

Safety & Environmental Enhancements for the Gulf of Mexico post-Macondo – Centre for Offshore Safety, Subsea Containment & Industry Standards

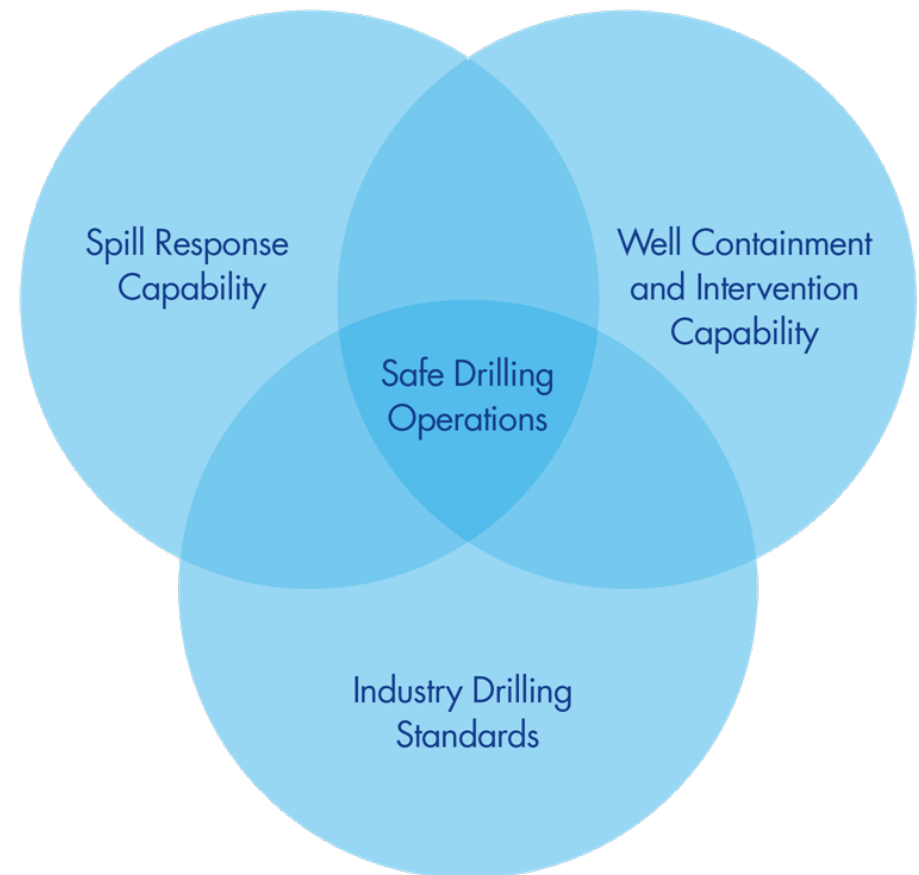
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Post-Macondo Industry Actions

Four Joint Industry Task Forces Formed:

- Drilling Procedures
- Drilling Equipment
- Subsea Well Control & Containment
- Oil Spill Preparedness & Response



