



# Improvements in Intervention and Response since Macondo.

*Robert M. Limb CEO Oil Spill Response Limited*

# Who is Oil Spill Response Limited – OSRL?

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***Largest industry-owned response cooperative with global remit***

*Responding to oil spills anywhere, anytime. Over 400 spills attended worldwide.*

***Industry's provider of oil spill preparedness, response and subsea well intervention services (SWIS)***

*Serving stakeholders from strategic locations in the UK, Singapore, Bahrain, United States, Norway, Brazil and South Africa.*

***Over 160 environmentally responsible Members***

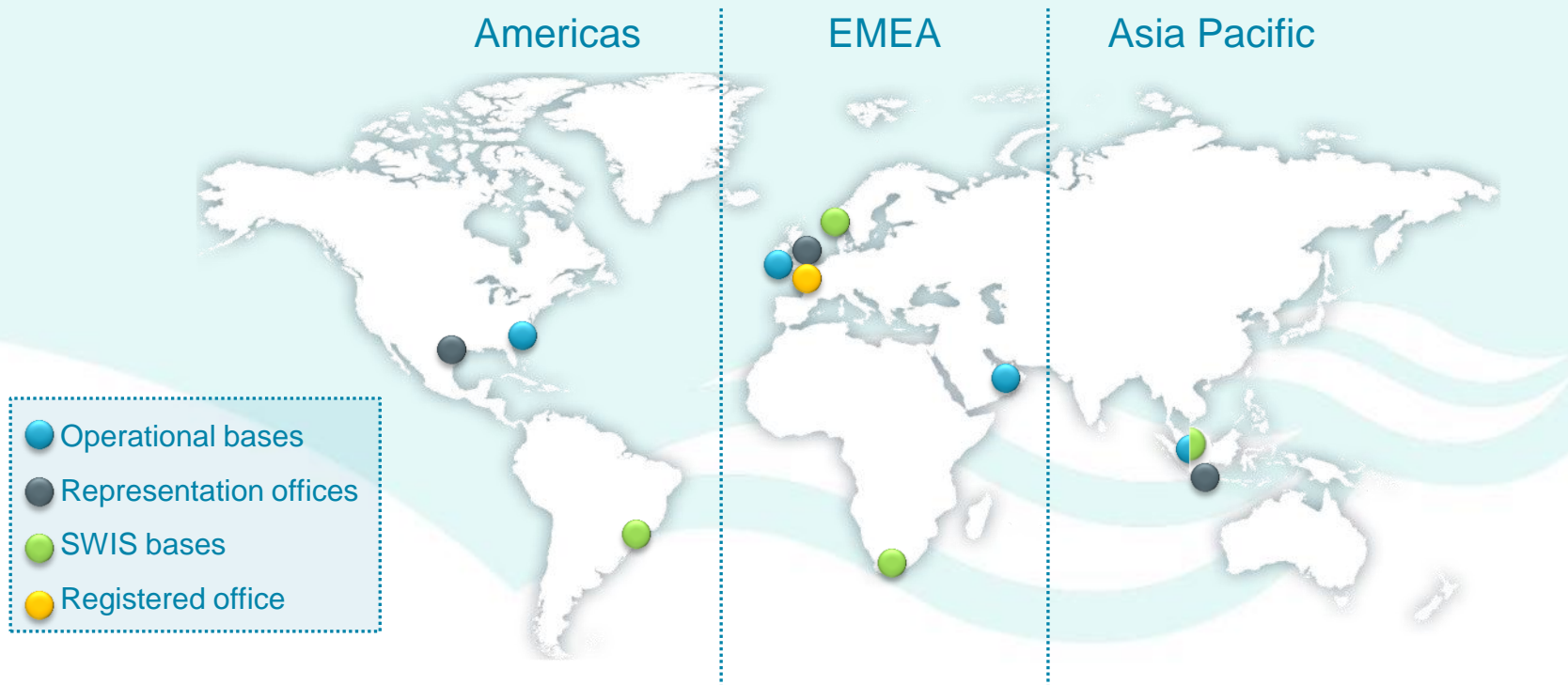
*from government, marine and energy-related sectors.*

***Collaboration with industry organisations e.g. IMO and IPIECA***

*to share expertise and develop knowledge.*

# Our Mission

*The Mission of Oil Spill Response Limited (OSRL) is to provide Members with resources to prepare for and respond to oil spills effectively and efficiently on a global basis*



# Current landscape from an Industry perspective

## 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
- 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 moving to more challenging environments
  - Arctic
  - Deepwater
  - Remote locations

## Industry Perspective

# MULTIPLE INDUSTRY RESPONSES ARE PROGRESSING



Governments, regulators, NOIAs, OSROs and industry initiatives

➤ Projects implemented following the report from the OGP's Global Industry Response Group (GIRG):

- Well Design
- Well control
- Intervention
  - Capping
  - Containment
- Oil spill response
  - API Joint Industry Task Force (JITF)
  - OGP Joint Industry Project (JIP)
  - OGP Arctic Joint Industry Project

