

From: Ruehle, Steven A  
Sent: Thu Sep 24 14:40:48 2009  
To: Cramond, Neil; Shaw, Neil; Morrison, Richard; Lacy, Kevin; Addison, Fergus T; Rainey, David I; Kennelley, Kevin J; Replogle, Dan R.; Todd, Simon P; Hohle, Jeff W; Waligura, Starlee S; Elliott, J. Keith; Morris, Timothy D; Handyside, Doug D; Allen, Dawn; Gates, Jayne; Hohle, Johanna; Segal, Lauren B; Kennelley, Kevin J  
Cc: Botros, Fikry R; Aguiluz, Victor; Sprague, Jonathan D; Porter, David A; Lynch, Gregory V; Jesudasen, Sandeep; Russell, Virgil; Huston, John A; Westall, Karen; Borgmeyer, Tracy  
Subject: RE: SPU Top Risk Mitigation Plans (Session 2 of 2)  
Importance: Normal  
Attachments: Risk Review Slides 28 Sept.ppt

I've attached the slides we will review at the SPU Top Risk Review Monday afternoon. Hard copies are being printed for all participants and will be distributed today.

<<...>>

-----Original Appointment-----

**From:** Boyle, Janet (Cobb) **On Behalf Of** Cramond, Neil  
**Sent:** Tuesday, September 22, 2009 10:13 AM  
**To:** Cramond, Neil; Shaw, Neil; Morrison, Richard; Lacy, Kevin; Addison, Fergus T; Rainey, David I; Kennelley, Kevin J; Replogle, Dan R.; Todd, Simon P; Hohle, Jeff W; Waligura, Starlee S; Elliott, J. Keith; Morris, Timothy D; Handyside, Doug D; Allen, Dawn; Gates, Jayne; Hohle, Johanna; Segal, Lauren B; Ruehle, Steven A; Kennelley, Kevin J  
**Cc:** Botros, Fikry R; Aguiluz, Victor; Sprague, Jonathan D; Porter, David A; Lynch, Gregory V; Jesudasen, Sandeep; Russell, Virgil; Huston, John A; Westall, Karen  
**Subject:** Updated: SPU Top Risk Mitigation Plans (Session 2 of 2)  
**When:** Monday, September 28, 2009 1:00 PM-3:00 PM (GMT-06:00) Central Time (US & Canada),  
**Where:** Board Room 2001

**UPDATED 8/26 at 2PM:** Sorry for another change and any inconvenience this will cause. New meetings for Neil Shaw have just come in and taken priority over this one. Please note we will now be meeting on Monday Sept 28 from 1 - 3PM.

Thanks

Janet Boyle

X7119

\*\*\*\*\*  
\*\*\*\*\*

~~UPDATED 8/26/09: Due to Neil Shaw's schedule we have been asked to move Session 2 to a later date. It will now take place on Sept. 25 from 1 to 3 PM. Please update your calendars.~~

~~Thanks~~

\*\*\*\*\*  
\*\*\*\*\*

Each asset and the logistics group have recently updated their major hazard risk register. Each entity is now developing mitigation plans to address their high risks in accordance with the GoM Major Hazard Risk Management Policy. The purpose of this meeting is to review the SPU high risks with the SPULT. We will be looking to the asset managers to speak to the risks being managed by the assets. Functional representatives will be asked to lead a discussion on risks that are managed centrally. I will send out a detailed agenda for the meeting by the week of August 31. Please contact me or Steve Ruehle with questions.

Note: I have split this into 2 session of 2 hrs each (9/16 and 9/17)

Thanks,

Neil Cramond

EXHIBIT #	2912
WIT:	K. Lacy



2009 CoM SPU Major Hazard Risk Review

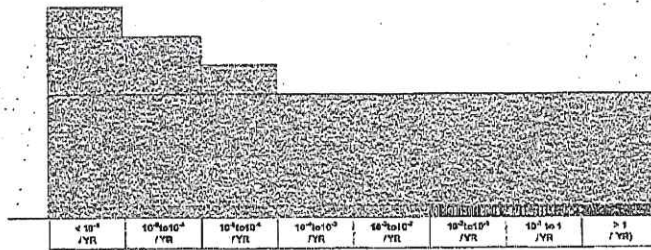
28 September 2009

GOM SPU Major Hazard Risk Review  
Agenda



Time	Risk	Presenters
1:00 - 1:05	Introduction	Ruehle/Cramond
1:05 - 1:25	Flex joints	Sandeep Jesudasen
1:25 - 1:45	Loss of Well Control	Jon Sprague
1:45 - 2:05	Merchant/Supply Vessel Collision	Neil Cramond
2:05 - 2:25	In Air Transport	John Huston
2:25 - 2:35	Security	Greg Lynch
2:35 - 2:50	Post Appraisal	All
2:50 - 3:00	Wrap Up	Cramond

