

From: Ruehle, Steven A
Sent: Mon Jan 11 20:36:33 2010
To: Ruehle, Steven A; Castro, Albino; Harper, Chris M (Riskbytes); Kenny, Randall; Marciano, Cesar; Murray, Megan; Waterhouse, David (Granherne/KBR); Weber, Bernard J (Riskbytes); Carter, Donnie J; Cramond, Neil; White, Danny C.
Cc: Handyside, Doug D; Gates, Jayne
Subject: RE: 2010 Planning Session
Importance: Normal
Attachments: Process Safety 2010 Plan.ppt

Pre read attached for our planning meeting tomorrow afternoon.

<<...>>

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

From: Ruehle, Steven A
Sent: Friday, December 18, 2009 9:56 AM
To: Ruehle, Steven A; Castro, Albino; Harper, Chris M (Riskbytes); Kenny, Randall; Marciano, Cesar; Murray, Megan; Waterhouse, David (Granherne/KBR); Weber, Bernard J (Riskbytes); Carter, Donnie J; Cramond, Neil; White, Danny C.
Cc: Handyside, Doug D; Gates, Jayne
Subject: 2010 Planning Session
When: Tuesday, January 12, 2010 12:30 PM-4:00 PM (GMT-06:00) Central Time (US & Canada).
Where: 856 WL4
Importance: High

Team,

We've had a great year as a process safety team and have put in place a number of tools and processes that will set the SPU up for success in 2010. We have an effective asset support model, an improved lessons learned process, an excellent scorecard, oversight of incident classification and one pagers, and major hazard risk registers.

There's more to do, but we've built a strong foundation from which to take the next steps. I'd like to set aside an afternoon the second week of January to plan and agree on how to best use these foundational tools and processes to set direction for 2010 process safety objectives.

We have a set of base activities to accomplish including HAZOP revalidation, GDP 3.1 conformance and OPRA studies, etc; but I'd like to use this time to discuss and agree on one or a maximum of two activities and associated deliverables that will enable us to help the organization make a step change in process safety.

The opportunity that comes to mind first is to use our risk registers, HAZOP/LOPA output, and generic bowties to get specific and really understand the health of barriers on each asset. With an understanding of barrier strength and health we can work with the assets to develop targeted improvement opportunities. There may be something else that would add greater value and I'm certainly open to the conversation. Some of the boundary conditions though need to include greater offshore engagement and clear measures of success.

Please do some thinking about steps we can take to make a real difference in 2010 and come prepared for an engaging discussion. Danny, I know you'll be brand new to the team, but I'd like for you to help me the first week in January to do some prep work for this workshop. This will be a good way for you to get a view of current status and where we want go next on our process safety journey.

Megan, I know you'll be offshore so we'll need your input ahead of time. Thanks again for a great 2009 and here's to an even better 2010!

Steve

6071

Exhibit No. _____
Worldwide Court
Reporters, Inc.

Process Safety

2010 Plan (Risk Assessment & Management)



	Location									
Process	1	2	3	4	5	6	7	8	9	10
A	4	4	4	4	4	4	4	4	4	4
B	7	6	6	6	6	6	6	6	6	6
C	6	6	6	6	6	6	6	6	6	6
D	6	6	6	6	6	6	6	6	6	6
E	4	6	6	6	6	6	6	6	6	6
F	3	4	6	6	6	6	6	6	6	6
G	2	3	4	6	6	6	6	6	6	6
H	1	2	3	4	6	6	6	6	6	6

Risk Assessment and Management – OMS Gap

- GDP 3.1 Conformance
- OMS Gap Closure
- SPU Risk Management Policy update

Problem Statement: A significant number of risk assessments are carried out by multiple groups in the SPU which are not integrated or planned and the outcomes and mitigation plans are not linked up or visible.

Description: Assets get requests from many teams causing a great deal of inefficient work, and don't always know the results of the assessments. There is no link up of all of the assessments and outcomes. Mitigation plans are not scheduled or prioritized with other activities. Accountabilities are not clear or known to all regarding these assessments. Multiple risk matrices are used resulting in an inefficient process to feed up to the risk register submitted to London. Major hazard risk assessments are not seen as a high priority with Assets and many are unfamiliar with SPU requirements.



