libraries are used as a means of storing risks that could be common across multiple registers in a Program, Business Unit, SPU, or Segment, or globally. Libraries are created and managed in a very similar fashion to Risk Registers. The template /common risks within a Library are vetted and managed to ensure continuous improvement, and best practices of risk management are obtained and promoted. Users can access various risk libraries by clicking the "My Libraries" link on the navigation bar. Similar to the "My Registers" area, "My Libraries" will

only show the libraries you specifically have been granted access to and give you the ability to access the Library Directory.

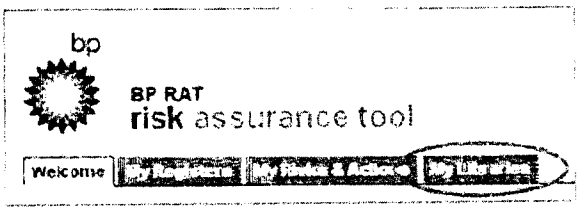


Figure 10. My Libraries tab in bpRAT.

Similar to a risk register, you can open and view the template/common risks inside any library you have access to. If you open a particular risk, it will open in a separate browser window. If the risk is applicable to your risk register, you can choose to copy it directly to your register..

12.9 GoM D&C Minimum Risk Fields

When entering risk information within bpRAT or from the offline workbook the following risk identification fields shall be captured:

- Risk/Opportunity Name – short descriptive summary phrase of risk
- Event Description - a negative event (future issue) which may be avoided or mitigated or a positive event that needs to be embraced
- Cause Description - the source or reason of an event
- Consequence Description - result arising from an unmitigated/ under-mitigated event
- Risk Owner – person owning/managing the risk
- Impact Type(s) – type of impact of the risk
- Impact ranking – quantitative impact of risk (qualitative rank maybe assessed initially)
- Probability/Frequency rating of risk
- Manageability rating of risk
- Risk Action/Response Plan(s) title
- Risk Action/Response Plan Owner

Comments and response plan/action descriptions should also be captured

When entering risk categorization within bpRAT from the offline workbook the following categorization and other required bpRAT fields shall be captured:

- Threat / Opportunity ID
- Risk Review Date – Next date the risk will be reviewed
- Work Breakdown Structure (WBS)
- Project Defined Categorization structure (PDC)

- Enterprise Categorization Structure (ECS)
- Risk Breakdown Structure (RBS)
- Response Strategy
- Response Plan/action Due Date
- Response Plan/action Review Date
- Risk Status

Tagging / key words should also be entered during risk categorization.

13 Training and Support

13.1 bpRAT Material

Training material provided in the bpRAT tool. This will help users jumpstart into bpRAT or learn about some of the advanced features of bpRAT. The training material is located at: http://projects.bpweb.bp.com/bprat/logged_out/training.asp.

The Training Material is also accessible from the Help & Training link in the bpRAT tool. The training material is broken down by skill level and role. Currently there are 5 guides available for users:

- Two basic guides: *First Time User Guide* and *Basic User Guide.* Both of these guides are for users who have minimal or no experience in bpRAT. The *First Time User Guide* provides an overview of bpRAT, details on accessing bpRAT and help on how to enter risks. The *Basic User Guide* offers a walkthrough of the Risk Process with details on each step.
- Two advanced user guides that provide additional information on the more advanced features of bpRAT. There is also a guide for the
- Risk Champion guide

13.2 D&C Material

Additional training material is available in the D&C SharePoint Portal. This is the material that all D&C Users should reference to as it is D&C function focused. The training material in bpRAT is more general in nature and does not fully represent how GoM D&C operates in bpRAT. The training material is located here:

TBD

The training material is focused on the Risk Process for GoM D&C. The *GoM D&C Quick Reference Guide* provides a brief overview of the process and some best practice points. The reference guide also provides more detail on the bpRAT tool's features and options. A wiki page in the D&C Portal expands on the features and options and provides a more in depth explanation of how D&C operates in bpRAT, the register structure, and visibility of risks.

13.3 D&C Support

The support role is filled by the System Administrator and the Risk Coordinators. If a user is not able to answer a question using the bpRAT training material or the D&C training material, then the user would contact the Project Risk Coordinator or the System Administrator.

14 Sustainability

The long-term success of the risk management process as outlined in this recommended Practice depends on the organizational support post-implementation. The RM team members, Project Risk Champions, and the Risk Coordinators will play a key role in ensuring the process is worked as intended within their respective teams; however, they themselves cannot ensure consistency in the use of this process and bpRAT across the function.

Previous experiences with other processes and systems have identified the need for process and system configuration controls. Without these controls in place there is a tendency for each team to deviate from the standard and to customize approaches. Any necessary changes identified by one team which may be of benefit to the organization as a whole should shared with other teams. By imposing the right governance over the system, process controls and system integrity can be maintained to ensure standardization is not compromised.

To ensure sustainability of the system, consistency in application, and adherence to a common process, two key roles need to be established.

- The first is the role of a *Single Point of Accountability/ Technical Authority* (SPA/TA). The SPA will conduct periodic process audits across the function to ensure teams are adhering to the agreed process and are managing risks consistently. Any issues identified with the process or with the system will be captured by the SPA and brought to the attention of the respective team leads) for rectification. Changes in the process that benefit GoM D&C as a whole will be captured by the SPA who will in turn plan and coordinate updates to the system. Any training needs will be coordinated through the SPA. The SPA will ensure each team understands its high level risks, has in place appropriate mitigations, understands its levels of exposure, communicates risks and mitigations to its teams and reports appropriate risks up to the D&C LT. The SPA will work with each time to ensure MARs are managed and adequately mitigated per the GoM D&C Risk Mitigation plans. The SPA will also prepare and provide the D&C LT with a summary of high-level risks across GoM D&C along with their mitigations. This role is part-time with perhaps more engagement early in the implementation stage.
- The second role is that of a System Administrator for bpRAT. This person possesses the right technical skills to manage the system and its function. The SA, working with the SPA/TA, will be the point of contact for capturing, prioritizing, and managing system changes.