## GoM SPU Major Hazard Risks



- Risks ranked "D" or higher impact at a risk level of B and higher
- Major Hazard risks do not include risks with only financial or commercial consequences

Each Asset has updated its Major Hazard Risk Register

# 2009 Major Hazard Risks Placed on Risk Register



Consequence				Probability							
Health and Safety	Environment	Operations	Asset	1	2	3	4	5	6	7	8
			TH002-01 TH002-02								
			TH002-03								
			TH002-04								
			TH002-05								
			TH002-06								
			TH002-07								
			TH002-08								
			TH002-09								
			TH002-10								
			TH002-11								
			TH002-12								
			TH002-13								
			TH002-14								
			TH002-15								
			TH002-16								
			TH002-17								
			TH002-18								
			TH002-19								
			TH002-20								
			TH002-21								
			TH002-22								
			TH002-23								
			TH002-24								
			TH002-25								
			TH002-26								
			TH002-27								
			TH002-28								
			TH002-29								
			TH002-30								
			TH002-31								
			TH002-32								
			TH002-33								
			TH002-34								
			TH002-35								
			TH002-36								
			TH002-37								
			TH002-38								
			TH002-39								
			TH002-40								
			TH002-41								
			TH002-42								
			TH002-43								
			TH002-44								
			TH002-45								
			TH002-46								
			TH002-47								
			TH002-48								
			TH002-49								
			TH002-50								
			TH002-51								
			TH002-52								
			TH002-53								
			TH002-54								
			TH002-55								
			TH002-56								
			TH002-57								
			TH002-58								
			TH002-59								
			TH002-60								
			TH002-61								
			TH002-62								
			TH002-63								
			TH002-64								
			TH002-65								
			TH002-66								
			TH002-67								
			TH002-68								
			TH002-69								
			TH002-70								

44th Risk, Thunder Horse Drill Deck Support Plate Risk, not yet formally assessed

## Major Hazard Risk Summary by Asset



9/16	9/25	Risk Category	Number of Risks	Assets with Risk
x		Topsides Hydrocarbon Release	18	All 8 producing assets
x		Dropped Object	1	Horn Mountain
x		Pig Launcher	1	Horn Mountain
x		Fiberglass Piping Failure	2	Mad Dog, Martin
x		Drilling Derrick Base	1	Thunder Horse
x		Risers and Flowlines Leak	3	Horn Mountain, Pompano
x		Subsea Leak Flowlines	2	Na Kika, Thunder Horse
	x	Loss of Well Control	2	Thunder Horse, Atlantis
	x	Merchant Vessel Collision	3	Horn Mountain, Mad Dog, Thunder Horse
	x	In Air Transport	8	All 8 producing assets
	x	Security	1	Thunder Horse
	x	Supply Vessel Collision with Riser	1	Thunder Horse

Note: Flex Joint Failure Risk will be discussed in the functional reviews on 9/25



Flex Joints

28 September 2009

## GoM SPU Major Hazard Risks (2008) Flexjoint Failure



### Risk Description:

2008 Reputation/2009 Financial: Non-catastrophic failure of a riser flexjoint leading to replacement with an associated duration of 30-40 days within a TAR. Major hazard risk was originally associated with reputational risk associated with overdue inspections. In 2009, this has been rectified and a robust risk-based flexjoint inspection program is in place. This excludes deferred production risk since flexjoint is replaced in control manner during a TAR.

