HSSE & Social Performance

**TRIFR 2014 – vs. Industry 2013**

<table>
<thead>
<tr>
<th>Company</th>
<th>TRIFR 2013</th>
<th>OGP Average (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petrofac (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHELL (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saipem (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBM (Q2 2014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BW Offshore (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMCA (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (2013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OGP Average (2012)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Our Goals**

**No Harm**
- 12 Life Saving Rules SBM wide
- ‘Post – Push – Show – Practice’
- ISRS (International Sustainability Rating System) being implemented

**No Leaks**
- Developing Process Safety Management
- Strong focus on Equipment Reliability
- Operator Competency training

**Environmental Protection**
- Eco efficiency KPI’s in SBM fleet operations

**Sustainability and Social Performance**
- Listed in Dow Jones Sustainability Index

**Key Policy Elements**

- HSSE will not be compromised to achieve any other business objectives
- Managers are responsible to encourage active participation and input from all personnel
- People and assets are safeguarded by identifying hazards & eliminate or managing the risk
- All SBM personnel strive to understand and implement the HSSE requirements pertaining to their work

**Focus**

- Global engagement with staff – Life 365 and Life Day 2014
- Management involvement
- Strengthening of HSSE Competencies: Leadership and Culture, Safety - Observations programmes, Supervisor HSSE training
- Standardizing safe working practices in the field
Quality at SBM
Invest In Our Future

- Flawless delivery of world-class product
- From project execution to hydrocarbon delivery
- Our personnel work-as-one for product assurance
- Cascading quality objectives throughout our organization
- From quality awareness and site surveillance programs to monitoring our asset integrity
- Safe and reliable for operational excellence
- The result is Pride in our work

Engineer, Procure, Construct, Operate

- Equipment criticality levels - assessed probability and consequence of failure
- Vendors approved for specific products
- Regulatory Compliance, Class requirements, Client participation
- Comprehensive Site QA surveillance program
- Asset integrity maintenance and management

Continual Improvement

- New product development, patents
- Incident Investigation, Lessons Learned
- Continuous feedback from SBM’s worldwide operating fleet into Group Technical Standards
SBM Unique Value Proposition; Delivering the Full Product Lifecycle

Engineering
- 50 years of industry firsts
- Leading edge technology

Procurement
- Integrated supply chain
- Global efficiencies
- Local sourcing

Product Life Extension
- Leader in FPSO relocation
- World class after sales

Installation
- Dedicated fleet
- Unparalleled experience
- Extensive project capability

Construction
- Strategic partnerships
- Unrivalled project experience

Operations
- 250+ years of operational experience
- 99%+ production uptime
- Largest international FPSO fleet
Corporate Engineering Standards (CES)

- Current Best Practices (SBM / DWIs, EPS...)
- 20 Years Experience of FSO & FPSO Design
- Alignment Process with Major Oil Companies
- Lessons Learned (Project, Services, SBM Operations, Vendors...)
- Continuous Updating Process
- SBM Operations Guidelines
- ABS Rules, Norsok, Standards
Conventional Project Execution

- Use of sub-contractor to work out client concept based on client standards
- Multiple parties; different parties
- No continuity between projects
- Difficult learning process

Yard has strong focus on no change and interface freeze

Result: No optimization, sequential takes time, limited operational input
SBM Alternative Project Execution

- Not always client detailed design basis
- High level functional spec
- Fully integrated Project Functions
- Seamless Tools across Phases

