REGIONAL FORUM 2016

25 May 2016
Mexico City
The Mexico Regional Forum was originated with the intention of spreading IOGP’s knowledge and best practices in safety, environment and standards to Mexican and regional private and public stakeholders, as well as the oil companies interested in making risk investments in Mexico.

We are extremely grateful to speakers and all of those who attended the meeting. After the successes of the event we hope to continue an extensive and rewarding relationship between the two organisations.

Please enjoy this slide pack.
SESSION TWO: Prevention and Response Preparedness

CHAird by

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Vice Chair
IOGP

Mark Siegmund
Wells Reliability Advisor
BP

David Pertuz
Senior Emergency Response Specialist
Shell Oil Company

Rob Cox
Technical Director
IPIECA

Robert Limb
CEO
OSRL
Prevention & Response Preparedness

Session 2.0
Michel Contie
IOGP

Mexico Regional Forum
25 May 2016
IOGP’s Global Incident Response Group

In response to GIRG, the industry created three separate activities:

**PREVENTION**
Better capabilities and practice in well engineering design and well operations management

**INTERVENTION**
Improved capping response in the event of an incident and to study further the need for, and feasibility of, global containment solutions

**RESPONSE**
Effective and fit-for-purpose oil spill response preparedness and capability

Governments, regulators, NOIA, OSROs and industry initiatives
Context

• Increasing awareness of Oil Spill issues in Angola

• Recent developments for the response to a blow-out incident
  • OSRL SWIS Assistance
  • Improvement and increase of Operators OSR equipment

• Close collaboration between ACEPA operators
  • ANG-212 mutual aid agreement
  • Oil Spill Response Network
  • Development of many joint projects in Angola

• Close collaboration with Angolan Authorities
  • Workshops, exercises, involvement in Joint Industry Projects, etc.

• Development of exercises
  • LULA Exercise – Tier 3
  • Chevron – Tier 2
  • Coastal exercise (Barra do Dande, Mussulo, etc.)
Objective and Scenario

**Objective:** Test our capability to manage a major oil spill (Tier 3) from an uncontrolled subsea blow out
- Emergency organization, coordination and control
- Mobilization of resources
- Subsea dispersant application and surface response

**Scenario:** Blow out of 50,000 bopd in the Block 17 (abandoned well ACACIA 4, 1000m water depth)
LULA Exercise (Total E&P Angola)

Through a full scale exercise in Total E&P Angola, test Total E&P's capability to define, implement and manage the response to a major oil spill resulting from a subsea blow-out.
ANG-212 Mutual Aid Agreement

- **ANG-212 Members**

  - **Basic principles in case of oil spill**
    - Commitment of Angolan operators assist each other in case of an oil spill:
      - Access to additional equipment (booms, skimmers, etc.)
      - Access to additional dispersant → Total amount: 260 m³
      - Logistical support: vessels and trained personnel

  - Requirements for new operators to join ANG-212 (minimum list of own resources): recent integration of companies in exploration phase in the Kwanza blocks

  - Regular meetings of Oil Spill Response Network (Emergency Response, including Oil Spill issues)
Focus on prevention: IADC & IOGP collaboration to launch BOP Performance JIP … and more

Session 2.1
Mark Siegmund
BP
IOGP Well Expert Committee (WEC)

• 30 oil & gas companies and upstream organizations
• Focus on prevention of serious or catastrophic well control events.
• Subcommittee and task forces:
  o Well Control Incidents Subcommittee
  o International Standards Task Force
  o BOP Reliability and Technology Task Force
  o Training, Competence & Human Factors Task Force
  o Emerging topics:
    ▪ Subsea Well Response Management - following completion of Subsea Well Response Project (SWRP)
    ▪ Well Control Management Systems
BOP Reliability & Technology Task Force

• Improve industry understanding of “BOP reliability” through shared data systems and joint industry initiatives
• Establish industry-accepted processes for BOP testing and reporting
  • For example, shear ram testing
• Identify areas for BOP design improvement and new technology needs
• Address interest by industry and regulators for enhanced BOP system reliability
BOP Performance JIP launched in 2016

- IOGP Wells Expert Committee began work to develop BOP performance JIP in 2013

- Online subsea reporting database developed by group of seven drilling contractors in 2014
  - Diamond, Ensco, Maersk, Noble, Pacific, Seadrill, Transocean

- Joint Industry Project launched with these seven contractors plus 10 operators:
  - Anadarko, BP, ExxonMobil, Chevron, CNOOC-Nexen, Kosmos, Petrobras, Shell, Statoil, Total

  And three BOP original equipment manufacturers:
  - Cameron, GE Hydril, NO

- Project management & organizational support provided by the International Association of Drilling Contractors (IADC)
BOP JIP value to industry - increased safety & reduced operating costs

- Improved knowledge for all stakeholders – rig contractors, manufacturers & operators
- Data-driven work fronts to determine true failure cause
- Data allowing for defendable condition-based maintenance planning
- Improved communication providing early identification of systemic defects, regardless of region
- Foundation for global BOP performance improvement through stakeholder collaboration
Current scope of BOP database

Use taxonomy consistent with API Standard 53 to lowest maintainable item
Database reports on BOPs used in basins around the world
BOP performance database dashboard includes queries by subunit
Data-driven collaborative work fronts

Companies are using the data to focus collaboration on finding solutions for common challenges.