## Industry Perspective

# EMERGING 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
    - Utilisation of maturing technologies



## Industry Perspective

# EXPECTATIONS OF OIL SPILL RESPONSE ORGANISATIONS (OSRO's)

### ➤ Directionally, grow capability

- Share and adopt best practices
- Mutual aid, alliances, technical partnerships
  - Global Response Network
  - CCA/OSRL Merger
  - AMOSC Alliance

### ➤ Collaboration, Convergence, Consistency

- Improved global access to people and equipment



## Industry Perspective

### **SPECIFICALLY, FOR OSRL**

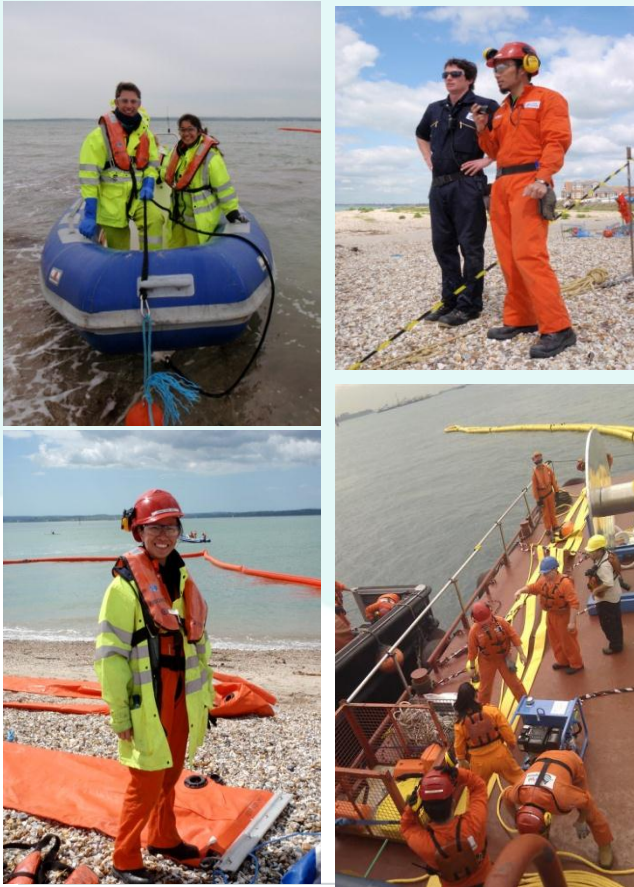


- Increase number of well trained responders
- Respond to industry demands
  - Projects, training, consultancy
- Enhance response expertise and breadth of capabilities
  - Jet platform, surveillance, SCAT modelling, recovery systems, fire boom, Subsea response, ICS
- Own, store and maintain subsea well dispersant, capping and containment toolkits
- Improve Arctic response
- Improve Wildlife response

# OSRL - key initiatives

## OSRL Perspective

### People are Key



- 315 dedicated employees
- More specialists:
  - ICS, Logistics, Modelling, SCAT, SMART, Surveillance.
- Enhanced training programs:
  - Cold Weather, Wildlife, NEBOSH
- Improved initial training:
  - Redesigned “Spill Responders Course” in 2014.
- Improved online ACMS:
  - Better tracking, accreditation and skills monitoring.

# Spill Responders Course

OSRL Spill Responder Course 10 Feb – 16 May 14

2014	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T								
February						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28					
															Induction Teams: 1 & 2								Safety 1 Teams: 1 & 2								Safety 2 Teams: 1 & 2							
March						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
								Response Strategies Teams: 1 & 2							Pumps, Power Packs & Skimmers Teams: 1 & 2								Team 1 Shoreline (1)							Team 1 Offshore (1)								
																						Team 2 Offshore (1)								Team 2 Shoreline (1)								
April		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
	Team 1 Shoreline (2)							Team 1 Inland							Team 1 Offshore (2)								Team 1 Real Oil Recovery							Index Teams: 1 & 2								
	Team 2 Inland							Team 2 Shoreline (2)							Team 2 Real Oil Recovery								Team 2 Offshore (2)															
May				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
								Rehab Teams: 1 & 2							Rehab / Spare Teams: 1 & 2																							
June						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			



# Accredited Competency Management System

Step  
6

- **Technical Expert**

- Based on external recognition, by Governing bodies within area of expertise.

Step  
5

- **Technical Lead Level ACMS**

- Achieve Technical Lead and Level 2 of Subject Matter Expert

Step  
4

- **Technical Specialist Level ACMS**

- Achieve Technical Specialist Responder/Consultant/Trainer (Level 1 of Subject Matter Expert achieved)

Step  
3

- **Senior Level ACMS**

- Achieve Senior Responder/Consultant/Trainer - 2 to 3 years to complete.

Step  
2

- **Specialist Level ACMS**

- Achieve Specialist within 12 months of finishing Initial Training.

Step  
1

- **Complete Spill Responder Training Course**

- Achieve Spill Responder

## OSRL Perspective

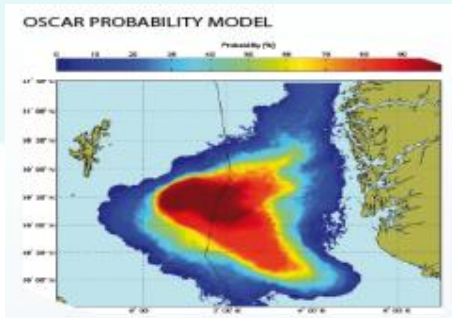
### People are Key



- The new technologies require better trained and experienced people to ensure they can be successfully deployed.
- Headcount for SWIS and the new bases will soon reach 50 people, delivering significant logistics and Subsea expertise.
- 160+ trained responders.
- Our people continue to be hired by industry and other key stakeholders. A win-win.
- We have a diverse multi-skilled global team with a good demographic mix.