- High added value by FPSO specialist
- **Result:** FPSO design based on reduced ‘life-cycle cost’ philosophy and competitive delivery
• Long term proven execution methodology and partners
• Shipyard and fabrication yards standard frame agreements with BOQ and agreed preambles thereby reducing risk of contractual difficulties
• Use of “pick and run” strategy for modules avoids additional risk from sea transportation and allows seamless integration scope transition
• Site Supervisors dedicated to a sub contractor from day one to sail away ensuring continuity and ownership
• Very extensive site team for hands on Product Assurance
• Well defined module battery limits
• Maximize testing and pre-commissioning before transport to FPSO
• Integrated Operations for gradual handover for Operation and Preservation
• Well proven set of management tools
• Overall de-risked strategy
<table>
<thead>
<tr>
<th>Gate No.</th>
<th>Gate Name</th>
<th>Timing</th>
<th>Primary Question (Level 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project Kick Off</td>
<td>When Project secured: Contract or LOI signed.</td>
<td>Is the Project properly handed-over from Sales/Proposals to Operations/PMT and is it ready for execution?</td>
</tr>
<tr>
<td>2</td>
<td>Project Set Up</td>
<td>Max. 90 Days after Kick Off</td>
<td>Is the Project now properly set up, with the PMT organized, procedures and tools in place and with a clear project execution strategy and a commitment to the Forecast and plan?</td>
</tr>
<tr>
<td>3</td>
<td>Engineering Review</td>
<td>+/-30% Engineering Progressed.</td>
<td>Is the Project in good order given the technical demands and the current schedules and forecast?</td>
</tr>
<tr>
<td>4</td>
<td>Ready for Construction</td>
<td>Within 2 months of Construction starts (multiple Gate)</td>
<td>Do we have the agreements in place and the materials, and drawings/documents available to ensure Construction can make a good and continuous start?</td>
</tr>
<tr>
<td>5</td>
<td>Construction Review</td>
<td>+/-30% Construction Progressed</td>
<td>Are the Construction works proceeding as planned with acceptable performance by all and specified quality.</td>
</tr>
<tr>
<td>6</td>
<td>Fitness for Departure</td>
<td>1 month prior to Departure from Yard.</td>
<td>Can the constructed Unit leave the Yard/Facility without carry-over work or unplanned risk?</td>
</tr>
<tr>
<td>7</td>
<td>Ready for Operations</td>
<td>When Commissioning completed</td>
<td>Is the Project in a state of readiness to be placed into operation?</td>
</tr>
<tr>
<td>Management Dashboards</td>
<td>Project Team and Senior Management reviews the Project's strategic subjects and its future plans and actions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Reports</td>
<td>Project Manager and the Project Leadership reviews the detailed status of the Project in order to identify future actions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Reviews</td>
<td>Monthly Risk review including quarterly Monte Carlo simulations on cost and schedule.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency Management</td>
<td>Monthly review of the prevailing Contingency set against the assessed risks and opportunities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Forecast</td>
<td>Monthly review of the budget based upon existing commitments, execution plans, risk review and the updated cost-to-complete estimate and revenue projections.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The management of interfaces will include engineering, supply chain, construction, completion, operation readiness and operation using specialized SBM tools.

- Completions at Project start for Product Assurance
- Operations at Project start for Operational Assurance
What Can We Do to Reduce Cost & Schedule?

**Standardisation**
- Less optimisation
- Generic solutions wherever possible
- Leverage supplier & contractor know-how

**Simplification**
- Process Intensification on topsides
- Achieve the same functions with less equipment

**Supply Chain**
- Frame Agreements with pre-agreed specifications and terms & conditions
- Partners versus vendors
Unique Double Deck Concept

• 2 independent work sites
• Allow safe simultaneous operation
• Dedicated area for offshore operations
• Large storage capacity without affecting operation
• Minimize operation

Gain of Safety + Gain of Versatility + Optimize Operation = Gain of Efficiency
Normand Installer; Swiss Army Knife

Combination / Redundancy

- 250t AHC
- 350t AHC
- 500t
- 200t AHC
Normand Installer Main Track Record

- Agbami, Nigeria
- Okwori, Oyo, Nigeria
- Azurite, Congo
- NOBLE-ASENG, EG
- Kikeh, Malaysia
- TUI, New Zealand
- Frade & BC10 (SHELL), Brazil
- Moho-Bilondo, Congo
- Dalia-Pazflor-Clov-N’Goma, Angola
- Mondo & Saxi, Angola
Topsides – Layout; 2nd Generation

Mod 01  HP & Test Separation
Mod 02  LP Separation
Mod 04  Gas Lift Compression
Mod 06  Gas Dehydration
Mod 07  Flash Gas Compression
Mod 09  Injection Water Treatment
Mod 10  Water Injection Pumps
Mod 11  Utility Systems
Mod 12  Power Generation
Mod 13  Local Equipment Room (LER)

Mod 14  Chemical & Ethanol Storage and Injection
Mod 15  Starboard Laydown Area
Mod 16  Flare K.O. Drums
Mod 19  Methanol Storage
Mod 20  Pipe Rack
Mod 21  Production Fiscal Metering Skid
Mod 22  Laboratory
Mod 23  Stores Module
One Size Up…
Third Generation...leaving quayside
General Overview

Maricá and Saquarema FPSOs are nearly identical. Saquarema differences are shown in Blue.