• Developing industry guidance to prevent hydraulic fluid leaks to hoses, tubing, fittings -- *Data showed 22 unplanned BOP pulls in a one year*

• Operator, equipment manufacturers and drilling contractors initiated design changes to improve seal integrity.

• Data used to inform regulator on proposed extension to testing frequency of BOP safety critical functions – more data needed.

• Creation of standard failure reporting results in consistent information transfer to the manufacturer and meets API Standard 53 requirements.

• Performance data supports Failure Modes and Effects Criticality Analysis (FMECA), Fault Tree and Risk Analysis reviews.
Other IOGP collaborative efforts to enhance BOP system reliability

IOGP Well Expert Committee BOP Reliability and Technology Task Force

- Guidance on testing to validate BOP emergency functions
- BOP Shear Ram Database Joint Industry Project
- Development of API 16 TR2 - technical report on standard procedure for shear ram testing

Subsea Technician Competency Assurance Program

- Independent work group supported by IADC, IOGP
- Work with IADC to develop training & accreditation
Emergency Response Challenges and Concerns in Mexico

Session 2.2
David Pertuz
Shell
AMEXHI – Emergency Response Task Force (ERTF)

• One of 6 Task Forces under the AMEXHI Technical Committee
• Mission:
  • To coordinate development of AMEXHI’s consensus positions regarding Oil and Gas emergency response in Mexico.
  • Produce position papers, advocacy materials, and consolidated comments on the subject.
  • Interact with external stakeholders as needed to promote AMEXHI’s perspective.
• Share knowledge and promote international best practices.
• Core Members: Shell, Statoil, ExxonMobil, Pemex, Noble, Anadarko, Chevron, BP
• Participation is open to all members
ERTF Prioritized Areas of Interest / Concern

Offshore Oil Spill Response
- Mexico’s National Contingency Plan
- Oil Spill Response Capabilities (Surface)
- Capping Stack capabilities / requirements
- National Dispersants / In Situ burn Policy
- Role of ASEA / Status of Regulations
- Application of the Incident Command System
- Classification de Emergencies (tiered approach)
- Oil Spill Response liability
- Emergency importation/immigration personnel & equipment and personnel

Other Offshore Emergencies
- Salvage, Firefighting capabilities
- Search and Rescue capabilities
- MEDEVAC capabilities
Ongoing Efforts and Issues

Update of Mexico’s National Contingency Plan (SEMAR)
• Original plan review and AMEXHI ERTF Position Paper
• Unable to discuss new contents with SEMAR
• Final draft being approved
• Draft not accessible
• Efforts from SEMAR, PEMEX and ASEA
• Expected release sometime “mid-Year”

Establishing Direct Communications
• SEMAR, ASEA, SEMARNAT, SEGOB

Oil Spill Response Capabilities (Surface)
• Prior to Energy Reform, PEMEX provided OSR services to SEMAR
• PEMEX OSR equipment in country 70 Million USD
• Fate unknown
• Viable option?
Ongoing Efforts and Issues

Adoption of the Incident Command System (SEGOB)
- Ongoing effort to adopt ICS as National Standard
- Based on ICS USAID/OFSA, potential misalignment
- Draft being approved, draft not available

Meetings with Emergency Response Service Providers
- MWCC, OSRL, MSRC, Helix, Wild Well Control, others
- Exchange information, understanding of efforts

MEXUS / MEXUS Gulf (SEMAR / USCG)
- Anadarko table top exercise April 26-27, 2016
- Trans boundary coordination and movements amongst issues
- Requesting Lessons learned
- Full exercise Spring 2017
Emerging best practices in oil spill preparedness and response

Session 2.3
Rob Cox
IPIECA
The IOGP GIRG identified five key capability areas:

1. Prevention & Drilling Safety
2. Capping and Containment
3. Relief Wells
4. Oil Spill Response
5. Crisis Management
OSR-JIP outputs comprise four elements

1. **Good Practice Guidance**: 24 Good Practice Guides and their translations. Replaces the existing Oil Spill Response report series

2. **Short technical reports** in the “JIP” series, developed to communicate technical good practice or to make it accessible to external parties.