## OSRL Perspective

### A step change in Preparedness



- Increasing regulatory scrutiny
- Consultancy delivering
  - Training
  - Modelling
  - Oil Spill Contingency Plans - OSCP's
  - Environmental sensitivity mapping
  - Wildlife preparedness
  - Contingency planning
  - Capability reviews
  - Equipment packages
- Demonstrating effective response
  - Train, Train, Train
  - Exercise, Exercise, Exercise
  - Lessons Learned then...
  - Train, Train, Train

# Modelling - Pre & Post Macondo

	PRIOR TO MACONDO	POST MACONDO
PREPAREDNESS	2D modelling focusing on oil on the surface	3D modelling focusing on oil through the water column as well as on the surface
	Generalists – Modelling completed by staff who do many activities as well as modelling	Specialists – Specialist staff employed to focus solely on oil spill modelling
	Modelling run using off-the-shelf laptops	Dedicated powerful modelling servers
	Metoccean Data Quality – Modelling undertaken using standard dataset	Metoccean Data Quality – Each project assessed by OSRL's metoccean consultant and data is sourced specifically for the project.
	Simple and basic illustrations	Enhanced data analysis and presentations using specialist tools
	Standard client requirements, very little variation on the type and style of the modelling.	Continuously evolving client requirements which are becoming increasingly complex.

# Modelling - Pre & Post Macondo

	PRIOR TO MACONDO	POST MACONDO
RESPONSE	2D modelling	2D and 3D modelling
	No need for dedicated specialists	Modelling specialists specifically requested as part of the response
	Regulators and Operators generally happy with 2D models	Regulators and Operators expect 3D modelling to be available
	Basic Metocean data are acceptable as input to the models	Increasing demand for high quality metocean data specifically created for the spill



# Oil Spill Contingency Plans - Post Macondo

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## ➤ UK specific

- Working Groups and Joint Industry Programmes established
- Update to National Oil Spill Contingency Plan and regulations

## ➤ Globally

- Updates to OGP-IPIECA good practice guides (GPG's)
- Global initiatives and working groups to review international standards for contingency planning

## ➤ OSRL

- Expansion and emphasis to OSCP template
- Review process more stringent (quality and technical)
- Worst case scenario planning

# Oiled Wildlife Response (OWR)

- 8 year partnership with Sea Alarm Foundation providing international OWR to members
- Tier 3 OWR network is being built with ten leading wildlife response organisations supported by the JIP and OSRL
- OSRL Technical Advisor role to include OWR advice prior to expert support arriving on scene
- OWR is being incorporated into ACMS
- OWR kits at 4 locations for use by external expertise
- Joint Industry Project (JIP) developing a Good Practice Guide for OWR



# Shoreline Clean up Assessment Tool (SCAT)

- Systematic survey and documentation of oiled shorelines for ICS Planning Section
- Outputs used to make informed decisions on appropriate shoreline response techniques
- Internal training courses developed and integrated into ACMS
- SCAT Field Guides, Forms and Standard Operating Procedure being developed
- External 3 day training courses in USA, EMEA and APAC in 2014 and at IOSC (May 2014)



## OSRL Perspective

### Paradigm shift in Response



#### ➤ Faster response

- Air transportability is key
- Enhanced Tier 2 capabilities when logistic challenges exist
- Regulatory driven response timelines (UKCS)

#### ➤ Longer and more frequent standby mobilisations

- Just in case
- This dictates the need for more trained resources

#### ➤ Broader response capability

- Surface and Subsea combined

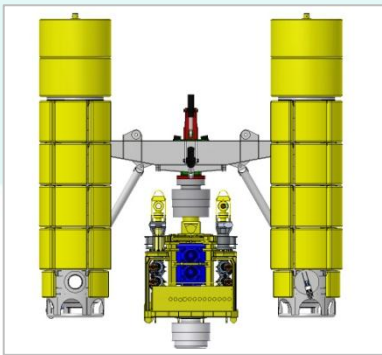
#### ➤ More of everything

- Build on recommendations from JIP, JITF, OGP and others



## OSRL Perspective

### New and Improved Response Solutions



#### ➤ Subsea Well Intervention Services

- Capping Stacks
- Subsea Dispersant Toolkits
- Containment systems
- Global Dispersant Stockpile
- Offset Capability (R&D stage)

#### ➤ Enhanced Aviation Assets

- Boeing 727 Dispersant A/C
- Dornier 228 Surveillance A/C
- Islander first strike Dispersant A/C