	Reputation		Financial	
	2008	2009	2008	2009
Thunder Horse	E6	E6	E6	E6
Allantis	E5	E5	E6	E6
Mad Dog	E6	E6	E6	E6
Holstein	E6	E6	E6	E6
Na Kika	E6	E6	E6	E6
Marlin	E6	E6	E6	E6
Horn Mountain	E6	E6	E6	E6
Pompano	n/a	n/a	n/a	n/a

=> Specific risk mitigation plans written for Holstein and Na Kika oil flexjoints (2008)  
=> Mad Dog flexjoint inspected

### Completed Risk Mitigation Activities:

- All GoM flexjoints have been inspected and reassessed. 10 flexjoints have been identified for enhanced focus. (Central IM & TA).
- Working with vendor to continually reassess necessary actions. Partner involvement as appropriate. (Central IM & TA).
- Flexjoint operating conditions (temperature and pressure) agreed with all assets. (Central IM & TA).
- Inspection tools have been enhanced to facilitate 3-D modelling of anomalies. (Subsea & Central IM).
- Creep rupture mechanism failure study completed. New KPI methodology developed. (Central IM & TA)
- Early Define Stage studies on how to perform a flexjoint replacement for all facilities are completed and currently are being rolled out to assets. (BP Pipelines)
- Mad Dog oil export - stress joint as a replacement feasible. (Central IM)
- Marlin has purchased stress joint to replace oil flexjoint if necessary. It has been confirmed suitable for Horn Mountain gas export flexjoint replacement as well. (Central IM)
- Monitoring and reporting operating conditions (temperature and pressure) of all flexjoints. (Central IM)
- Inspection frequencies have been updated for all flexjoints (Central IM & TA)

### Describe the risk.

Non-catastrophic failure of a riser flexjoint leading to replacement and associated shut-in of approximately 30-40 days. Major hazard risk was associated with reputational risk associated with overdue inspections. Financial risk is not currently considered in determination of major hazard risk.

### What is the baseline consequence, how was it determined?

\$25-\$35MM to replace flexjoint. This makes it an E (\$5m to \$100m) risk

### What is the baseline probability, how was it determined?

Flexjoint risks include infield and export risers. Export flexjoints were not getting inspected and were rated a higher risk in 2008. Probability rating of 6 is based on inspection anomaly findings.

### If there are outliers to this baseline, why are they different?

Allantis has 3<sup>rd</sup> generation elastomer and operates at lower pressures, thus it will have a lower frequency than the rest.

FYI, Cost of Financial Risk is high for Allantis since a flexjoint failure affects four other platforms.



**GOM SPU Major Hazard Risks (2009)  
Flexjoint Failure**



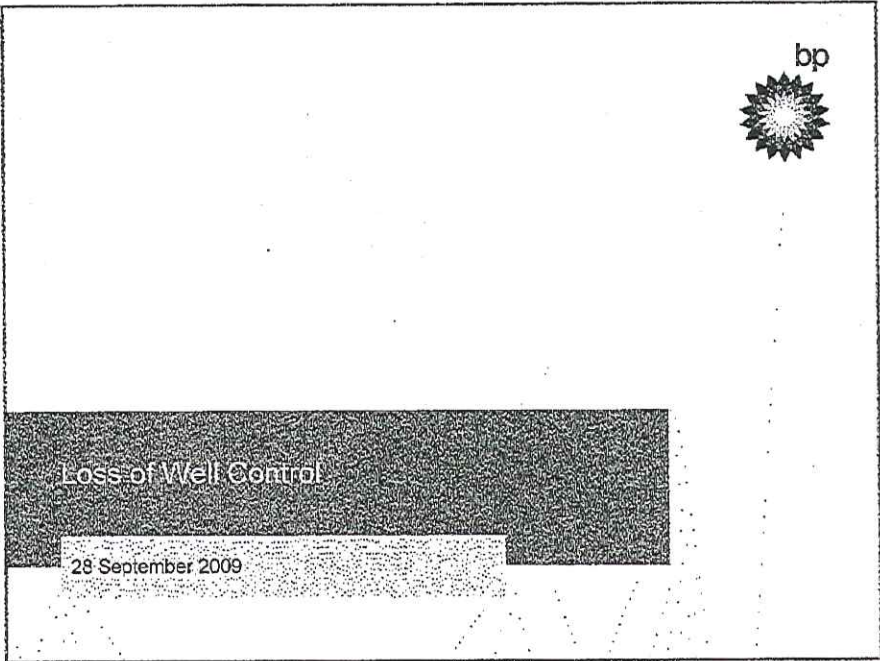
No.	FlexJoint	High focus due to	Last inspection
1	Marlin gas export	anomaly observed and low predicted life	Aug. 2009
2	Marlin oil export		
3	Mad Dog oil export		
4	Horn Mountain gas export		
5	Holstein oil export		
6	Na Kika oil export		
7-10	Thunder Horse 10" and 12" infield	high operating temperature and novel design (thermal barrier)	Jul. 2009