15 Process Audits

To support the sustainability effort, and to promote continuous improvements, periodic audits shall be conducted to review each team's compliance to this RP. Gaps shall be identified and communicated back to the teams for rectification. Improvements that are identified will be taken up by the TA and the system administrator for evaluation and incorporation.

16 Appendix A - Conformance Requirements

There are a number of requirements GoM D&C need to conform with to ensure consistency in risk management.

The overriding requirement is conformance with OMS. Each entity must manage risk consistently with BP requirements. OMS provides the essential requirements to standardize the risk management processes across GoM D&C through conformance with group practices (defined and recommended) and procedures.

In addition, there are two processes widely used within GoM D&C that contain requirements for the management of risk - BtB and MPcp. They are specific to wells delivery and project management respectively. Each process contains sections on managing risk, and although each procedure has specific areas of focus, they are fundamentally the same when it comes to risk management. The minor differences are around risk management steps and definitions, but both procedures cover the complete Risk Life Cycle as illustrated in the Risk Management Process below.

BtB and MPcp each use a 4X4 risk matrix and have similar threshold criteria for ranking and rating risk. Neither process specifies a specific risk management tool.

The difference lies between the risk matrix and ranking approach contained within these two procedures and that contained within OMS which uses the 8x8 matrix for ranking and rating risks. Project teams, because of the varying values associated with their specific project, prefer to use BtB or MPcp as they provide the required granularity to manage their risks effectively. BtB and MPcp allows specific threshold values to be established for project based on the project's NPV, CAPEX or other impact type. OMS, on the other hand, has fixed and higher threshold values.

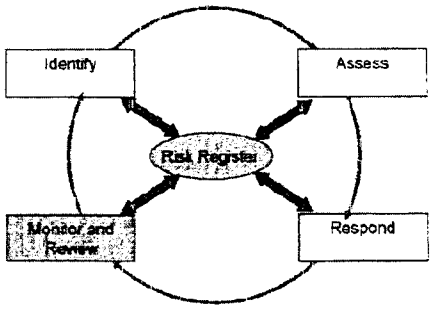
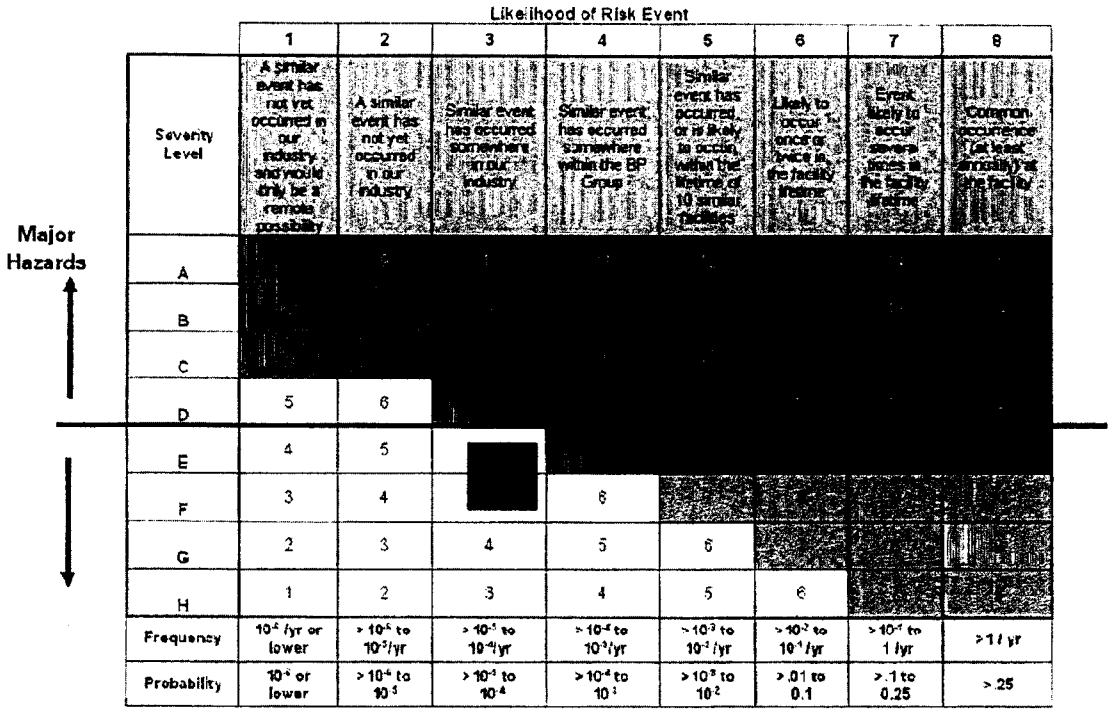


Figure 11: Risk Management Process

What is considered high risk in one project based on NPV and probability may not be ranked the same compared to another project or against the OMS ranking. The OMS matrix is better suited for managing and reporting high level risks up through the organization.

Recognizing this disparity, the approach outlined in the GoM D&C Recommended Practice is for project teams to continue managing and reporting project risk per BtB or MPcp reporting matrices and to report identified high-level risks up to the D&C LT using the OMS matrix.