#### ➤ Mechanical Recovery

- New boom configurations

#### ➤ In Situ Burning

- Improved ignition systems

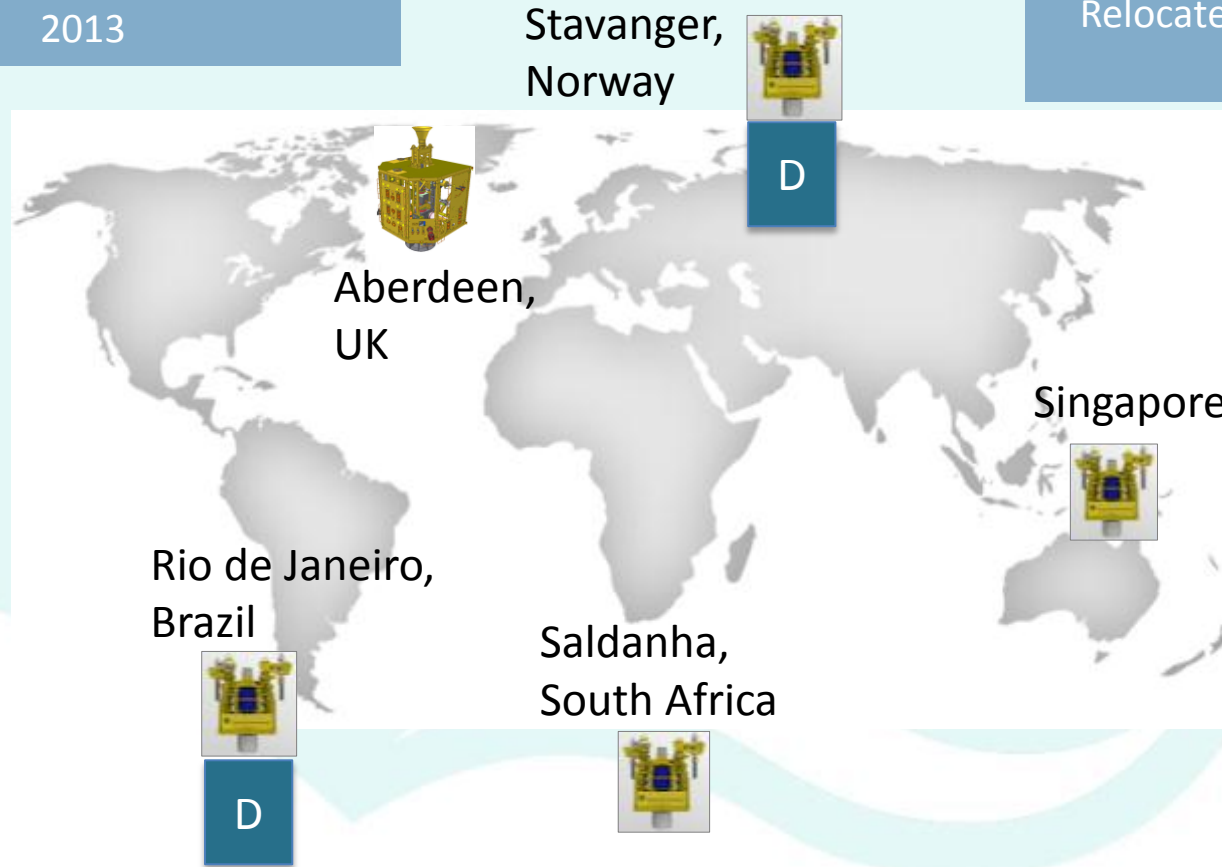


# Subsea Well Intervention Service (SWIS) Update

# International delivery & storage

**4 x capping stack toolboxes**  
(2 x 10k / 2 x 15k)  
Delivery January – December  
2013

**2 x subsea dispersant  
hardware toolboxes**  
Delivered December 2012  
Relocate 1 set to Brazil Q4  
2013



# Training



## ➤ External

- Members Interface session held in Norway, Singapore, South Africa and Houston
- Members Cap on Well Workshop held in Southampton and Houston
- Member Company deployed Norway based Subsea Dispersant Toolkit in 1000m water depth in Angola
- Online training package + ROV simulator

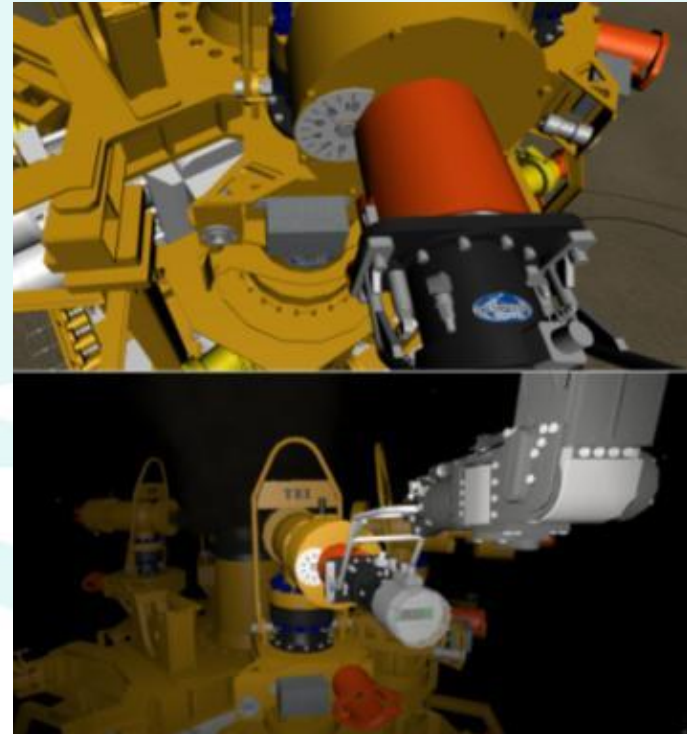
## ➤ Internal

- Carried out extensive training with Operation's Duty Teams
- Undertaken tabletop exercises at all bases
- Equipment mobilised to the quayside at three locations

# Training



- ROV SIMULATOR:
  - Enables practice of subsea deployment activities in a virtual environment.