No.	FlexJoint	Medium focus due to	Last inspection
1	Thunder Horse oil export	anomaly observed	Aug. 2008
2	Atlantis gas export	low predicted life	Jun. 2008
3	Na Kika 8" Fourier oil	low predicted life	
4	Na Kika 8" Herschel oil	low predicted life	

**2009 Risk Management Plan:**

- Specific risk management plans recommended to be written for all higher focus flexjoints. (Assets with support from Central IM).
- Assets and Central Operations to take ownership of replacement studies and complete full Define activities for top three high focus flexjoints.
- Sparing / long lead item decisions for Marlin and Mad Dog need to be made. (Assets with support from Central IM and Operations).



GoM SPU Major Hazard Risks (2009)  
Loss of Well Control (LoWC)



**Risk Description:**

**Environmental Reputation, Safety:** Risk that uncontrolled flow during drilling, completion or well intervention activities have the potential for a loss of well control (LoWC), release of hydrocarbons and potential environmental damage (ENV A4) and could, if ignited, lead to fire and explosion (SAF D2). Applies to all three (3) BP-owned rigs – Thunder Horse, Holstein, and Mad Dog – as well as the MODUs operating in the SPU.

	2008	2009		2008	2009		2008	2009
Thunder Horse: PDQ & Enterprise	AA	A4	Mad Dog	C4	n/a	Horizon	---	C4
Atlantis: DDII & DDIII	---	D4	Holstein	B4	n/a	Marianas	---	D4

**Completed Risk Mitigation Activities**

- Cold stacking rig on Holstein for 18 to 24 months.
- Revalidated Well Control training and certification for all line D&C personnel (BP and contractor)
- Well Site Leader Competency pilot completed. Implementation of "10 Year Plan" underway.
- Completed generic LoWC Bowties with representatives of all D&C teams; rolled out to Pride
- Framed a GoM Barrier Assessment Tool and used it to steer and develop Segment Recommended Practice (RP)
- Built a GoM D&C Risk Management Strategy and Process aligned with OMS. Includes Bowties. BP-RAT enhancements underway.
- Completed TH Open Hole Bridging Study (results confirmed via riser break in 2003)

**Ongoing Risk Mitigation Activities**

- Maintain current WC training and certification for all line D&C personnel (BP and contractor)
- Horizon & Marianas risk rating to be evaluated based upon field it is working in

**2009/2010 Risk Management Plan**

- Implement Segment's "10 Year Plan" for key office staff when released
- Revalidate Asset-specific Probabilities and Consequences
- Evaluate effectiveness of barriers with each rig team following Segment release of RP
- Train personnel on the new GoM Well Control Response Guide
- Apply to PS1 & PS2 rigs upon delivery

**Describe the risk.**

Loss of well control (loss of hydrocarbon containment) when drilling, completing or intervening into a well. Primary well control is provided through proper competencies, robust procedures and maintaining proper hydrostatic mud weight. Contingency is the BOP stack with redundant systems.

**What is the baseline consequence, how was it determined?**

The Assets chose the consequence based on the well's maximum production rate, the potential duration of uncontrolled flow, and personnel exposure. For example, the TH PDQ (400+ POB) is a moored vessel and has HC processing onboard. The DDII is a DP rig (can move off location) and does not have HC processing onboard.

Consequences to be reassessed/confirmed during the D&C Risk Mgmt Process implementation when default risks, consequences, and probabilities are recorded within BP-RAT.

**What is the baseline probability, how was it determined?**

Event has occurred within industry. In 2007, Egypt Temseh Field (jack up rig alongside fixed platform, NOT DEEPWATER) operated by ENI had a WC event that initiated losing the rig and facility. Even though the well bridged over and stopped flowing, the derrick fell and impacted nearby producing wells which further fueled the fire, causing the loss of the facility.

Event has occurred within BP. Last occurrence in BP was in 1988 on the Ocean Odyssey (Arco) in the North Sea with one fatality.

LoWC has NOT occurred in Deepwater, and NOT in GoM Deepwater.

Probabilities to be reassessed/confirmed during the D&C Risk Mgmt Process implementation when default risks, consequences, and probabilities are recorded within BP-RAT.