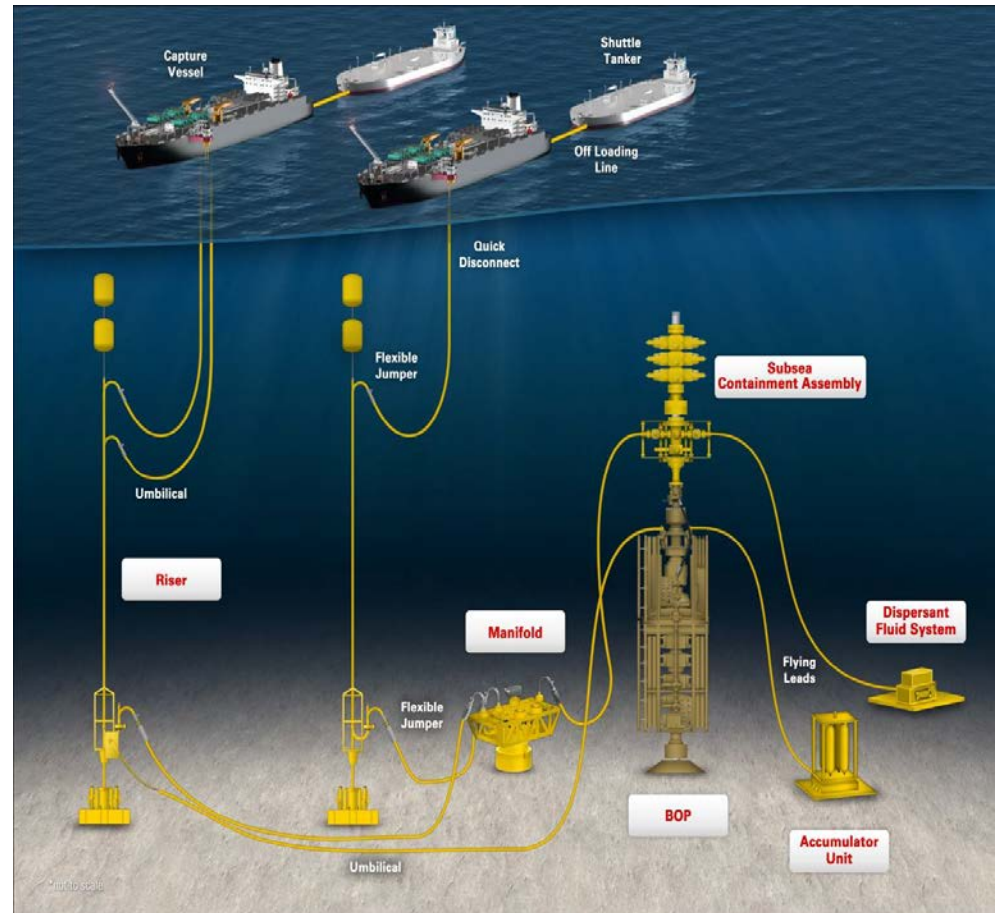
API Standards

- 4th Edition Std 53 – *Blowout Prevention Equipment Systems for Drilling Operations*
- 2nd Edition Std 65-2 – *Isolating Potential Flow Zones During Well Construction*
- 1st Edition RP 96 – *Deepwater Well Design and Construction*
- 1st Edition Bul 97 – *Well Construction Interface Document Guidelines*
- 1st Edition RP 17W – *Recommended Practice for Subsea Capping Stacks*
- 1st Edition API Spec Q2 – *Specification for Quality Management System Requirements for Service Supply Organizations for the Petroleum and Natural Gas Industries*
- 4th Edition API Spec 16A – *Specification for Drill-through Equipment*
- 2nd Edition API RP 17H – *Remotely Operated Tools and Interfaces on Subsea Production Systems*

Containment Companies (MWCC/HWCG)

Capping Stacks &
Subsea Dispersant
Systems ready to Deploy

Provide flexible &
adaptable systems to
contain the well subsea
and provide subsea
production capability
via subsea equipment,
risers, & containment
vessels that will safely
capture, store & offload
the oil.



Oil Spill Preparedness and Response

- Oil sensing & tracking
- Dispersant use & application
- Mechanical recovery capabilities
- Shoreline protection & cleanup

SEMS ENHANCEMENTS

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Safety and Environmental Management Systems - SEMS

The SEMS is a nontraditional, performance-focused tool for integrating and managing offshore operations. The purpose of SEMS is to enhance the safety of operations by reducing the frequency and severity of accidents.

There are four principal SEMS objectives:

1. focus attention on the influences that human error and poor organization have on accidents;
2. continuous improvement in the offshore industry's safety and environmental records;
3. encourage the use of performance-based operating practices; and
4. collaborate with industry in efforts that promote the public interests of offshore worker safety and environmental protection.

Safety & Environmental Management Systems

What are the elements of SEMS? API RP-75

- Leadership
- Safety & Environmental Information
- Hazard Analysis
- Management of Change
- Operating Procedures
- Safe Work Practices
- Training
- Mechanical Integrity
- Pre-Start-Up Review
- Emergency Response & Control
- Incident Investigation
- Audit
- Records & Documentation

Performance Based

Performance Determined by SEMS Auditing

Types of Audits

- Office and Field audits
- 15% each cycle with a minimum of one

Only Operators Audited

- But can include contractor “facility”

Operators Responsible for Contractors

**CENTER FOR
OFFSHORE
SAFETY**

Our Mission

Promote the highest level of safety for offshore drilling, completions, and operations through Effective leadership, Communication, Teamwork, Safety management systems, and Independent 3rd-party auditing & certification.