- Lease: 20 yrs for each FPSO – Client Petrobras
- Fields: Lula Alto (Maricá) / Lula Central (Saquarema) – Brazil
- Contract Award Date: 22 March 2013
- Conversion duration: 31 months / 33 months

Vessel Specification
- VLCC Double Hull Eli / Leander
- Hyundai HI; Built 2000
- Crude oil ballasting
- Auxiliary boilers
- Accommodation: 140

Mooring
- Water depth: 2,120 m / 2,130 m
- Spread-moored
- Mooring lines: 24 off
- Composition: chain-polyester-chain

Process
- Oil capacity: 150 kbpsd
- Liquid capacity: 150 kbpsd
- Gas capacity: 6 MMm3/d
- Water injection: 200 kbpsd
- Power generation: 4 x 31 MW
Cidade de Maricá and Saquarema Project Execution Overview

Engineering

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel Engineering</td>
<td>SBM Offshore – Monaco Execution Center</td>
</tr>
<tr>
<td>Mooring Engineering</td>
<td>SBM Offshore – Monaco Execution Center</td>
</tr>
<tr>
<td>Topside Engineering</td>
<td>SBM Offshore – Schiedam and Monaco Execution Center</td>
</tr>
</tbody>
</table>

Procurement

<table>
<thead>
<tr>
<th>Procurement</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Procurement</td>
<td>SBM Offshore</td>
</tr>
<tr>
<td>Mooring Procurement</td>
<td>SBM Offshore</td>
</tr>
<tr>
<td>Topsides Procurement</td>
<td>Asia Scope: SBM Offshore – Monaco Execution Center</td>
</tr>
<tr>
<td></td>
<td>Brasil Scope: SBM Offshore – Schiedam Execution Center/Rio Office</td>
</tr>
</tbody>
</table>

Construction

<table>
<thead>
<tr>
<th>Vessel Refurbishment &amp; Conversion</th>
<th>Yard</th>
<th>Location</th>
<th>Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXG (China)</td>
<td>TS 072 Main compression B</td>
<td>DYNAMAC (Singapore)</td>
<td></td>
</tr>
<tr>
<td>CXG (China)</td>
<td>TS 073 CO2 gas compression</td>
<td>DYNAMAC (Singapore)</td>
<td></td>
</tr>
<tr>
<td>CXG (China)</td>
<td>TS 074 Gas treatment A</td>
<td>BRASA (Brazil)</td>
<td></td>
</tr>
<tr>
<td>CXG (China)</td>
<td>TS 075 Gas treatment B</td>
<td>BRASA (Brazil)</td>
<td></td>
</tr>
<tr>
<td>CXG (China)</td>
<td>TS 076 Injection gas compression</td>
<td>DYNAMAC (Singapore)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td>TS 077 KO drums</td>
<td>EBBSE (Brazil)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td>TS 078 CO2 membranes</td>
<td>EBBSE (Brazil)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td>TS 079 VRU</td>
<td>EBBSE (Brazil)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td>TS 284 - 207 Manifold A B C D</td>
<td>DYNAMAC (Singapore)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td>TS 286 Flare stack</td>
<td>DYNAMAC (Singapore)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td></td>
<td>DYNAMAC (China)</td>
<td></td>
</tr>
<tr>
<td>CXG (Brazil)</td>
<td></td>
<td>DYNAMAC (Brazil)</td>
<td></td>
</tr>
</tbody>
</table>

Vessel Ref & Conversion

<table>
<thead>
<tr>
<th>Yard</th>
<th>Location</th>
<th>Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXG – Steel Renewal</td>
<td>China</td>
<td>4,600</td>
</tr>
<tr>
<td>CXG – Steel Conversion</td>
<td>China</td>
<td>12,000</td>
</tr>
<tr>
<td>GSI – Main Deck Replace</td>
<td>China</td>
<td>17,000</td>
</tr>
<tr>
<td>GSI – Mooring &amp; Riser Balconies</td>
<td>China</td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>37,600</strong></td>
</tr>
</tbody>
</table>
Project Execution Locations

- Offshore Commissioning
- Site Management, Brazil
- Supply Chain, Logistics & RC – SBM Brazil
- Brazil Module Fabrication, Vessel Int’n and Commissioning
- Engineering & Proc't SBM Schiedam Brazil Modules
- Eng. & Procurement SBM Monaco Asia Modules
- Vessel Conversion & Integration
- Asia Module Fabrication
**Defined Project Organization**

Multiple SBM Execution Centers and work locations to be managed and interfaces controlled

Organization structured with a Global Project leadership team headed by the Project Director and management organization by execution center and yard work location