**If there are outliers to this baseline, why are they different?**

Thunder Horse has higher risk due to more prolific HC rates (50 MBD), supporting reservoir pressure, processes HC onboard, and has the PDQ moored directly over the wells (inability to move more than a few hundred feet away). Atlantis is less risk because even though it is a highly prolific basin, the drilling is conducted from the DDII, not the PQ (separates production from drilling operations) and the reservoir pressure support depletes quicker due to reservoirs being highly compartmentalized.

Marianas and Horizon risk depends on the field it is working on. Probability is could be a 3.

**Other comments**

2008 Risk Mitigation Plan was written for BP owned rigs and included MODUs.

John Shaughnessy is the GoM Technical Authority for WC.

The new D&C Risk Mitigation strategy and plan has been written and approved. Moving into

**Risk Mitigation Plan**

**Government of Yukon**      **Ministry of Energy, Mines and Forestry**      **Department of Energy, Mines and Forestry**

**Yukon Energy Board**      **Yukon Energy Board**      **Yukon Energy Board**

**Yukon Energy Board**      **Yukon Energy Board**      **Yukon Energy Board**

**Yukon Energy Board**      **Yukon Energy Board**      **Yukon Energy Board**

**Project:**      **Project Name:**

**Client:**      **Client Name:**

**Contract:**      **Contract Name:**

**Table 1: Risk Register**

Risk ID	Description	Impact	Probability	Priority	Responsible Party	Status
1	...	...	...	...	...	...
2	...	...	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...
5	...	...	...	...	...	...
6	...	...	...	...	...	...
7	...	...	...	...	...	...
8	...	...	...	...	...	...
9	...	...	...	...	...	...
10	...	...	...	...	...	...

**Approval:**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



Vessel Collision

28 September 2009

**GoM SPU Major Hazard Risks  
Merchant Vessel Collision**



**Risk Description:**

Safety: Large merchant vessel collision with hull.

	2008	2009		2008	2009
Thunder Horse		A1	Na Kika		B1
Atlantis		B1	Merlin	C4	B1
Mad Dog		B2	Horn Mountain	D4	B2
Holstein	B3	B1	Pompano		B1

**Completed Risk Mitigation Activities:**

- Automated Identification System (AIS) with Thunder Horse and Atlantis

**Ongoing Risk Mitigation Activities**

- Ensure that marine navigation charts are updated to reflect safety zone around Mad Dog
- Perform lifeboat drills as per requirement.

**2009 Risk Management Plan**

- Install collision avoidance radar on Horn Mountain
- Evaluate this risk scenario for Pompano
- Create a Radar Operations Collision Avoidance SOP to ensure consistency on the safety ring settings

GoM SPU Major Hazard Risks  
Supply Vessel Collision with Riser



**Risk Description:**

Safety: Supply vessel experiences equipment failure or human error and collides with a production or export riser on the PDQ. A high pressure release of crude oil or gas occurs. If the release is ignited, a large fire may result.

**Completed Risk Mitigation Activities:**

- Probability of DP Failure and assessment of available energy from different failure scenarios.
- Strength of risers and their vulnerability to failure scenarios from supply vessels assessed
- Developed a Marine Assurance Plan (MAP) to verify adequate marine operation mitigations were being employed
- Use of fenders on selected supply boats supporting Thunder Horse

**Ongoing Risk Mitigation Activities**

- Continue implementation of MAP

**2009 Risk Management Plan**

- Include this scenario in the OPRA studies for potential mitigation measures
- Incorporate OPRA results and develop mitigation plans
- Assess this risk for other assets

**Thunder Horse Major Risk Migration Plan**

SHIP, VESSEL, COLLIDE WITH RISER

RISER ID Number: 774109240

7/24/2014

Definition of Risk: Ship, vessel, or other floating structure colliding with a riser, which could result in a loss of production or damage to the riser, vessel, or other floating structure.