Process Safety Planning 2010

12 Jan 2010

Meeting Agenda



- Safety Moment Albino
- Objectives and context Steve and Neil
- 2009 Look-back Cesar
- 2010 Frame Steve
- Asset Manager Expectations Doug and Jayne
- Base Process Safety Activity Plans Chris, Randall, Danny
- Major Hazard Gap Closure Planning Steve
 - Process Safety Incident Review Megan
- Next Steps and Close Steve and Neil

2010 Objectives

- Build on 2008/09 tools, processes, policy, etc
- Minimize development of new tools
- Increase front line engagement
- Utilize Continuous Improvement methodology
- Develop and agree 2010 themes
- Form teams to develop theme action plans



2009 Process Safety Activities



- Asset Process Safety support plans (Policy conformance)
- ETP review and comments
- Risk register updates
- Performance Management: scorecard, T2/3 KPIs, incident tracking
- RBI harmonization (risk assessment)
- Lessons Learned process
- CI rollout and training
- RCFA training
- Process safety incident data trending and CI recommendations
- Asset specific support MOC risk assessment, hazard studies, etc
- Hazard and Risk Evaluation plan development
- OE1 Participation
- Hazard Hunt checklist
- Others.....

Process Safety and Risk Activities



Type of Activities	2010 Base Activities
<div> Base Activities (Year on Year) Meeting the Essentials Supporting the Assets </div>	<ul style="list-style-type: none"> • MOC risk assessments • Hazard and Risk Evaluation Plans: HAZOP, Hazid, LOPA, OPRA etc) • Risk register updates and mitigation plan development • Risk Management Policy updates and conformance • Annual Engineering and Marine Reports • Performance Management; scorecard, tier 3 IM KPI's, Insp KPI's, QPR • Incident investigation and lessons learned • General Process Safety support • Close audit findings
Projects/Programs	2010 Incremental Activities
<div> BP Requirements OMS Essentials Gaps (2010 +) </div>	<ul style="list-style-type: none"> • Process Safety and Risk Awareness enhancements (onshore and offshore) • Enhance Risk Management Process • GDP 3.1 conformance
<div> Major Hazard Risk Mitigation </div>	
<div> Improving the Business </div>	

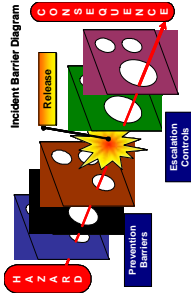
Approach Incremental Base Activities



- For Base Improvement activities assign “owners” to drive consistency across SPU
 - Risk Management Chris
 - OPRA Randall
 - HAZOP Coordination Danny
- Define project owner role:
 - Coordinate across PSRE team to ensure consistent use of tools, development and delivery of messages, simplify interface issues (OPRA).
 - Tagged PSRE will remain first point of contact with assets.

Process Safety

2010 Plan (Major Hazard Awareness)



Major Hazard Awareness OMS Gap

- Improve major hazard awareness and reduce both number and severity of process safety incidents.

Problem Statement: As we have started to more deeply investigate process safety incidents, it's become apparent that process safety major hazards and risks are not fully understood by engineering or line operating personnel. Insufficient awareness is leading to missed signals that precede incidents, and response after incidents; both of which increases the potential for, and severity of, process safety related incidents.

- Pilot Assets
 - Atlantis (Lon Lowe)
 - Holstein (Rick Oneto)