17 Appendix B - OMS Assessment Framework



Annex 1 Risk Framework – HSE Impact Levels

SEVERITY	HEALTH AND SAFETY	ENVIRONMENTAL
A	Comparable to the most catastrophic health/ safety incidents ever seen in industry The potential for 100 or more fatalities (or onset of life threatening health effects) shall always be classified at this level	• Future impact, e.g., unintended release, with widespread damage to any environment and which remains in an "unsatisfactory" state for a period > 5 years. • Future impact with extensive damage to a sensitive environment and which remains in an "unsatisfactory" state for a period > 5 years. • Future impact with widespread damage to a sensitive environment and which can only be restored to a "satisfactory"/agreed state in a period of more than 1 and up to 5 years.
B	Catastrophic health/ safety incident causing very widespread fatalities within or outside a facility The potential for 50 or more fatalities (or onset of life threatening health effects) shall always be classified at this level.	• Future impact with extensive damage to a non-sensitive environment and which remains in an "unsatisfactory" state for a period > 5 years. • Future impact with extensive damage to a sensitive environment and which can only be restored to a "satisfactory"/agreed state in a period of more than 1 and up to 5 years. • Future impact with widespread damage to a non-sensitive environment and which can only be restored to a "satisfactory"/agreed state in a period of more than 1 and up to 5 years. • Future impact with widespread damage to a sensitive environment and which can be restored to an equivalent capability in a period of around 1 year.
C	Catastrophic health/ safety incident causing widespread fatalities within or outside a facility. The potential for 10 or more fatalities (or onset of life threatening health effects) shall always be classified at this level	• Future impact with extensive damage to a non-sensitive environment and which can only be restored to a "satisfactory"/agreed state in a period of more than 1 and up to 5 years. • Future impact with widespread damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of around 1 year. • Future impact with extensive damage to a sensitive environment and which can be restored to an equivalent capability in a period of around 1 year. • Future impact with widespread damage to a sensitive environment and which can be restored to an equivalent capability in a period of months.
	BP's commitment to health, safety and the environment is paramount, this is reflected in BP's HSE goal of "No Accidents, No Harm to People, and No Damage to the Environment". No accident, injury, or loss of containment causing damage to the environment is ever "acceptable" to BP. BP is using this framework (equivalents of which are used throughout industry) to support the consistent prioritization of actions to eliminate or mitigate HSE risk and as part of BP's Performance Improvement Cycle to deliver continuous risk reduction.	
	Very major health/ safety incident The potential for 3 or more fatalities (or onset of life threatening health effects) shall always be classified at this level 30 or more injuries or health effects, either permanent or requiring hospital treatment for more than 24 hours	• Future impact with extensive damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of around 1 year. • Future impact with localized damage to a sensitive environment and which can be restored to an equivalent capability in a period of around 1 year. • Future impact with widespread damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of months. • Future impact with extensive damage to a sensitive environment and which can be restored to an equivalent capability in a period of months.

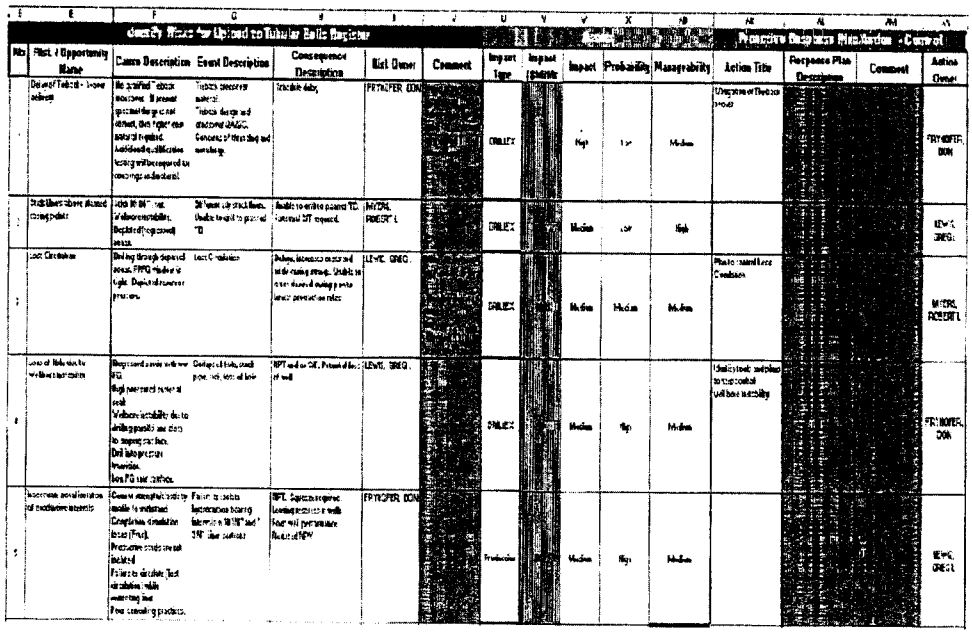
SEVERITY	HEALTH AND SAFETY	ENVIRONMENTAL
E	Major health/ safety incident 1 or 2 fatalities, acute or chronic, actual or alleged. 10 or more injuries or health effects, either permanent or requiring hospital treatment for more than 24 hours.	• Future impact with localized damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of around 1 year. • Future impact with extensive damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of months. • Future impact with localized damage to a sensitive environment and which can be restored to an equivalent capability in a period of months. • Future impact with extensive damage to a sensitive environment and which can be restored to an equivalent capability in a period of days or weeks.
F	High impact health/ safety incident Permanent partial disability(ies) Several non-permanent injuries or health impacts. Days Away From Work Case (DAFWC)	• Future impact with localized damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of months • Future impact with immediate area damage to a sensitive environment and which can be restored to an equivalent capability in a period of months. • Future impact with extensive damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of days or weeks. • Future impact with localized damage to a sensitive environment and which can be restored to an equivalent capability in a period of days or weeks
G	Medium impact health/ safety incident Single or multiple recordable injury or health effects from common source/event.	• Future impact with immediate area damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of months. • Future impact with localized damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of days or weeks. • Future impact with immediate area damage to a sensitive environment and which can be restored to an equivalent capability in a period of days or weeks.
H	Low impact health/ safety incident First aid Single or multiple over-exposures causing noticeable irritation but no actual health effects	• Future impact with immediate area damage to a non-sensitive environment and which can be restored to an equivalent capability in a period of days or weeks.