Core Functions

- **Find SEMS Gaps - Data Collection, Analysis & Reporting**
- **Close Gaps with Good Practices**
- **Effectiveness Assurance & Measurement
– Auditing, Accreditation & Certification**
- **Outreach & Communication**

IMPROVE & SUSTAIN INDUSTRY SKILLS & KNOWLEDGE

SEMS Audit Protocol Checklist

13 sections that corresponds with API RP 75 and 30 CFR 250 – Subpart S (SEMS)

	Audit Question	Has a management representative been appointed that is responsible for establishing, implementing and maintaining the SEMS?
5	§250.1909(b)	[Specifically you, through your management, must:] (b) Appoint management representatives who are responsible for establishing, implementing and maintaining an effective SEMS program.
	RP 75 1-1.2.2(c)	[This recommended practice is based on the following principles:] c. Management appoints specific representatives who will be responsible for establishing, implementing and maintaining the safety and environmental management program.

SEMS Toolkit and Accreditation/Certification

- SEMS Audit Protocol COS-1-01 (Revision 2 complete)
- Compliance Readiness Worksheet COS-1-02
- Operator-Contractor Letter Templates COS-1-03
- Audit Guidance Document (Revisions starting)

- COS-2-01 Qualification & Competence Requirements
Audit Leads & Auditors
- COS-2-02 Training Program Requirements Auditors
- COS-2-03 Certification API RP 75
- COS-2-04 Accreditation Audit Service Providers
- COS-2-05 Audit Report Form

SEMS II

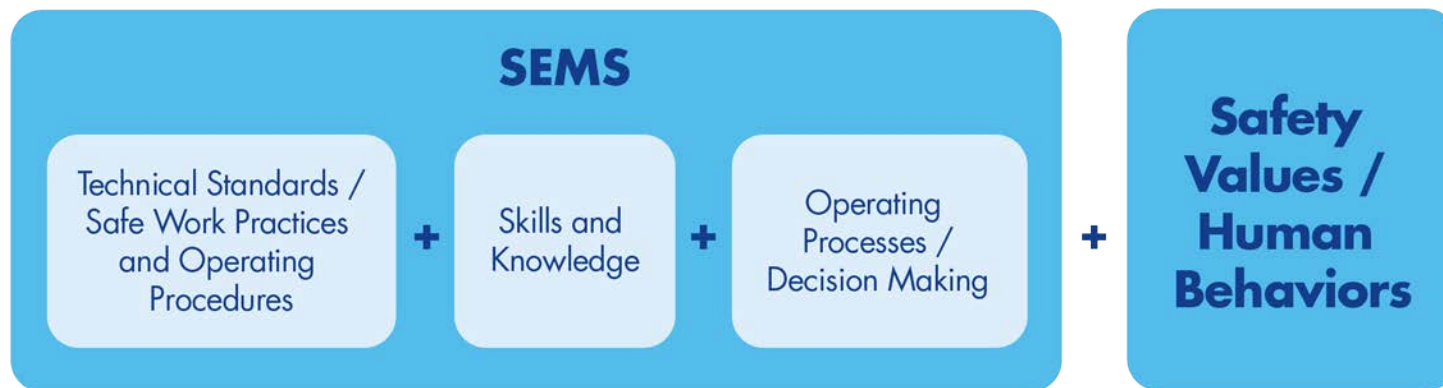
- “...working with the COS workgroups on developing indicators to gauge industry OCS performance other stakeholders. ...”
- COS-2-01, Qualification & Competence Requirements for Audit Teams & Auditors
- COS-2-03, Requirements for Third-party Auditing & Certification
- COS-2-04, Requirements for Accreditation of Audit Service Providers
- (ASPs) must be accredited by a BSEE-approved accreditation body (AB) .. Like COS



COS Activities

- **Leadership Site Engagement**
- **Safety Performance Indicators**
- **Learning from Incidents & Events**
- **Skills & Knowledge Management Systems**

Safety and Environmental Management Systems (SEMS)