Overall Project Execution plan developed and updated as needed

Clear Organization structure with detailed roles and responsibilities

**Clear Project Objectives**

- Complete the Project with no harm to people, property or environment (HSSE)
- Complete the Project in accordance with the technical requirements (QA)
- Leave Rio anchorage Performance Accepted within 31 & 33 months (Schedule)
- Complete within budget (Cost)
Progress – Module Yards
Progress – Vessel Conversion Yard
Lease & Operations

- FPSOs
- Semi-Submersible
- MOPU
- FSO
We Operate and Maintain the Fleet According to Our 5 Business Drivers

- Asset Integrity
- Operational Performance
- HSSE
- Commercial Performance
- Sustainability
• **Health-Safety- Security & Environment:**
  - Robust **Management System**,  
    - Includes risk prevention and mitigation, permit to work system, HSSE plan, but also  
  - **Emergency Response preparedness**,  
    - Clear Roles & Responsibilities, exercise planning, established Emergency Control Centres (local and central)  
  - **Process Safety framework** to prevent Major Accident occurrence

• **Asset Integrity:**
  - Based on a **Maintenance Philosophy** developed through SBM fleet operational experience and industry best practices.  
  - **Preventive & Conditioned-Based Maintenance programs:**  
    - Hull Integrity surveys, Piping & Corrosion Monitoring, Vibrations Surveys, Explosion-Proof Equipment integrity checks, Remote Data Monitoring  
  - **Maintenance planning** through Computer Management Maintenance System (CMMS) and periodical planning review including Planned Shutdown activities.  
  - **Technical Support and Performance** embedded within regional and in-country Operations Team
SBM Fleet Substantial Production Rates

Note: Actual Production as provided by the Operator compared with the as installed Topsides capacity, not its uptime
Fleet Operations

Performance
- 248 years, 4 billion barrels exported, 6500 offloads
- 99.1% oil uptime, 95.1% gas uptime, 92.1% water uptime
- Working closely with clients to optimize daily production

Organisation
- Head office in Monaco, with supporting functions
- Decentralized, regional Operations management centers

Execution
- Same Management System for all units worldwide
- Ops Readiness team working closely with the Project team, participation in all review gates
- Key management positions for new units sourced from within the SBM fleet to ensure continuity and consistency
Excellent Project Execution

SBM Project Execution Model – Lease FPSOs
- Same Management System in all execution centers
- All key engineering in-house
- Global procurement with reputable suppliers
- Fabrication with key partners in Singapore, China, UAE
- Commissioning by SBM staff
- Offshore Installation by SBM vessel

The Client team
- Based SBM engineering office, moves to site later
- Participate in critical design reviews
- Access to SBM managers and experts at all levels

SBM Operations
- Internal client for the SBM Project team
- Involvement through all tender & EPCI phases
- Formal Hand Over prior First Oil

Project Organisation
- Project Manager reporting to the EC management
- Area Delivery Managers reporting to the PM
- EPM, Construction Manager (CM) per area, reporting to the Delivery Manager
- Dedicated Interface managers
Embracing Local Development
Brazil

**BRASA Yard – Niteroi**
- Created in 2008
- Engineering support to projects
- Logistics services
- Local supply chain management
- Regulatory compliance
- Construction management

**BRASA Yard in Niteroi Near Rio**
- JV with Synergy, created in 2011
- 65,000 m² for module fabrication and FPSO integration
- Yard fully refurbished in 2012
- 2,700 workforce.
- Quayside able to moor VLCC size FPSOs.
- Pelicano 1 – 2000 tons floating crane barge

**Rio Office**
- Created in 2011
- Engineering support to projects
- Logistics services
- Local supply chain management
- Regulatory compliance
- Construction management

*Module lifting FPSO *Ilhabela* – 2014*
Embracing Local Development

Angola

**OPS Joint Venture**
- Created in 2003 by Sonangol and SBM
- FPSO operations
  - Nearly 500 millions barrels of oil/LPG
- Ever increasing involvement of highly skilled Angolan operatives

**PAENAL Yard – Porto Amboim**

- Created in 2003 by Sonangol and SBM
- FPSO operations
  - Nearly 500 millions barrels of oil/LPG
- Ever increasing involvement of highly skilled Angolan operatives

**Paenal Joint Venture**
- Created in 2007 by Sonangol and SBM. DSME joined 2010
- Module fabrication & FPSO integration yard.
- Annual capacity (2013) over 10,000 tons, 2 million man-hrs
- 1200 people workforce, 85% Angolan, locally trained
- 490 meters quay, 10 meters water depth (only yard in W-Africa suitable for VLCCs)
- 2,500 tons heavy lift crane (Jamba) – largest in West Africa.