# Two key components of ... Subsea Well Containment Solution



know how ...

**Subsea Well Containment  
Guidelines (SWCGs)**

equipment ...

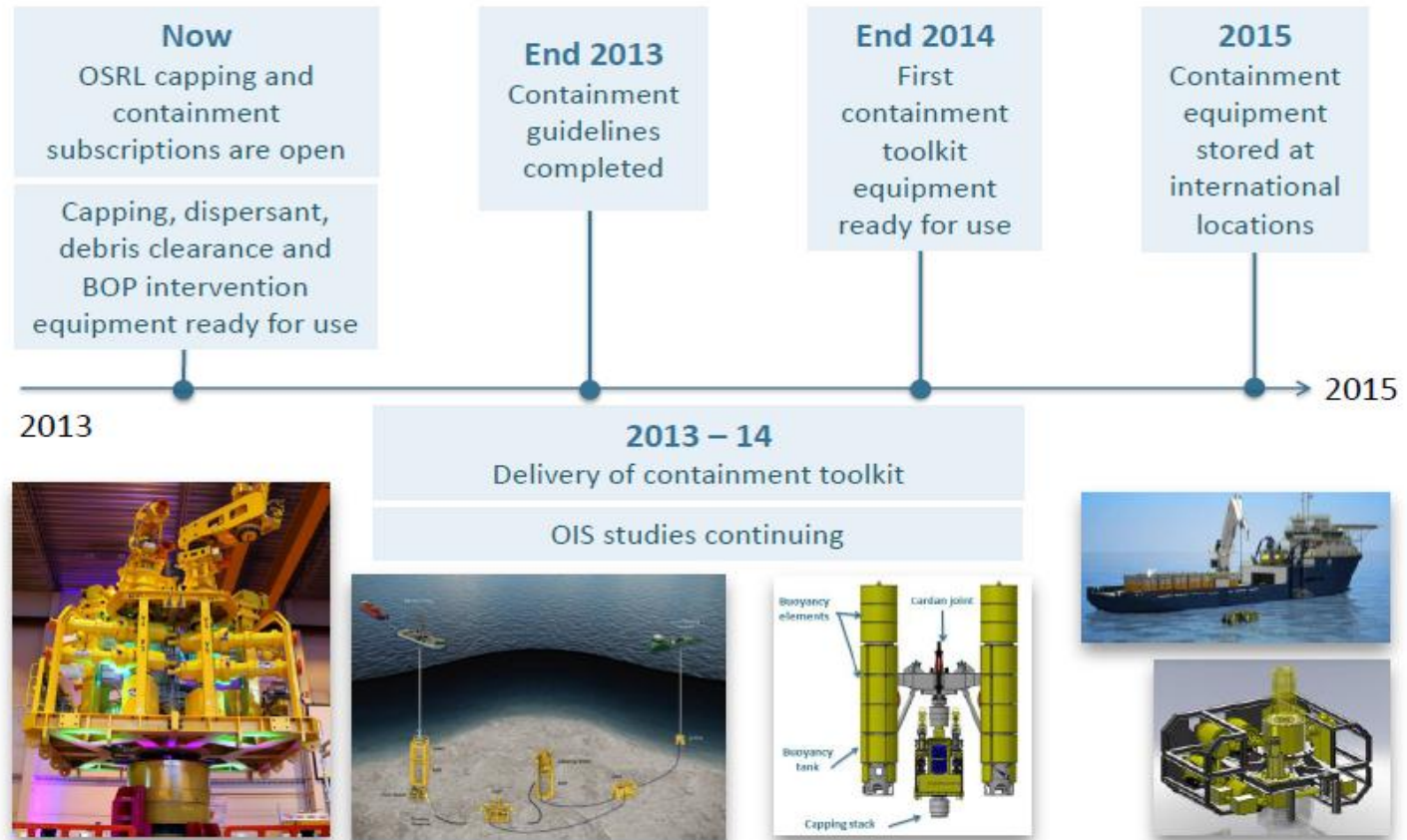
**Containment Toolkit**

- Assist operator to include containment scenario in a well contingency plan
- If capping is unsuccessful, guides operator in a stepwise approach to prepare for deploying and operating a containment system