3. **Pure research** & longer technical documents: detailed technical research and information

4. **Outreach, Communications** and “outreach” materials, videos/animations, “Glance/Scan” materials

IPIECA
Dispersants

- Bench scale testing
- Dispersant logistics/supply chain planning
- Regulatory Approval of Dispersant Products and Authorization of their Use
In-Situ burning

- ISB equipment selection - complete
- Residue and burn studies: CEDRE/INERIS
• A scenario-based/risk assessment based planning standard for an upstream release and estimation of the associated quantities

• Current status and future industry needs for aerial dispersant application

• Mutual aid indemnification and liability including pro-forma legal templates for global use

• Guidelines on oil characterization to inform spill response decisions
Surveillance, Modelling & Visualization
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<td>• Oil Spill Preparedness &amp; Response: a framework</td>
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<td>• Incident Management Strategies</td>
<td>• Satellite Remote Sensing</td>
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<td>• Net Environmental Benefit Analysis</td>
<td>• In Water Surveillance</td>
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<td>• Contingency Planning</td>
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The OSR-JIP Good Practice Guidance (“GPG’s”)
IOPER Guiding Principles for Regulating Offshore Oil Spill Response Preparedness:

1. Response capability should be fit for purpose
2. Performance levels are set to promote effective preparedness
3. Response capability is built to be adaptable
4. Roles and responsibilities are clearly stated
5. Levels of response are scalable
6. Response capability is sustainable

We have mapped these principles to the key issues and priorities as we see them
1. Response capability should be fit for purpose

- The key to defining “fit for purpose” is understanding scenarios, which lead to understanding risks and defining needs.

Example:

- “Risk Assessment and Response Planning for offshore installations” presents a detailed methodology for an operator to carry out an assessment of response resource needs and capability and to prove to themselves and the regulator that they have the ability to cascade resources into the spill area.

This provides a validated link into a step-wise contingency planning process, which is how the industry is—or should be—consistently planning for upstream OSR.
2. Performance levels are set to promote effective preparedness

- Identifying meaningful performance metrics for preparedness is a challenge. Our preference is to focus on assessment rather than numerical measures
- Some examples:
  - Preparedness is part of a multi-component system: Equipment + people + planning + training + exercising + review = response capability
  - Duplication of resources for each operator in the same basin is inefficient and counterproductive
  - “Box – ticking” is great at establishing whether the components are there... but is ineffective at demonstrating whether they will work as intended in a real response
  - Industry capability can be verified through participation and observation in planning and exercises
3. Response capability is built to be adaptable

- As response equipment and services have evolved to become more specialized, so too must the Tiered Preparedness and Response model.
- Modern technology, advanced logistics capabilities, and new communication tools have improved industry’s ability to cascade resources to an incident location.
- The new model facilitates a tiered response by depicting which response capabilities are needed and in what timeframe.
4. Roles and responsibilities are clearly stated

- Our firm view is that ICS or an “ICS – like” approach is required to manage large amounts of equipment, people and transactions
- However our experience with IMS and ICS is that ICS doesn’t always translate well into local “coordinated command” systems
- We have designed an IMS which is “ICS - like” and recognizes multiple command and coordination challenges
Summary: where we have the opportunity to work together

• Consistent use of global NEBA methodology – not Arctic NEBA, US NEBA, European NEBA etc.

• Adoption of pre-approvals where supported by *peacetime* NEBA conclusions

• Ready access to all response tools as supported by NEBA

• Support for utilizing the most effective response tools first

• Adoption of clear TPR principles in planning

IPIECA
Summary: the opportunity to work together

• Support efforts to remove or reduce barriers (people, equipment....)
• Participation in exercises and drills
• Adopt a risk – based approach to offshore response planning
• Set realistic expectations for OSRO competency and capability
• Set realistic principles for exercise frequencies and the basics of Contingency Planning
GPG Translations: French, Spanish, Portuguese, Russian & others
Oil Spill advances since the Deepwater Horizon incident

Session 2.4
Robert Limb
Oil Spill Response Ltd
Oil Spill advances since the Deepwater Horizon incident
Who we are

- Largest international industry funded cooperative
- Owned by major oil and gas production / transportation companies (represents ~ 160 companies)
- Cover 2/3rd of the global oil and gas production
- Train and respond effectively anywhere in the world

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Industry Perspective

PREVENTION IS THE PRIORITY AND SAFETY IS PARAMOUNT

- Response capability is fundamental to obtaining a licence to operate
- Ineffective response is not an option
- Public expectations are high and growing
- Environmental concerns are becoming global issues more so following COP21
- Regulators are increasing their demands
Industry Perspective

RISK PERSPECTIVE HAS SHIFTED

- Reduction in size and number of shipping related incidents
- Significant upstream well control incidents
  - Montara, Australia
  - Macondo, Gulf of Mexico
- E&P activity is located in more challenging environments
  - Deepwater
  - Remote locations
- Ageing infrastructure incidents (pipelines/terminals)
- Security/terrorist threats creates a potential for further spills?
The IOGP Response: The GIRG* Process