Process Safety

2010 Plan (Major Hazard Awareness)



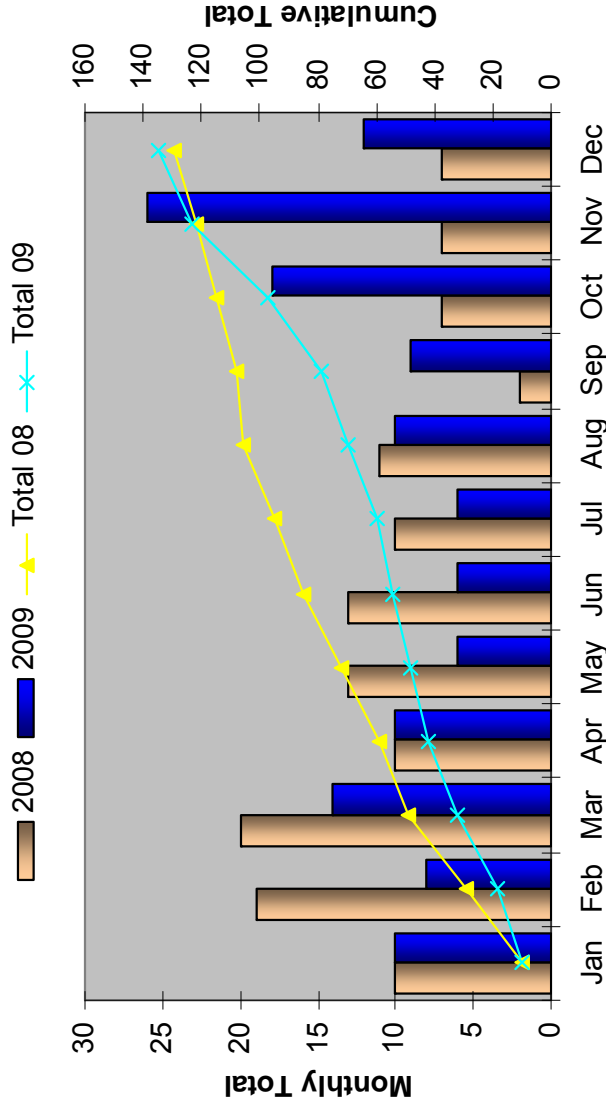
Description: A good deal of work has been put on development of process and tools through implementation of the IM Standard. Historically BP has had a sharp focus on improving occupational safety; we now need a similar focus on front line process safety hazard recognition. GoM process safety related STPs and processes have been developed including Major Hazard Risk Registers, bowties, Protective System Override and Bypass Procedure, and the Risk Management Policy. However, the identification and management of hazards is not being performed consistently well throughout the SPU.

- The role individuals' play to identify hazards and maintain protective systems is not well understood. GoM has experienced a number of serious and potentially serious process safety incidents as a result of insufficient identification and management of major hazard risks. This lack of understanding has led to:
- The disabling of protective devices,
- Insufficient knowledge of the importance of maintaining protective devices and verifying their reliability.
- Considering loss of containment incidents as minor environmental events and overlooking the potentially serious process safety consequences,
- Failure to recognize vibration as a process safety threat and not just a mechanical reliability issue,
- Inappropriate emergency response by individuals entering hazardous environments to protect equipment or maintain production.
- Inadequate understanding of vent and relief system performance expectations; i.e. design basis for pressure relief valves.
- The "Stop the Job" approach is effective for intervening with unsafe operating and maintenance practices, but it is not used for intervening to correct hazardous operating conditions, in part because staff do not fully recognize potential process safety hazards.

Process Safety Incidents - GoM 2009 vs. 2008



GoM Process Safety Incidents 2008 vs 2009



Risk Cat.	A - D	E	F	G	H
Safety	3+ Fatalities	1 to 2 Fatalities	DAFWC	Recordable	1 st Aid
Equip Damage	> 100 m\$	5m to 100m\$	500k to 5m\$	50k to 500k\$	< 50k\$
LOPC (Gas)	> 200 mscf	20 to 200 mscf	2 to 20 mscf	0.2 to 2 mscf	< 0.2 mscf
LOPC (Flammable)	>100 BBL	10 to 100 bbl	1 to 10 bbl	0.1 to 1.0 bbl	< 0.1 bbl
LOPC (Combustible)	>1000 bbl	100 to 1000 bbl	1 to 100 bbl	0.1 to 1.0 bbl	< 0.1 bbl

4Q 2009 "G+" Severity Incidents

Atlantis – Oct 8 (G)

- 40 Gallons of MeOH released to sea from overflow of bulk methanol tank.

Thunder Horse – Oct 22 (G)

- 21 Gallons of crude oil released from hole in demulsifier line on HP Train #2 header; oil was contained in deck drain.

Na Kika – Nov 8 (G)

- Crude oil release from open/unplugged 1/2" drain valve on Kepler launcher/receiver skid. Approximately 8 gallons was released with 3.8 gallons entering the GoM.

Mad Dog – Nov 15 (G)

- Defoamer release from loose blind flange and open 2" drain valve on defoamer tank. The volume of defoamer release was 8 gallons and was contained in chemical skid drain.