Annex 2 Risk Framework – Business Impact Levels

SEVERITY*	Non-Financial Impact	Financial Impact (EQUIPMENT DAMAGE, BUSINESS VALUE LOST)
A	Public or investor outrage on a global scale. Threat of global loss of license to operate	>$20 billion
B	Loss of license to operate a major asset in a major market – US, EU, Russia. Intervention from major Government – US, UK, EU, Russia Public or investor outrage in major western markets – US, EU. Damage to relationships with key stakeholders of benefit to the Group.	$5 billion - $20 billion
	Loss of license to operate other material asset, or severe enforcement action against a major asset in a major market Intervention from other major Government. Public or investor outrage in other material market where we have presence or aspiration	$1 billion - $5 billion
	Severe enforcement action against a material asset in a non-major market, or against other assets in a major market. Interventions from non-major Governments. Public or investor outrage in a non-major market, or localised or limited "interest-group" outrage in a major market Prolonged adverse national or international media attention Widespread adverse social impact. Damage to relationships with key stakeholders of benefit to the Segment.	$100 m to $1 billion
E	Other adverse enforcement action by regulators. Limited "interest-group" outrage in non major market Short term adverse national or international media coverage Damage to relationships with key stakeholders of benefit to the SPU.	$5m -$100 m
F	Regulatory compliance issue which does not lead to regulatory or other higher severity level consequence Prolonged local media coverage. Local adverse social impact. Damage to relationships with key stakeholders of benefit to the Performance Unit (PU).	$500k-$5m
G	Short term local media coverage. Some disruption to local operations (e.g., loss of single road access less than 24 hours).	$50k -$500k
H	Isolated and short term complaints from neighbours (e.g., complaints about specific noise episode).	<$50k

18 Appendix C1 - Minimum Data Requirements—Risk Session

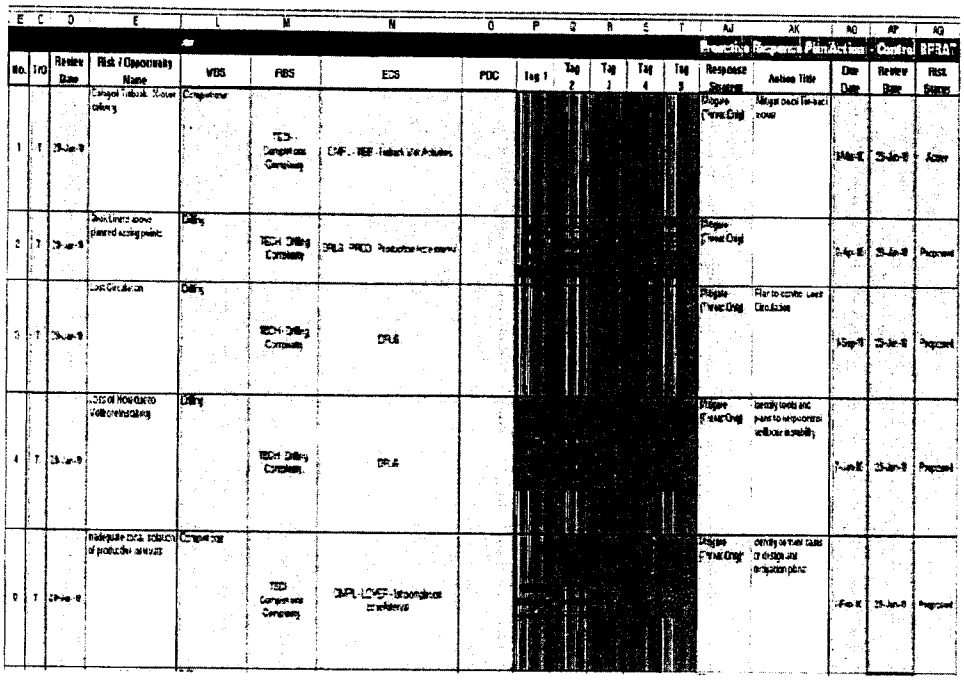
bpRAT offline workbook risk identification session entry



- shall be entered during risk identification session
- comments, quantitative impacts, and a plan description should also be entered
- note: response plans/actions are optional prior to bpRAT upload

19 Appendix C2 - Minimum Data Requirements—Pre-upload

bpRAT offline workbook categorization prior to upload to bpRAT



- shall be entered during prior risk identification session
- categorizations and bpRAT required fields shall be entered
- tagging / key words should also be entered
- note: response plans/ actions are optional prior to bpRAT upload

20 Appendix D - GoM D&C Risk Management Roles and Responsibilities

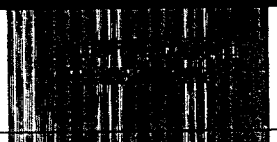
Roles	Responsibility
Risk Champion and Leadership Team	***D&C LT Risk Champion*** role shall be taken on by the VP for Drilling and Completions or the Wells Director. In this capacity the D&C LT Risk Champion shall be responsible for the management of D&C risks and will ensure all risks are managed at the appropriate level within the organization and as per this Recommended Practice. ***D&C Leadership Team*** shall be responsible for risk management within their respective teams and areas of responsibility. They shall ensure Risk Champions and Risk Coordinators have been assigned for each project, and that each clearly understand roles, responsibilities and expectations for managing risks as per this Recommended Practice.
Risk SPA/TA	The Risk SPA/TA will be appointed by the VP Drilling and Completions or Wells Director and shall oversee the risk management process and bpRAT system to ensure teams are managing risk consistently and as per this Recommended Practice. The SPA/TA will ensure bpRAT is being maintained, and any issues or requests for enhancements are approved (or denied), planned and coordinated through the proper channels. The SPA/TA will support the D&C LT and coordinate the escalation, aggregation and transparency of risks up through the organization, and prepare D&C Risk Mitigation and Continuous Risk Reduction Plans.
Project/Asset Risk Champion	The Project/Asset Risk Champion shall be the Project, Engineering or Wells Team Lead. In this capacity the Risk Champion will be accountable for the management of all risks within their area of responsibility. They will ensure a risk coordinator is assigned to the team and risks are clearly identified using the risk library and through the HAZID process. For each risk they shall ensure the required data is provided in the system as per this Recommended Practice, appropriate mitigations and actions are assigned and each risk is correctly managed up to the stage gate.
Project/Asset Risk Coordinator	The Project/Asset Risk Coordinator shall be assigned by the SPA and shall be responsible for creating and managing risks registers within their area of responsibility