# Timeline

## Next steps



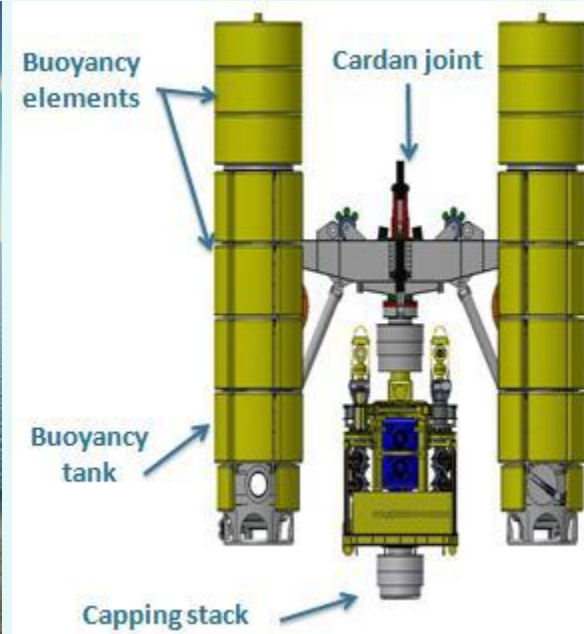
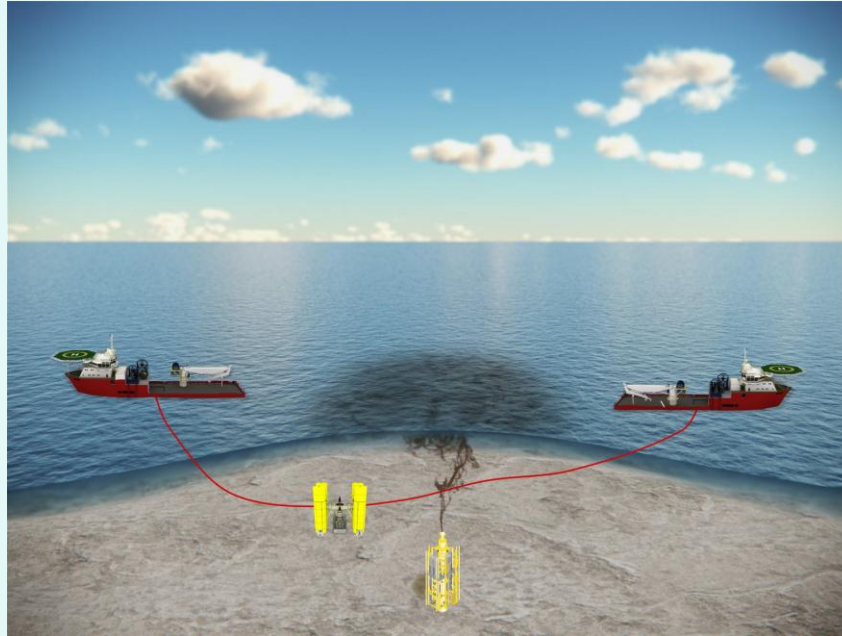
# Global Dispersant Stockpile – 5000 m<sup>3</sup>

<i>Type</i>	<i>Quantity (m3)</i>	<i>Location</i>
Dasic Slickgone NS	500	OSRL Base UK Southampton
Finasol 52	500	OSRL Base UK Southampton
Finasol 52	700	OSRL Base Singapore
Finasol 52	1500	Supplier Warehouse - Europe
Finasol 52	800	South Africa
Corexit EC9500A	500	Florida/Texas USA
Corexit EC9500A	500	Brazil



# Offset Installation System (OIS)

R&D Project  
If approved to  
proceed  
delivery and  
testing in first  
half of  
2015



Activity	2014												Q1 2015			Q2 2015		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Detailed Design, Procurement, Fabrication																		
Integration and Onshore SIT																		
Offshore SIT (OIS Function testing)																		
Time to remediate/repair (if needed)																		
Commissioning Test (OIS operations)																		

# Aviation Update

# Boeing 727 final flight test

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# Boeing 727 update

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- First Boeing 727 available in next few weeks
- 4 hours notice – 17.5 tonnes of dispersant
- Second Boeing 727 available by mid - 2014
- 48 hours notice – 25 tonnes of Cargo + dispersant capability as for first aircraft
- Range 2500 nm in approximately 5 hours
- Both aircraft to be based at Doncaster Airport in the UK
- Operated by T2 Aviation

# Summary of Current / Near Future Capabilities

Service	Global				Regional			
Dispersant	Aircraft		Location	Capability	Aircraft		Location	Capability
	L-382G Hercules		EMEA	17.5m³	Bandeirante (WACAF )		Ghana	2m³
	C-130 Hercules		AsiaPac	15.3 m³	Islander (UKCS)		UK	0.44m³
	B727 (x2)		EMEA	17.5m³				
Surveillance	None				Bandeirante (WACAF)		Ghana	Geo-referenced photo / GPS track
					Islander (UKCS)		UK	Visual confirmation
					Dornier 228 (UKCS)		UK	Photo, Video, IR, Geo-referenced, GPS track, live stream, perimeter mapping ++
Logistics	B727 (x2)		EMEA	25 tonnes	Bandeirante (WACAF)		Ghana	Personnel transportation only
	L-382G Hercules		EMEA	21 tonnes				
	C-130 Hercules		AsiaPac	21 tonnes				
	Chapman & Freeborn (Aircraft broker) Peters & May / Hellmans / others (freight forwarders)							

## OSRL Perspective

### Responding in new frontiers



#### ► Arctic

- Cold weather capability
- Logistic challenges
- Enhanced surveillance capability will be needed
- Fog, darkness and Ice challenges