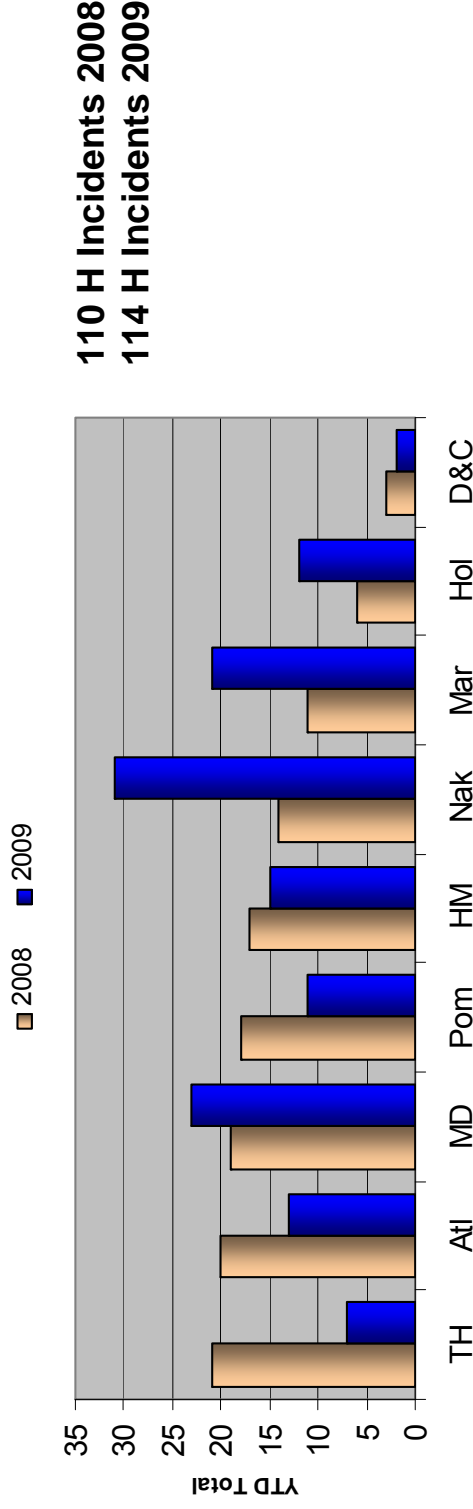
Mad Dog – Dec 17 (E)

- 80 bbl crude oil release into spar centerwell from heavily fouled check valve.

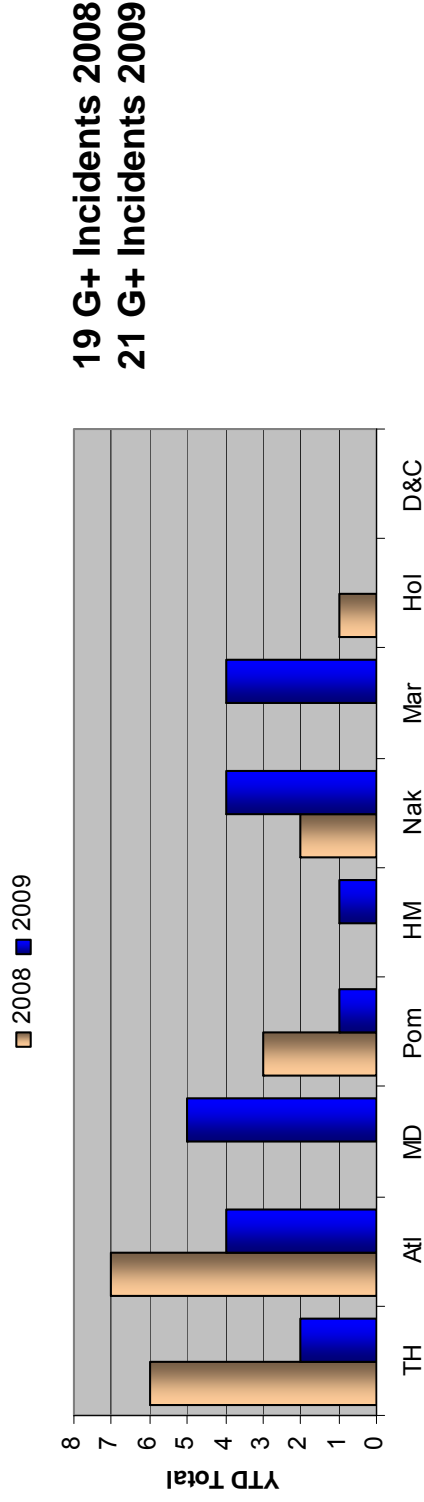
Process Safety Incidents - Asset 2009 vs. 2008