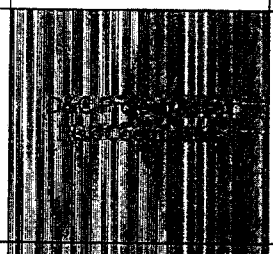
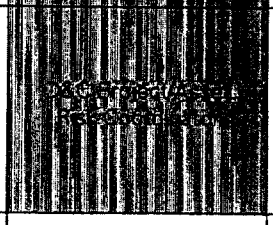
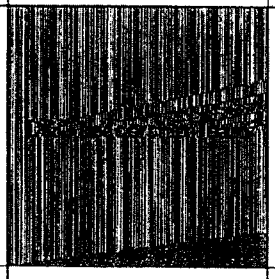
	and preparing documents for each stage gate approval. This will involve identifying standard risks from the risk library, capturing new risks from HAZIDs, updating risk data, uploading risks into bpRAT and coordinating risk actions and mitigations throughout CVP.
Risk Owner	A Risk Owner shall be assigned to each identified risk by the Risk Champion and shall be responsible for managing assigned risks. In this role they will ensure mitigations and actions associated with the risk are assigned to appropriate individuals and that he/she obtains timely closure on each prior to the stage gate or project closure. The risk owner shall update bpRAT.
Mitigation/Action Owner	The Mitigation/Action Owner shall be responsible for the timely completion of assigned mitigations and actions. The Risk Owner will update risks within bpRAT for those risks assigned.
Risk Library Champions	Risk Library Champions from Drilling, Completions, and Subsurface (NDS) will be assigned to manage their respective discipline risks within the GoM Risk Library. They will ensure that new standard risks applicable to GoM are added to the library as well as to ensure existing risks are updated as necessary. They should assign library risks to individuals within their teams to support the updating of standard risks (See section 5 and 11).
Library Risk Owner	Library Risk Owners are those individuals assigned by the Risk Library Champion to manage and update risks with the risk library.

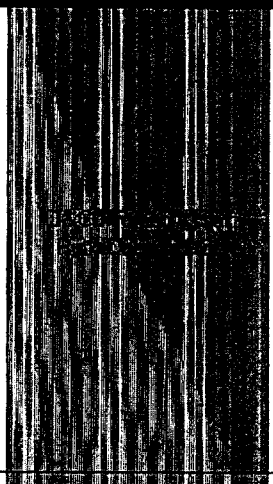
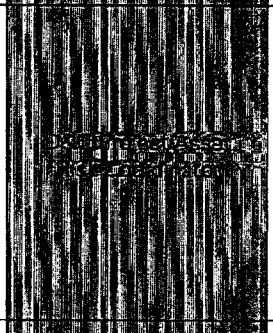
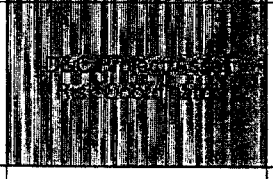
21 Appendix E1 - GoM D&C Drilling, Completions, and Interventions Risk Process Workflow

GoM_DnC_Risk_Mgmt_Process_Workflow

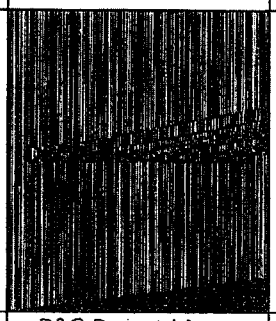
22 Appendix E2 - GoM D&C Risk Workflow Process Narrative

Stage Gate—Appraisal Risk Life Cycle Step—Identify Setup Risk Register and Identify Template Risk			
Process Step	**Role**	**Responsibility/Task**	**Requirements**
1		**Initiate Project**	Create a New Risk Register within bpRAT and include the appropriate project/well information.
2		**Initiate User Access**	Assign users and provide each with the appropriate access and permissions levels within bpRAT (Read, Write, Edit). Team lead is to validate user list and permission levels.
3	D&C Risk SPA / TA	**Capture New Template Risk**	Capture new template risks from previous projects, lessons learned, and from the Global library as they apply to GoM. SPA to consult with appropriate TA and SMEs prior to including new risks..
4	D&C Risk SPA / TA	**Capture New MAR Learnings**	Capture/Update MAR data and ensure appropriate D&C risk mitigation plans and actions are updated and approved as deemed necessary. Ensure updated risk mitigations plans are issued.
5	D&C Risk SPA / TA	**Oversee Maintenance of GoM Risk Library**	Oversee maintenance of the risk library by ensuring Library Champions for each of the disciplines - NDS, Subsurface, Drilling, and Completions - are adding new template risks, updating existing risks and managing the risk selection criteria for

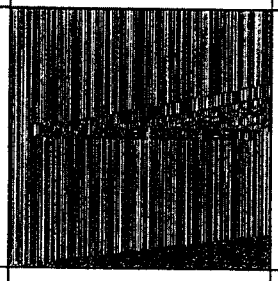
Process Step	Role	Responsibility/Task	Requirements
			their discipline.
6		**Generate Risk Register and Input Sheet**	Working with SME's and function teams, select applicable template risks from library and populate the project risk register. Capture actions, mitigation and categories. Generate the input sheet.
7		**Prepare BtB Appraise to Select Stage Gate**	Prepare risk register and required stage gate documents for review at stage gate. Include all agreed template risks with their respective impacts, actions, and mitigations.
8	D&C Project Leader/Engineering Team Leac/Well Operations Lead/ Project Risk Champion	**Escalate high-level risks**	Escalate potentially high impact level risks up to D&C LT Risk Register. Risk shall include those that do not appear above the CMS reporting line but have the potential of major impact
9		**Update and Review D&C L.T. Risk Register**	Review D&C LT risk register to ensure appropriate actions are in place to manage identified risks. Ensure team members have been assigned. Communicate feedback on risks, mitigations and actions to the appropriate project/asset team lead..
10	D&C Project Leader/Engineering Team Lead/Well Operations Leader	**Stage Gate Approval**	Compile, review and present the initial risk register complete with the identified mitigations and action plans for stage gate approval.