Impact:  Critical  High  Medium  Low

Current:  Not a problem  Problem

Control Measures:  No action required  Action required

Responsible Party:  Operations  Maintenance  Safety  Other

Item	Priority	Due Date	Status
1. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
2. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
3. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
4. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
5. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
6. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
7. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
8. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
9. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed
10. Review of vessel traffic in the area of the riser.	High	08/01/14	Completed

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Agreement Manager: \_\_\_\_\_ Date: \_\_\_\_\_



**Thunder Horn Major Risk Mitigation Plan  
MERCHANT VESSEL COLLIDES WITH OFFSHORE INSTALLATION**

Organization of Risk: **74985419**  
 Large merchant vessel in a restricted area with POB vessel POB = risk  
 not found = 0/0/0

Impact:

Catastrophic  
 Significant  
 Moderate  
 Minor

First Strike  
 No impact on availability  
 No impact on production  
 No impact on safety

No impact on production  
 No impact on safety  
 No impact on availability

No impact on production  
 No impact on safety  
 No impact on availability  
 No impact on environment

No impact on production  
 No impact on safety  
 No impact on availability  
 No impact on environment

NO	TIME	DESCRIPTION	STATUS	DATE	BY	REMARKS
1	08:00	Initial assessment of risk	Open	01/01/2023	JM	Initial assessment of risk
2	09:00	Review of risk register	Open	01/01/2023	JM	Review of risk register
3	10:00	Identify potential risks	Open	01/01/2023	JM	Identify potential risks
4	11:00	Assess risk level	Open	01/01/2023	JM	Assess risk level
5	12:00	Develop mitigation plan	Open	01/01/2023	JM	Develop mitigation plan
6	13:00	Implement mitigation plan	Open	01/01/2023	JM	Implement mitigation plan
7	14:00	Monitor risk level	Open	01/01/2023	JM	Monitor risk level
8	15:00	Review risk register	Open	01/01/2023	JM	Review risk register
9	16:00	Update risk register	Open	01/01/2023	JM	Update risk register
10	17:00	Final assessment of risk	Open	01/01/2023	JM	Final assessment of risk

No impact on production  
 No impact on safety  
 No impact on availability  
 No impact on environment

No impact on production  
 No impact on safety  
 No impact on availability  
 No impact on environment

No impact on production  
 No impact on safety  
 No impact on availability  
 No impact on environment

**Head Dog Major Risk Mitigation Plan  
Hershey Vessel Collision**

5/17/2018  
 This document is for internal use only. It is not to be distributed outside of the organization. It is the property of the organization and is not to be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of the organization.

Project Name: Hershey Vessel Collision  
 Project Manager: [Name]  
 Project Sponsor: [Name]  
 Project Start Date: [Date]  
 Project End Date: [Date]

Project Status:  On Track  At Risk  Delayed  Cancelled

Project Description: [Description]

Project Objectives: [Objectives]

Task ID	Task Name	Start Date	End Date	Status	Priority	Assignee
1	Task 1	5/17/2018	5/24/2018	Completed	High	[Name]
2	Task 2	5/24/2018	6/7/2018	In Progress	High	[Name]
3	Task 3	6/7/2018	6/14/2018	Not Started	Medium	[Name]
4	Task 4	6/14/2018	6/21/2018	Not Started	Medium	[Name]
5	Task 5	6/21/2018	6/28/2018	Not Started	Medium	[Name]
6	Task 6	6/28/2018	7/5/2018	Not Started	Medium	[Name]
7	Task 7	7/5/2018	7/12/2018	Not Started	Medium	[Name]
8	Task 8	7/12/2018	7/19/2018	Not Started	Medium	[Name]
9	Task 9	7/19/2018	7/26/2018	Not Started	Medium	[Name]
10	Task 10	7/26/2018	8/2/2018	Not Started	Medium	[Name]

Project Risks: [Risks]

Project Budget: \$[Amount]

Project Resources: [Resources]

Project Deliverables: [Deliverables]





In Air Transport

28 September 2009

GoM SPT Major Hazard Risks (2008)  
 In Air Transport – Collision with Facility



**Risk Description:**

Safety: Collision resulting from flare gas, turbulence, or with fixed object due to inappropriate approach path.

	2008	2009		2008	2009
Thunder Horse	D5	C3	Na Kika	D5	C3
Atlantis	D5	C3	Marlin	C4	C3
Mad Dog	C3	C3	Horn Mountain	C3	C3
Holstein	C3	C3	Pompano	C3	C3

**Completed Risk Mitigation Activities:**

- Established policy, procedure, and training to mitigate risks associated with TH mechanical turbulence, AT heat plume turbulence, and Marlin unit flare.