#### ► Increased deepwater activity

- SWIS capping members have plans for 500 wells in 2013/14

#### ► Long range planning

- Significant lead times to assemble required resources

#### ► Tier 1 & 2 needs emerging

#### ► Global response capability

# Arctic Update

# Main areas of interest





# Current Competence Summary

- **Level 1: Arctic Responder (under development)**
  - Strong foundation of knowledge and understanding
  - Minimum of knowledge and understanding achieved through in-house training and assessment
- **Level 2: Arctic Advisor (x 22 personnel)**
  - Trained 'competent' personnel with actual experience
  - Minimum of on-ice practical training
- **Level 3: Arctic Lead (x 7 personnel)**
  - Trainers or Technical Advisors
  - Minimum of on-ice training, *and* spill or secondment experience



# Current Equipment Status

Category		% of Global Stockpile
1	Can be used	41
2	Can be used with slight modifications	31
3	Can be used with significant modifications	5
4	Not suitable	8
5	Further investigation required	15

# 2014 and beyond - Action Plan

<b><i>Capacity building</i></b>	<b>Addressing the gaps identified:</b> <ol style="list-style-type: none"><li><i>1. Training and development of staff</i></li><li><i>2. Purchase / conversion of equipment</i></li><li><i>3. Strengthening logistics processes</i></li><li><i>4. Development of third party networks</i></li></ol>
<b><i>Capability Assurance</i></b>	<b>Ongoing confidence check on our Arctic capability through:</b> <ol style="list-style-type: none"><li><i>1. Auditing against approved standards</i></li><li><i>2. Testing through drills</i></li><li><i>3. Skills maintenance programme / staff exchanges / etc.</i></li></ol>
<b><i>Credibility building</i></b>	<b>Demonstration of capability through:</b> <ol style="list-style-type: none"><li><i>1. External engagement</i></li><li><i>2. Conference</i></li><li><i>3. Drill performance</i></li><li><i>4. Spill Response</i></li></ol>



*Oil Spill Response*



# Managing a Response

## OSRL Perspective

### Managing a complex incident



- ▶ A subsea incident in a new frontier area
  - Mutual Aid
  - Multiple agencies
  - Crossing international borders
  - Massive logistic challenges for both people, equipment and materials (e.g. dispersants)
- ▶ Incident Command System (ICS)
  - Increased internal and external training
  - Additional experienced resources have been hired