Stage Gate—Select Risk Life Cycle Step—Assess and Respond Risks and Develop Risk Mitigations Plans			
Process Step	**Role**	**Responsibility**	**Requirements**
1		**Conduct Risk Session**	Initiate and conduct a risk session to: 1. Validate template risks, associated actions, mitigations and impacts (if available). 2. Identify additional project specific risks (impact and mitigations if available) Identify and include the required participants within the risk session.
2		**Complete Input Sheet**	Following the risk session, update the input sheet(s) with the required information against each template risk and newly defined project specific risk. Information to include categories, mitigations, actions, actionees and impacts (if available). Input sheets are to be as complete as possible.
3		**Import Risk Data**	Update template risks in bpRAT as per the updated input sheet. Upload new project specific risks into bpRAT
4	Risk Owner	**Assess Risk**	Assess impacts and probability for assigned risks. Conduct smaller sessions as deemed necessary to perform risk assessments.

Process Step	Role	Responsibility	Requirements
5	Risk Owner	**Develop Mitigation Plans**	Prepare risk mitigations for each risk owned
6	Risk Owner	**Update bpRAT**	Update bpRAT with additional information derived from risk assessments and mitigations
7	Mitigation Owner	**Address Actions and Mitigations**	Address assigned actions and mitigations
8	Mitigation Owner	**Update bpRAT**	Update bpRAT with additional information derived from assessments and mitigations
9	[redacted]	**Prepare BtB** **Select-to-Define** **Stage Gate** **Assess Risk Mitigation Measures**	Collect all necessary risk information, update risk register and prepare required documentation for stage gate approval.
10	D&C SPA/TA	**Barrier Assessment**	Assess robustness of barriers particularly MAR risks using the risk assessment tool. Update MAR Library risks accordingly
11	D&C SPA / TA	**Review / Prepare Risk Mitigation Plans** **And continuous risk reduction reports (CRR)**	Assess existing GoM D&C risk mitigation and continuous risk reduction plans. Ensures updates to the GoM D&C risk mitigation plans for MARs are approved by the Leadership Team. Any changes to the barriers that would require updates to the project risk register shall be communicated to the project risk coordinator.
12	[redacted]	**Update bpRAT and Stage Gate Documents**	Update project risk register and CRR per
13	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Escalate high-level risks**	Escalate potentially high impact level risks up to D&C LT Risk Register. Risk shall include those that do not appear above the OMS reporting line but have the

Process Step	Role	Responsibility	Requirements
			potential of major impact
14		**Update D&C LT. RR & Review**	Review D&C LT risk register to ensure appropriate actions are in place to manage identified risks. Communicate feedback on risks, mitigations and actions to the appropriate project/asset team leads as part of the stage gate approval.
15	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Stage Gate Approval**	Update, review and present risk register with appropriate mitigations and action plans to seek approval to proceed to the next stage

Stage Gate—Define Risk Life Cycle Step—Assess and Respond Develop Risk Mitigation Plans and Close-Out Actions			
Process Step	**Role**	**Responsibility**	**Requirements**
1	[redacted]	**Conduct Risk Session**	Initiate and conduct a risk session to review and rank risks post mitigation and to update actions. Identify additional project specific risks (if any), their impact and mitigations. Ensure all risks have actions, mitigations and owners and are being addressed in a timely manner. Identify and include the required participants within the risk session.
2	Mitigation Owner	**Address Actions and Mitigations**	Address assigned actions and mitigations. Close out actions and firm up mitigation plans.
3	Mitigation Owner	**Update bpRAT**	Update bpRAT with additional information derived from risk session and through working assigned actions.
4	Risk Owner	**Risk Mitigation Acceptable?**	Determine the acceptability of the risk mitigation - has the risk been addressed to a satisfactory level?
5	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Risk Mitigation Acceptable?**	Determine if risk and exposure level post mitigation is acceptable
6	[redacted]	**Prepare BtB** **Define-to-Execute** **Stage Gate**	Collect all necessary risk information, update risk register and prepare required documentation for stage gate approval.

Process Step	Role	Responsibility	Requirements
7	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Escalate high-level risks**	Escalate potentially high impact level risks up to D&C LT Risk Register. Risk shall include those that do not appear above the OMS reporting line but have the potential of major impact
8	Risk Owner	**Rework Mitigations**	Determine if proposed risk mitigations for risks that did not pass the stage gate require rework or if they require clarification.
9	Risk Owner	**Provide Clarification**	Provide clarification on mitigations that did not pass the stage gate but do not require rework.
10	Risk Owner	**Update bpRAT**	Update bpRAT with additional information derived from risk session
11		**Update D&C L.T. RR & Review**	Review D&C LT risk register to ensure appropriate actions are in place to manage identified risks Communicate feedback on risks, mitigations and actions to the appropriate project/asset team leads as input into the stage gate approval.
12	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Stage Gate Approval**	Update, review and present risk register with appropriate mitigations and action plans to seek approval to proceed to the next stage. Require a complete understand of the status of each risk and the level of exposure prior to handover to operations.