**Ongoing Risk Mitigation Activities**

- Continue pilot training and adherence to OGP aircraft management guidelines
- Continue with dedicated, on-site aviation assurance advisors.
- Conduct reviews of helidocks, pilots, mechanics, aircraft, night flights, fuel stations, and passenger management
- Evaluate and install approach lighting systems on all assets and rigs. (Status: evaluation of un-stabilized system ongoing; installation delayed until 2010 due to US certification issues.)

**2009 Risk Management Plan**

- Install a temporary approach light on TH to evaluate an un-stabilized system.
- Continue with mitigation procedures and approach light system evaluation and certification.

**GoM SRU Major Hazard Risks (2009)  
In Air Transport – Journey**



**Risk Description:**

**Safety:** Helicopter crash between heliport and facility.

	2008	2009
Thunder Horse	C4	C4
Atlantis	C4	C4
Med Dog	C4	C4
Holstein	C4	C4
		Na Kika
		Marlin
		Horn Mountain
		Pompano

**Completed Risk Mitigation Activities:**

- Closed open Nov 2008 audit findings
  - Verified PHI added line oriented flight training (LOFT) for S-G2
  - PHI added sign-off by BP for training changes to their existing change management process

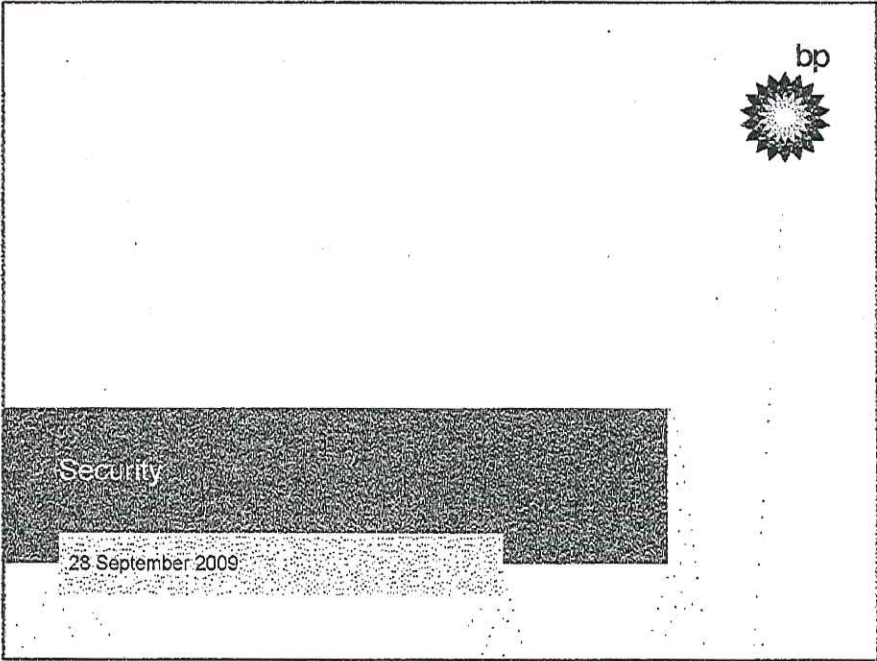
**Ongoing Risk Mitigation Activities**

- Continue with dedicated BP PHI operations, including helicopters, pilots, maintenance and facilities and contractually requiring adherence to OGP aircraft management guidelines
- Continue with dedicated, on-site aviation assurance advisors.
- Conduct reviews of: helidecks, pilots, mechanics, aircraft, facilities, night flights, fuel stations, and passenger management
- Assure quarterly aviation reviews are conducted and update scorecard.

**2009 Risk Management Plan**

- Install FAA Weather reporting systems
- Install Automatic Dependent Surveillance Broadcast system and building on Atlantis to allow ATC radar level separation and control of GoM helicopter flights







**GoM SPU Major Hazard Risks (2009)  
Security – Terrorist Activity**



**Risk Description:**

Safety: Terrorist activity (not sabotage) leading to personnel injury, loss of facility, environmental release

	2008		2009
Thunder Horse	B2	Na Kika	C2
Atlantis	C2	Marlin	C2
Mad Dog	C2	Horn Mountain	C2
Holstein	C2	Pompano	C2

**Completed Risk Mitigation Activities:**

- TWIC program enhances facility access control at point of embarkation (heliport)
- Collision avoidance radars on most assets (not Horn Mountain or Pompano) warn of approaching vessels
- Physical security enhancements made to most facilities' water level access points
- Participated in US DoD strategy session and provided insight into GoM's operational complexity, economic relevance and security challenges