Asset Total H+ Process Safety Incidents 2009 vs 2008



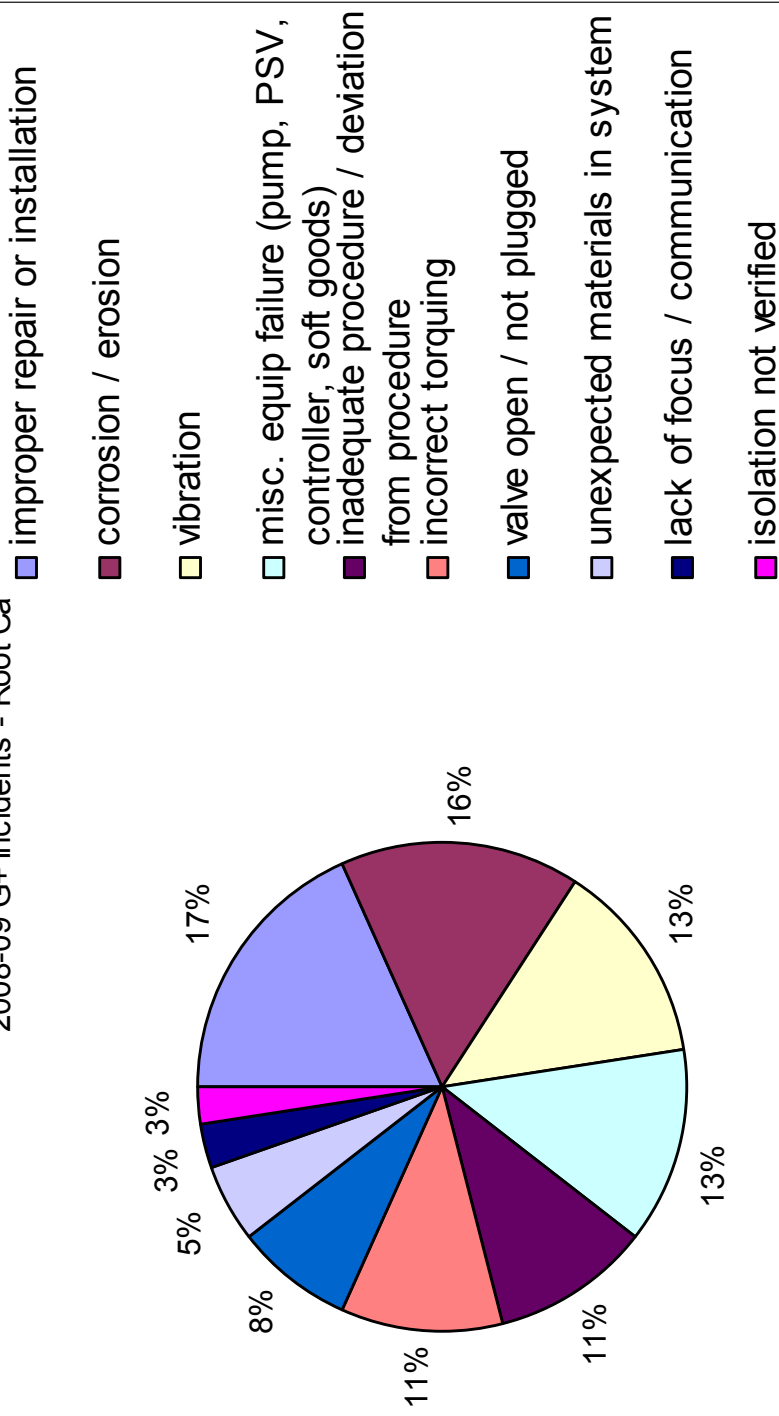
Asset G+ Process Safety Incidents 2009 vs. 2008



Process Safety G+ Incidents



2008-09 G+ Incidents - Root Causes



Major Hazard Awareness OMS Gap

Root Causes



- Site interviews and traction were used to identify several root causes.
 - Inadequate/incomplete lessons learnt process
 - Inadequate RCFA of lower severity process safety incidents
 - Inadequate understanding of process safety hazards
 - Inadequate/incomplete maintenance procedures

Major Hazard Awareness A-3



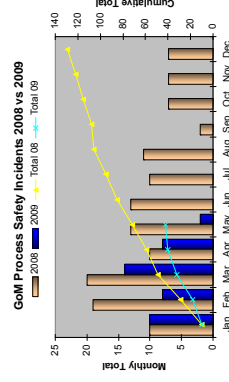
A. Problem Statement

- **Scope** Process safety major hazards and risks are not fully understood by engineering or operating staff
- **Metric** Number of process safety related incidents
- **Goal** Reduce number of 2010 process safety related incidents by 15% measured against 2009 levels.
- **Time Frame** 18 months

B. Gap Analysis

Current State: There were 129 process safety related incidents in 2008 and 49 through May 2009.