Stage Gate—Execute Risk Life Cycle Step—Setup Risk Register and Identify Template Risk			
Process Step	**Role**	**Responsibility**	**Requirements**
1	[redacted]	**Conduct Risk Session**	Initiate and conduct a risk session to update risks and to identify additional project risks (if any), their impact and mitigations. Ensure all actions and mitigations are assigned to the appropriate individuals for action.
2	D&C Project / Asset Risk Champion (Engineering Team Lead/Well Operations Lead)	**Control Risks**	Ensure mitigation are followed and actions are being addressed in a timely manner. Ensure no additional risks are introduced without being communicated, assessed and incorporated into the plan as determine necessary.
3	Risk Owner	**Monitors Operation**	Monitor assigned risks to ensure mitigations and actions are being followed as planned.
4	Risk Owner	**Additional Risks Identified**	Identified additional risks need to be evaluated and placed into bpRAT. Risks need to be integrated into future procedures.
5	Risk Owner	**Update bpRAT**	Update bpRAT with additional information derived from risk session
6	Risk Owner	**Notify Lead and Coordinator**	Communicate all new risks to the Lead and Risk Coordinators
7	[redacted]	**Prepare BtB Execute-to-Review Stage Gate**	Update, review and present risk register with appropriate mitigations and action plans to seek approval to proceed to the next stage

Process Step	Role	Responsibility	Requirements
8	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Additional mitigations required?**	Determine if additional mitigations are required to manage new risks
9	Mitigation Owner	**Addresses Actions and Mitigations**	Address assigned actions and mitigations. Close out actions and firm up mitigation plans.
10	Mitigation Owner	**Update bpRAT**	Update bpRAT with additional information derived from assessments
11	Risk Owner	**Review Mitigation**	Assess mitigations and determine if proposed mitigation is acceptable
12	Risk Owner	**Is Risk Mitigations Acceptable?**	Is risk mitigated to a satisfactory level and is exposure level acceptable
13	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Risk Mitigation Acceptable?**	Determine the acceptability of the risk mitigation - has the risk been addressed to a satisfactory level?
14	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Escalate high-level risks**	Escalate potentially high impact level risks up to D&C LT Risk Register. Risk shall include those that do not appear above the OMS reporting line but have the potential of major impact
15	[redacted]	**Update D&C LT. RR & Review**	Review D&C LT risk register to ensure appropriate actions are in place to manage identified risks. Communicate feedback on risks, mitigations and actions to the appropriate project/asset team leads as input into the stage gate approval
16	D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations	**Stage Gate Approval**	Update, review and present risk register with appropriate mitigations and action plans to seek approval to proceed

Process Step	Role	Responsibility	Requirements
	Lead)		to the next stage. Require a complete understand of the status of each risk and the level of exposure prior to handover to operations.

Stage Gate – Review Risk Life Cycle Step – Review and Lessons Learned			
Process Step	**Role**	**Responsibility**	**Requirements**
1	[redacted]	**Risk Close-out Session**	Initiate and conduct a risk close-out session to review close-out of project risks and lessons learned.
2	Risk Owner D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Are All Risks Closed Out?**	Determine id all risks have been satisfactorily closed out.
3	Risk Owner	**Review Planning / Operational Risks**	Review outstanding planning and operational risks assigned and provide the necessary information to close each risk out satisfactorily.
4	Risk Owner	**Update bpRAT**	Update assigned risks with the required information. If risks are satisfactorily closed out notify the GoM D&C SPA to update template and MAR risks.
5	[redacted]	**Update GoM D&C LT Risk Register**	Review D&C LT identified risks and escalated risks to ascertain appropriate actions have been take to close out identified risks.
6	[redacted]	**Inform the GoM SPU Risk Champion**	Update GoM SPU Risk register as required with high level risks, mitigations, actionees and target dates for those risks determined to have an significant HSE or Business Value impact .
7	[redacted]	**Prepare Final Risk Documentation**	Ensure all risks are addressed and closed with their final mitigations and action, compile all necessary

Process Step	Role	Responsibility	Requirements
	[redacted]		documents and prepare to close out project. Update template and MAR risks.
8	Risk Owner D&C Project / Asset Risk Champion - (Engineering Team Lead/Well Operations Lead)	**Project Close-out**	

23 Appendix F – Risk Session Sticky Notes

Standard risks

Risk Name/Description: Short phrase representing the Threat/Opportunity **Event:** A negative event (future issue) which may be avoided or mitigated **Cause:** The source or reason of an event **Consequence:** Result arising from an unmitigated event **Comment:** Further explanation or suggested mitigation		
Highest Impact Area(s): (Drillex/Capex/Opex/NPV, Schedule, Production, Hydrocarbon Resources, Reputation) **Score:** Low, Med, High, V High	**Probability:** High > 25% Med 5-25% Low 1-5% V Low < 1%	**Manageability:** High – Within Control Med – Within Influence Low – Low ability to influence **Owner:** Risk Owner

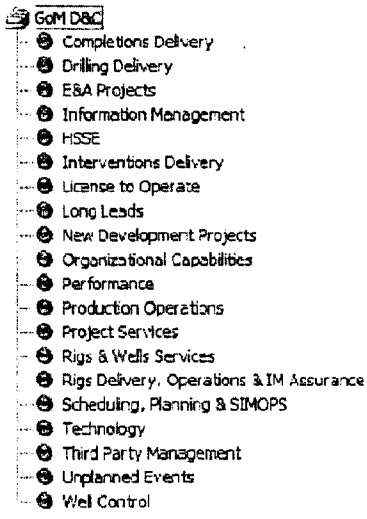
Major Accident Risks

Risk Name/Description: Short phrase representing the Threat/Opportunity **Event:** A negative event (future issue) which may be avoided or mitigated **Cause:** The source or reason of an event **Consequence:** Result arising from an unmitigated event **Comment:** Further explanation or suggested mitigation		
Highest Impact Area(s): (Health & Safety, Environmental, Privilege to operate) **OMS Level:** Level A to Level H	**Likelihood OMS Level:** Level 1 to Level 8	**Manageability:** High – Within Control Med – Within Influence Low – Low ability to influence **Owner:** Risk Owner

24 Appendix G –Categorization Tables

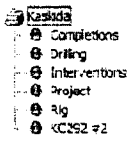
24 1 Appendix G-1- GoM D&C Business Unit Risk Register

GoM D&C Function / LT Work Breakdown Structure (WBS)



24.2 Appendix G-2 – Categorizations – "Program" and "Project" Level

Kaskida Example - Work Breakdown Structure (WBS)