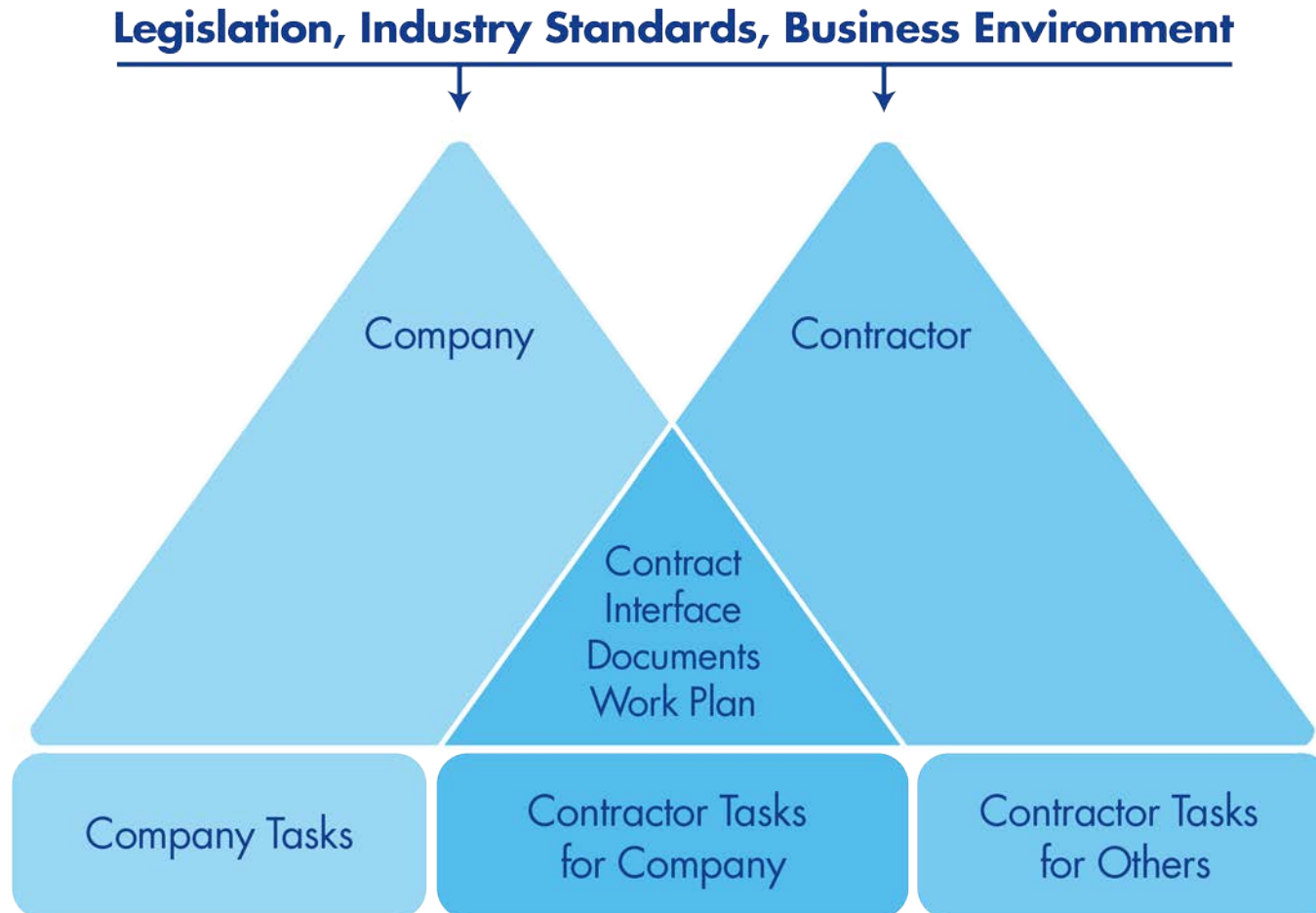


- Goal: Safe & Reliable Operations / Operational Integrity
- SEMS is a key mechanism to reduce the likelihood of major incidents