Future State (Goal): Target for improvement is to reduce the number of 2010 incidents by 15% vs 2009



C. Potential Root Causes

<u>List of Causes</u>	<u>Ranking</u>	<u>Type</u>
– Process Safety incidents are seen as environmental incident	1	
– Risk of combustion not fully understood	2	
– Inadequate low severity RCFA leading to repeat incidents	3	

D. Do / Check

<u>Action</u>	<u>Who</u>	<u>When</u>
– Interrogate Traction DB	Ruehle	2Q 2009 Done
– Interview offshore Staff	Closure Team	2Q 2009 Done
– Hazard Awareness Training	Oneto	Oneto
– 3Q 2009 OE1		
– Develop process safety hazard hunt checklist	Ruehle	2Q 2009 Done
– Identify appropriate RCFA tool	Ruehle	4Q 2009 Done
– Develop technical training	Ruehle	4Q 2009 2010

Loss of Primary Containment (LOPC)

A3 Project Form

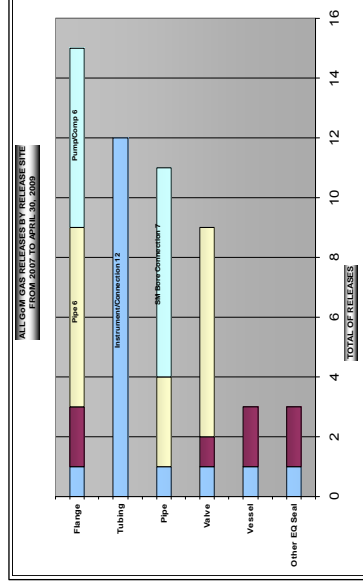


A. Problem Statement

- Scope: LOPC from hydrocarbon gas systems
- Metric: # of hydrocarbon gas LOPC events
- Goal: 20% yearly reduction across SPU
- Time Frame: 2 years
- Stakeholders: Offshore personnel, onshore Engineers, IM Group, M&R Group

B. Gap Analysis

Current State:



Future State (Goal): 20% reduction in year 1 and another 20% in year 2

C. Potential Root Causes

List of Causes	Rank	Type
Loose Bolts	12 of 53	controllable
External Corrosion	8 of 53	controllable
Vibration/Fatigue	5 of 53	controllable
Gasket Leaks	2 of 53	controllable
Human Error	5 of 53	controllable
Defective Equipment	16 of 53	unclear*
Other	5 of 53	unclear*

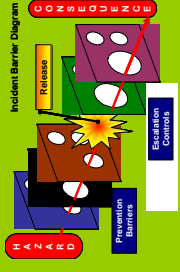
*Insufficient detail in Traction to determine the primary cause.

D. Do / Check

Item	Action	Priority
1. Update the SPM to include info on bolt torquing & lube procedures & provide training		A
2. Train on fitting make-up (pipe & tubing)		A
3. Bolt replacement program on CI schedules		B
4. Create procedure for small bore tubing/ pipe vibration analysis/contributing factors		B
5. Perform annual vibration surveys of small bore tubing and pipe (like Atlantis HVL)		B
6. Use of STP 36-15-1 for tubing in GoM		C

Process Safety

Major Hazard Awareness – Draft Plan



Activity themes:

- ✓ Bowtie development, barrier health/strength assessment and rollout (Activity 1?)
- ✓ Total Safety Program with HSSE (Activity 2?)
- ✓ Technician OE Hazard Awareness Training (Activity 3?)

Information and Communication:

- ✓ Easy Card data analysis and asset feedback
- ✓ Offshore network engagement
 - OIM Network
 - MINT Network
 - Marine Teams
 - Others?

Metric

- ✓ Reduce both number (H⁺) and severity (PSII) of process safety incidents (All or those with Operations Human Factors as contributors)
- ✓ Others?

Feedback

- ✓ Process safety culture survey (year end)

DRAFT only – For Discussion

Next Steps and Close

- Form 2010 gap closure teams
- Use input to develop 2010 gap closure plans
- Review plans with extended team
- Review plans with asset leadership
- Set individual 2010 Objectives including base and gap closure activities