**Ongoing Risk Mitigation Activities**

- GoM SPU Security Management Plan – updated annually
- Each GoM facility has a Facility Security Plan (FSP) – updated every 5 yrs
- Regulated facilities conduct quarterly security drills and annual exercises
- Law enforcement and industry openly sharing security threat information

**2009 Risk Management Plan**

- Perform annual Getting Security Right assessment - 3Q
- Conduct 5 yr FS assessments and update existing FSPs
- All facility participation in US Gov sponsored National Level Exercise

Threat, Hazard, Impact, Risk, Mitigation Plan  
**TERRORIST ATTACK ON OREGON REBELLION**

Description of Risk

Threat group (name) (ID) has been identified. A number of other individuals are involved.

Conducting Target

Risk Score: 10/20

Check for the following:  
 Disruptive  
 Damaging

Control:  
 No further action  
 Monitor for further activity  
 Investigate and report to the FBI

Control:  
 Monitor for further activity  
 Investigate and report to the FBI

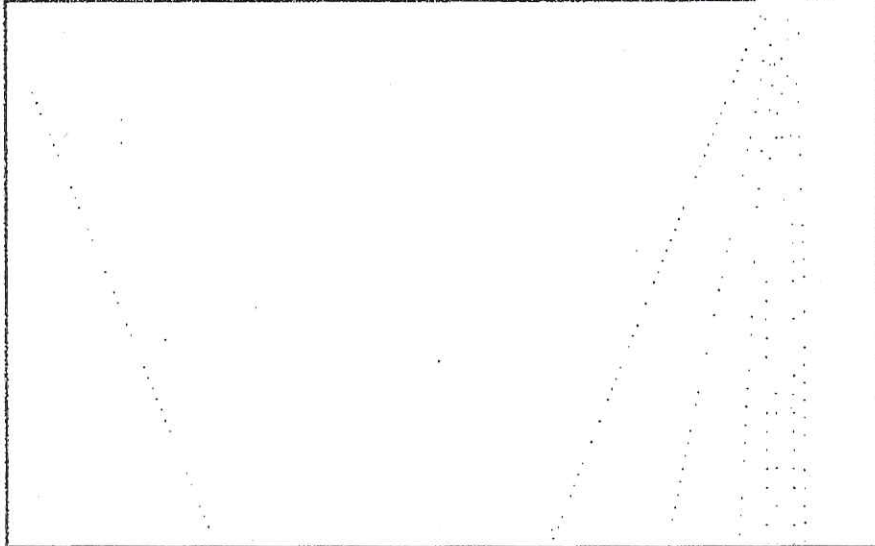
Next Steps:

1. Review the threat group's activities and identify potential targets.  
 2. Conduct a risk assessment of the threat group's activities.  
 3. Develop a mitigation plan to reduce the risk of a terrorist attack.

Item	SI	SI	SI	SI	SI	SI	SI	SI	SI
1. Review the threat group's activities and identify potential targets.									
2. Conduct a risk assessment of the threat group's activities.									
3. Develop a mitigation plan to reduce the risk of a terrorist attack.									

Threat: \_\_\_\_\_  
 Hazard: \_\_\_\_\_  
 Impact: \_\_\_\_\_  
 Risk: \_\_\_\_\_  
 Mitigation: \_\_\_\_\_

Closing



## Risk Management Learnings



### Opportunities for Improvement

- Will post-appraise process to take on comments from all participants to standardize and simplify
- Revise risk management process to better reflect further simplify and standardize
  - Develop process hazard scenarios common across all assets and assess risk for each asset against common scenarios
  - Engage functions to identify and assess common risks once for all assets
  - Complete risk register updates for inclusion of activities and resources in LTP.
- Performance Management
  - Ensure transparency of prior year risk mitigation plans in subsequent year plans
  - Ensure plan activities are resourced and included in asset 8Q plans
  - Place risk registers and mitigation plans on common site accessible through OMS Navigator to ease burden of each asset providing quarterly plan updates.
- Feedback from Participants

	2008	2009		2008	2009		2008	2009
Thunder Horse: PDQ & Enterprise	A4	A4	Mad Dog	C4	n/a	Horizon	---	C4
Atlantis: DDII & DDIII	---	D4	Holstein	B4	n/a	Marianas	---	D4