Prevention
Better capabilities and practice in well engineering design and well operations management

Intervention
Improved capping response in the event of an incident and to study further the need for — and feasibility of — global containment solutions

Response
Effective and fit-for-purpose oil spill response preparedness and capability

Governments, regulators, NOIA's, OSROs and industry initiatives

*GLOBAL INDUSTRY RESPONSE GROUP
Industry Perspective

NEW SOLUTIONS

- Equipment to support intervention
  - Capping Stacks, Containment toolkits
  - Subsea dispersant toolkits

- Consistent oil spill response strategies
  - ‘Big and quick’ response
  - Maximise encounter rate
  - Approval and use of multiple tools
    - Aerial and subsea dispersant, mechanical recovery, fire boom
    - Supported by NEBA (Net Environmental Benefit Analysis)
    - Utilisation of maturing technologies for surveillance (Aircraft, Drones, Aerostats and Satellites)
    - New approach to Tiered Response & Preparedness
Responder’s Perspective

A step change in Preparedness

- Increasing regulatory scrutiny
- Consultancy delivering
  - Training and Secondments
  - Modelling and Exercises
  - Oil Spill Contingency Plans
  - Environmental sensitivity mapping
  - Wildlife preparedness plans
  - Capability reviews
  - Equipment packages
- Demonstrating effective response

How prepared are you to handle a spill?

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Cone of response

Shoreline

Shoreline survey and clean-up
Oiled wildlife response

Marine monitoring and response

Surveillance and monitoring
In-situ Burning Surface

Dispersant Application
Containment and recovery

Source control

Subsea Well Intervention
Subsea Well Intervention

Capping and Subsea Intervention Tool Kit

- Modular system includes capping stacks and intervention equipment
- Equipment stored in strategic locations
  - Norway
  - Singapore
  - Brazil
  - South Africa
- Dedicated delivery team
Capping Stack

Key Features

- Flexible to handle a variety of scenarios
- Retrievable chokes to help gain control of a flowing well
- 15k connectors, adapter and spacer spools
- Connects to BOP, flex joint, or top of wellhead
- 4 x 51/8” outlets on the diverter spool
- Diverter spool providing optimal flow path during installation and shut in
- Use of Spreader Bar to run the Capping device
- Acoustic real-time pressure and temperature data to surface

Dual 71/16” gate valves for the 10k stacks & dual 18 3/4” rams for the 15k stacks.
**Containment**

**Generic Containment Toolkit**

- Captures fluids from an incident well and flows them to the surface for processing and disposal.

- The combined three ‘legs’ of the containment toolkit can handle 100K barrels per day.
Maximising the use of Existing Vessels and Equipment

Coiled Tubing unit & Tubing string for MEG delivery

Drilling riser, BOP & Inner string

Vessels

Standard offshore well test spread

Maximum Flow rates: Capping stack 100,000 barrels / day. Each leg 33,000 barrels / day.
Offset Installation Equipment (OIE)
SWIS Equipment Locations

- Capping Stack 15K
- Capping Stack 10K
- Dispersant System Toolbox
- Flexibles
- Pumps & Coolers
- Hose End Valve
- Chemical Distribution Assembly
- Floating Hoses
- Flow Line End Termination
- Flowspool
- Subsea Connectors
- Flowline Swivels
- Flowline Lifting Tools

Planned storage location for OIE
Tersus – Jet based dispersant aircraft

- Faster more effective response (15.8 tonnes of dispersant)
- Two aircraft based in the UK
- First aircraft available for response from 1st April 2016
- Second aircraft available in 3rd Quarter 2016
Evolving response

1985 - 2017
OSRL established 30 years of excellence (1985 - 2015)

Pre-Macondo
Changing expectations
Decisive action
Restoring confidence
Implementation
Enhanced response capability
Cost efficiency while maintaining response capability

- Incremental developments
- Aggressive recruitment
- Broader staff skill sets
- ACMS development
- Change in Industry demands
- ACMS refinement
- Containment
- Capping Stack
- GRN alignment
- Offset installation 2017
- Coverage in Americas
- Launch SWIS bases
- Develop SWIS bases
- ICS for staff
- ICS for Members
- Extreme weather capability
- Aviation 2xB727 Q1 & Q3 2016

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Staying in touch

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SESSION TWO: Photos
SESSION TWO: Photos

[Images of various photos from a regional forum]
The Mexico Regional Forum took place in Mexico City on the 25 May 2016, jointly hosted by The International Association of Oil and Gas Producers (IOGP) and La Asociación Mexicana de Empresas de Hidrocarburos (AMEXHI). For more information on the event or any future events please contact:

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