Bow Tie Approach



Operator/Contractor Interfaces



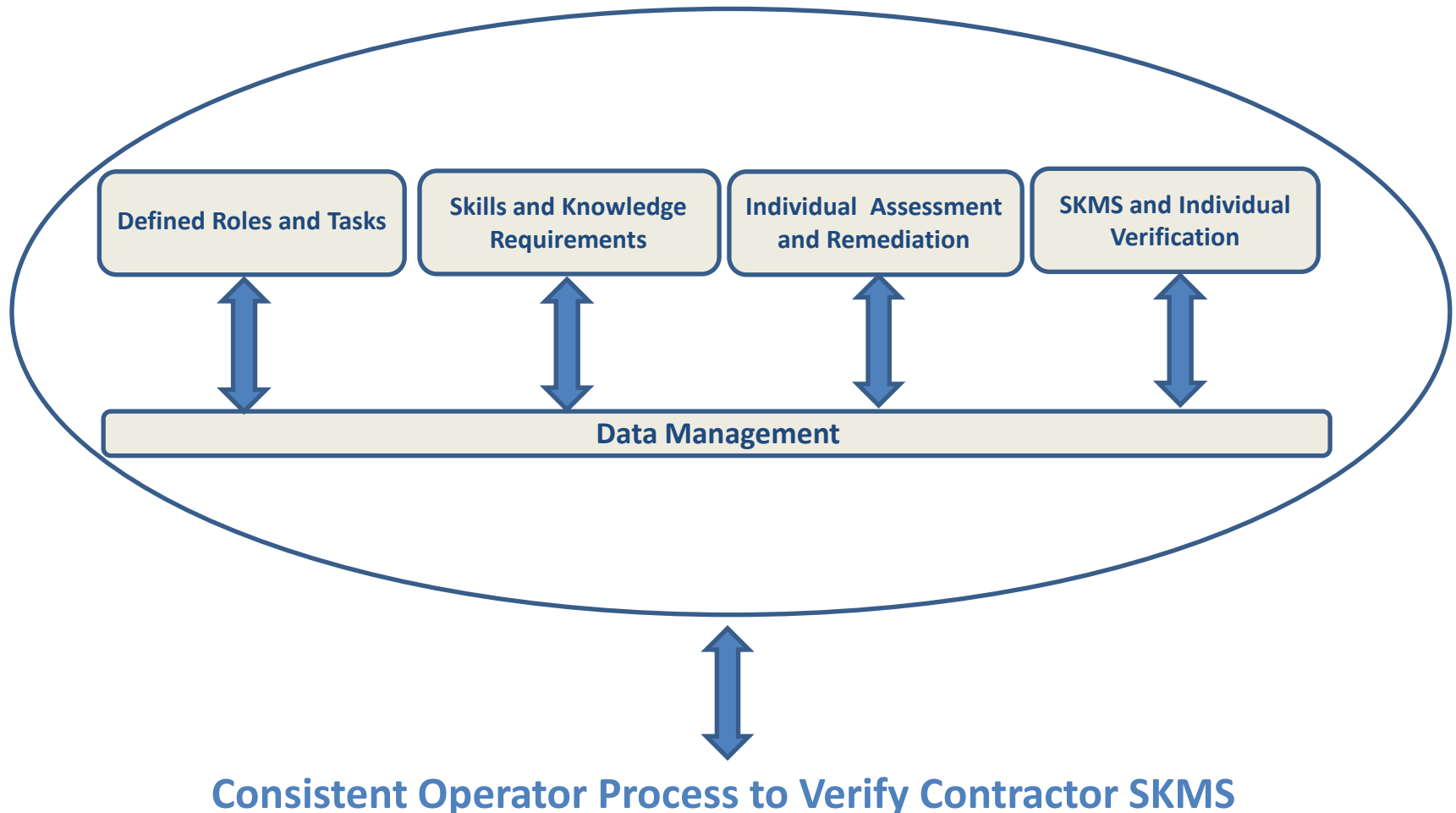
Challenge Identified

Under 30 CFR 250.1914(b), the operator is required to **document** that *each contractor* working for you is knowledgeable and experienced in the work practices it will be performing. This documentation needs to be available to BSEE should we ask to see it during a BSEE-conducted evaluation of your SEMS program. BSEE has not specified a format for you to use in preparing this documentation. Acceptable verification procedures include but are not limited to the following or combinations thereof:

In 30 CFR 250.1914(e), the operator is required to perform “*periodic evaluations*” of the performance of contract employees to **verify** they are fulfilling their obligations. These periodic evaluations may include the verification techniques listed above in relation to complying with 30 CFR 250.1914(b), or they may include other operator-conducted verification techniques. These periodic evaluations need to be available to BSEE should we ask for them during a BSEE-conducted audit of your SEMS program.

Guidelines

Skills and Knowledge Management System (SKMS)



The Future of COS - SEMS Work

SEMS Effectiveness Measures, Tools, & Techniques – Continuous Improvement

Expand Audit Protocol Guidance

- Respond to SEMS Regulatory Changes
- Drilling focus
- Projects & Construction
- Contractors

Lead Auditor Training & Individual Certification

Safety Culture

THANK YOU

Questions

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Safety Performance Indicators

SPI 1: Incidents resulting in:

- Fatality
- Multiple injuries in single event
- Tier 1 PSE
- Loss of well control
- \geq \$1 million damage
- \geq 10,000 gals oil spill to sea

SPI 2: Incidents resulting in:

- Tier 2 PSE
- \geq \$25,000 damage from collision
- Injury, damage during lifting ops
- Drive off or drift off caused by loss of station keeping
- Injury, damage during life boat activity

SPI 3: SPI 1 and 2 incidents involving failure of equipment

SPI 5: Critical maintenance, inspection and testing performance

SPI 6: Total number of fatalities

SPI 7: DART injury/illness rate

SPI 8: Recordable injury/illness rate

SPI 9: \geq 1 bbl oil spill to sea