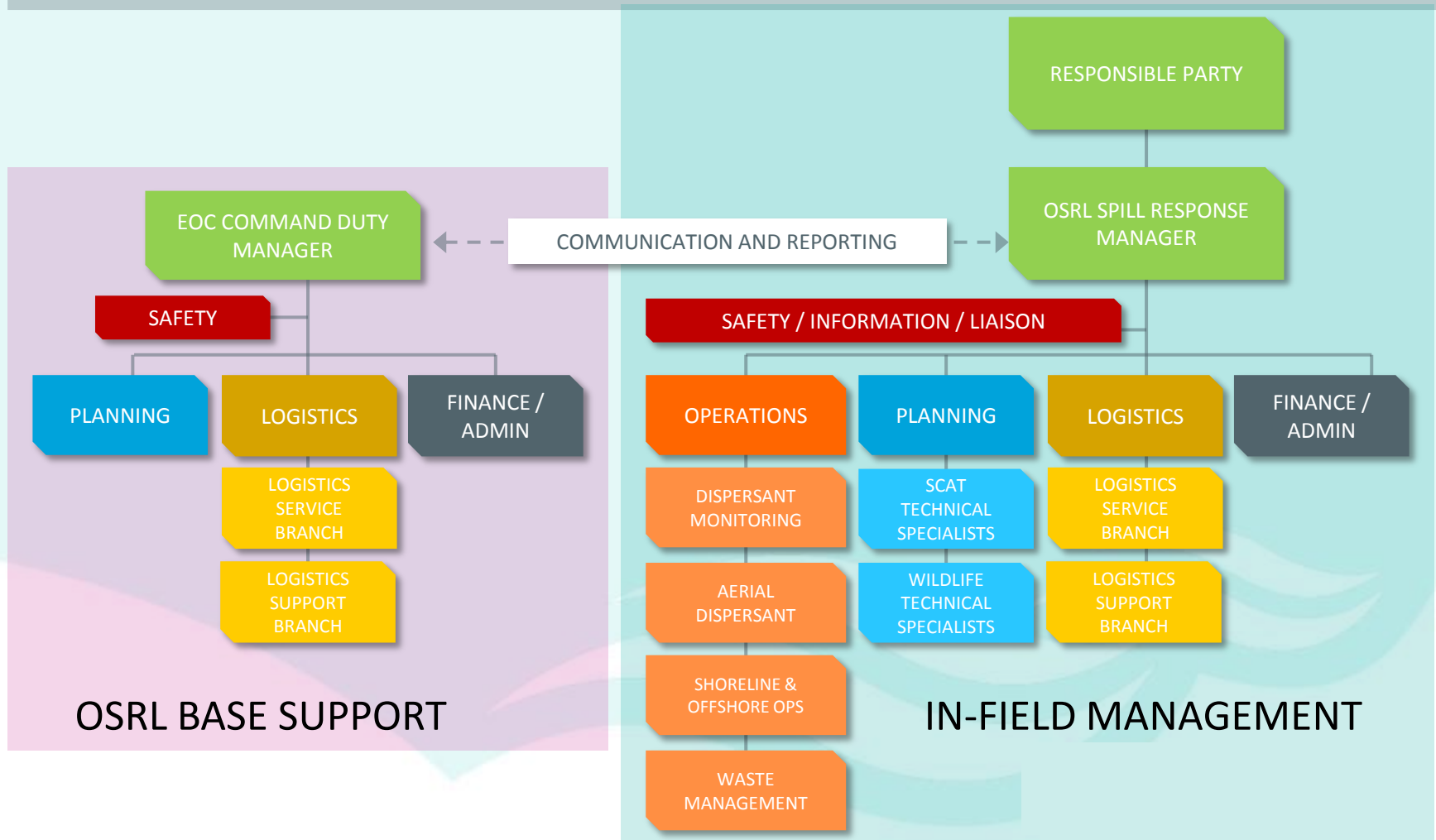


# Incident Command System (ICS)

- Since 2011 we have been using ICS as our primary management tool in our internal systems and response processes during mobilisation
- This enables us to integrate with the different types of response management systems being used by industry globally.
- The following diagram shows how our expertise can be utilised in all aspects of an oil spill.



# ICS during a Response




# The Global Response Network



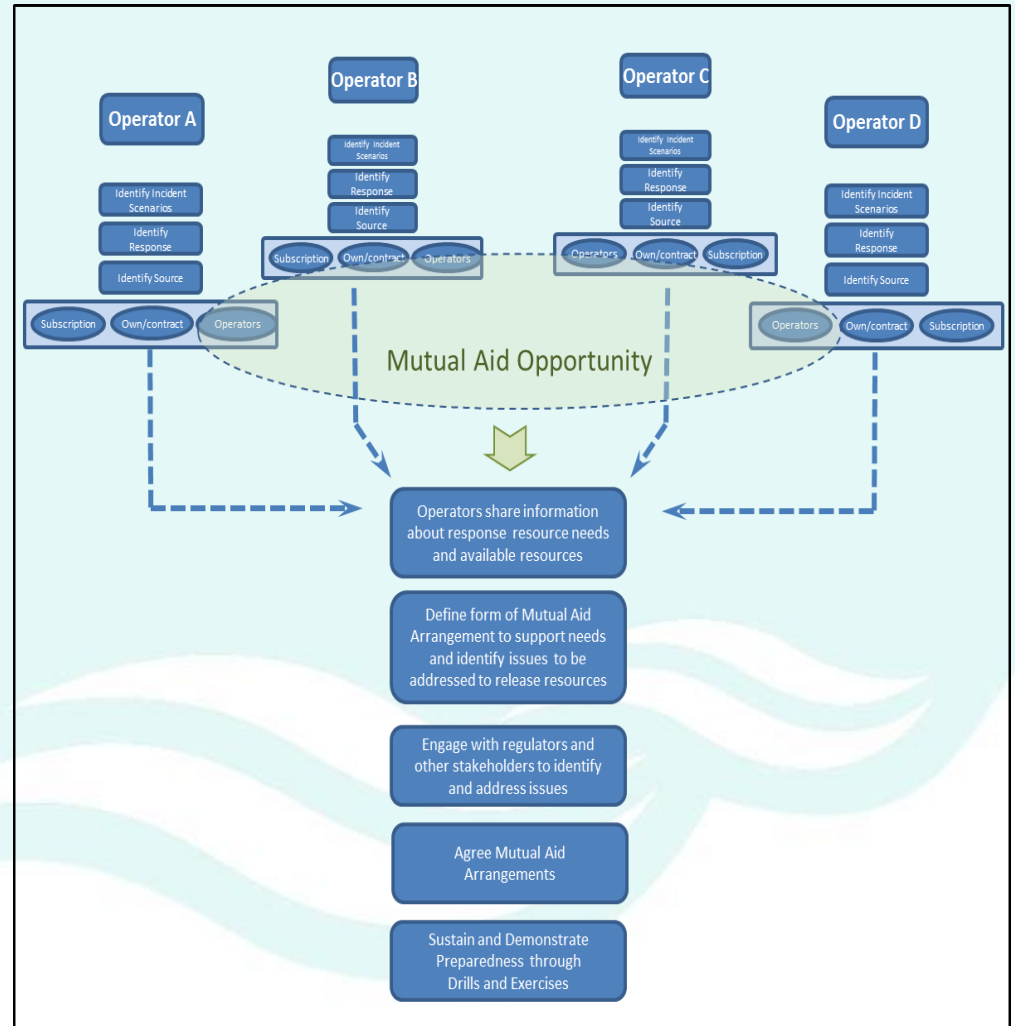
# Mutual Aid



International Association of Oil & Gas Producers



**Mutual aid in large-scale offshore incidents — a framework for the offshore oil and gas industry**



# Closing Comments

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- Industry has and continues to invest significant resources to improve its ability to effectively respond to oil spill incidents across the globe.
- It is critical that we all embrace these developments to ensure they are implemented.
- During this Symposium, I ask each of you to find more innovative ways to help make this happen.

Thank you for attention





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