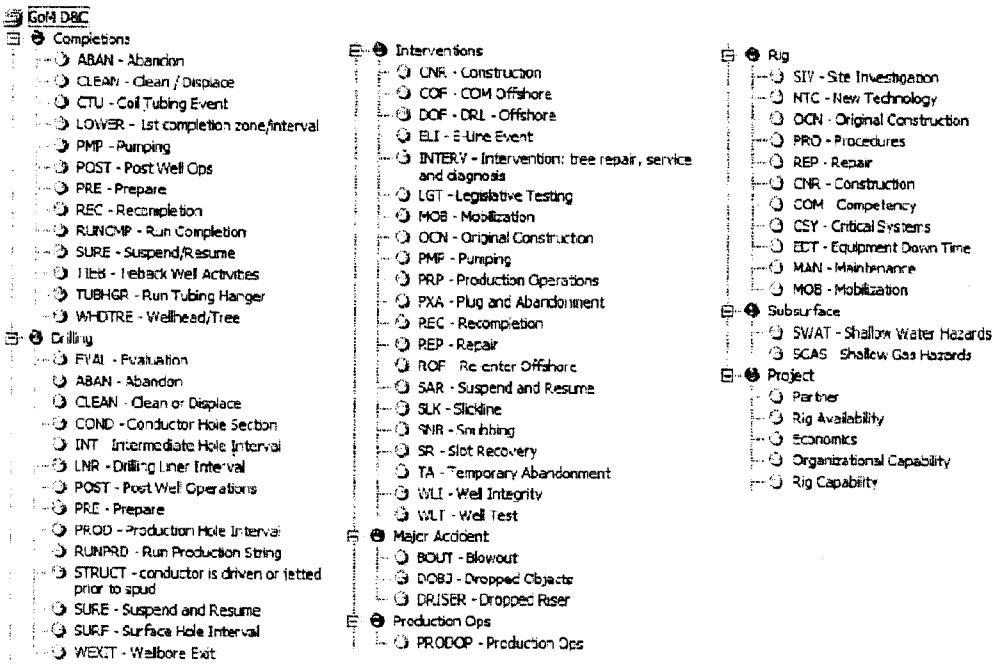


24.3 Appendix G-3 – Categorizations – "Program" and "Project" Level

Kaskida Example - Project Defined Category (PDC)

25 Appendix H– Categorizations – Enterprise Categorization Structure (ECS)

For all Registers within the GoM D&C Organizational Risk Register Hierarchy (BU, PRogramme, & Project)



26 Appendix I - Risk Breakdown Structure – All Risk Registers Globally

CNTRY - Currency Risk (versus US $)
CNTRY - Employment/Local sourcing expectations
CNTRY - Ethical conduct
CNTRY - Experience of operating in province
CNTRY - Expropriation/Revenue Security
CNTRY - Fiscal policy/tax etc
CNTRY - Group Reputation
CNTRY - Infrastructure
CNTRY - Local culture (including Ecology & Indigenous Mix)
CNTRY - Political stability
CNTRY - Regulatory Environment (Federal & local)
HSSE - Construction Safety
HSSE - Differing Partner Standards
HSSE - Environmental sensitivities
HSSE - Safety & security of personnel (including UXO)
HSSE - Safety of design
HSSE - Security of Proprietary Information
HSSE - Waste management
HSSE - Emissions/Spills
HSSE - Health Sensitivities
MRKT - Competitive threats to economic success
MRKT - Feedstock & Product values
MRKT - Feedstock availability/Product Offtake Agreements
MRKT - Managing Executive Management Performance Expectations
MRKT - Partner (including State Partner) Alignment
MRKT - Partner Funding Constraints
MRKT - Product Differentials
MRKT - Sources of Value Complexity (e.g. Integration optimization)
MRKT - Terms Uncertainty
MRKT - Brand Issues
MRKT - Development of product markets (absolute & Market share)

OPS - Availability of experienced Operations staff
OPS - Decommissioning philosophy
OPS - Level of New Technology Equipment Items
OPS - Operability of design
OPS - Operating cost risk
OPS - Planned rate of Ramp-up
OPS - Sparing Philosophy (critical items)
OPS - Systems availability (eg Plant/Export/Wells)
OPS - Technical Integrity (including QA/QC)
PROJ - Availability of Key skills
PROJ - Climatic/Weather Windows
PROJ - Contractor/vendor sourcing
PROJ - Early Team Alignment (including Partner staff)
PROJ - Estimating Basis Risk
PROJ - Labour Market
PROJ - Modification/Revamp content
PROJ - Project Strategy Development
PROJ - Quality of design basis/definition
PROJ - Remoteness/Access/Logistics complexity
PROJ - Rig/Installation Vessels Availability
PROJ - Scheduling Basis risk (to Beneficial production)
PROJ - Work fronts/Key interfaces
TECH - Completions Complexity
TECH - Drilling Complexity
TECH - Facilities Concept (choice/know how/stretch)
TECH - GOR/GCR/Water Production/Fluid Injection
TECH - Mid-Stream/Export
TECH - Recovery Factor
TECH - Reservoir Fluids characteristics
TECH - Seismology/Soil/Met Ocean conditions
TECH - Sub-surface delineation/complexity
TECH - Terrain/Topography/Water Depth
TECH - Well Productivity

**Note: RBS values commonly used for GoM D&C - yellow

27 Appendix J – Categorizations – Enterprise Risk Management (ERM)

All Risk Registers globally

Strategic - Inadequate responsiveness to external change

Strategic - Inability to balance cash flows

Strategic - Inadequate clarity and follow through of strategy

Strategic - Failure to deliver upstream growth

Strategic - Inability to deliver downstream footprint

Operational - Material safety or environmental incident

Operational - Inability to respond effectively to a business crisis

Operational - Failure to maintain the benefits from the forward agenda

Compliance and Control - Regulatory or legal non-compliance

Compliance and Control - Trading control breakdown

Compliance and Control - Material reporting error