CONTENTS

1. Company profile
2. MSP/Drilex R&D and results of subsea wellhead system equipment
3. Main subsea projects
4. Future development on MSP/Drilex subsea oil and gas drilling & production system equipment
PART 1

Company profile
1.1 Company profile

- Founded in 1986, MSP/Drilex specializes in research & development, design, manufacturing and engineering services of onshore and offshore high-end oil and natural gas drilling equipment. After over three decades’ development, MSP/Drilex has become a world-famous oil and natural gas equipment manufacturer, and a qualified supplier to IOCs like Shell, Total, BP, ConocoPhillips and Chevron, NOCs in Middle East, Central Asia, South Asia and Africa, as well as Chinese integrated oil and gas companies like Sinopec, CNPC and CNOOC.

- MSP/Drilex has an international management team with specialists in oil and natural gas E&P as well as equipment R&D. MSP/Drilex has built a strong organization comprised of 2 R&D and 4 manufacturing bases, 2 sales & marketing entities, 28 production and sales services units and over 1000 people globally, with products sold to over 52 countries.

- MSP/Drilex has adopted world-class proprietary technology in high pressure sealing and corrosion prevention to manufacture world-advanced wellhead casing head, Christmas tree, gate valve, throttle valve, safety valve, surface production manifold, automatic control system for oilfield safety, as well as drilling equipment with features of high voltage resistance, anti-corrosion, high temperature resistance and low temperature resistance. MSP/Drilex products are acknowledged by world-advanced quality management system including API Q1, ISO9001, ISO14001 and OSHAS18001, and also certified by API 6A, API 16A, API 16C, API 16D, API 16RCD and API 17D.
1.1 Company profile

- Subsea engineering service
- Integrated solution for deep sea oil and gas drilling and production
- Subsea BOP
- Subsea Christmas tree system
- Subsea pipeline connector
- Subsea control system
- Subsea wellhead system
- Drilling boat
- Subsea ROV
- Subsea BOP
- Subsea manifold
- Subsea connector
1.1 Company profile
1.2 Engineering and Technical Capability

Key Technical & Manufacturing Personnel

Mr. David Huang
Chairman of the Board
The founder of MSP/DRILEX INC
Chief Engineer of R&D
- Started subsea oilfield equipment study and related technical job since 1976
- In 1990 joined MASCO of USA, started to conduct oilfield engineering, drilling, well completion, subsea blasting and other related oilfield operation tools research and production
- 1993, Inventor of the first horizontal wellhead (Patent No.: CN93225398.9, Patent Report No.: CN2151248)
- Established MSP/Drilex in the year of 2000, and hold over 50 patents
- 25 Years’ Experience in Global Oil and Oilfield Service Industry

Mr. Richard Tan
CTO
Technology Officer
- 41 Years’ Experience in Global Oil and Oilfield Service Industry
- Experienced as the Subsea Project Design Engineer and Technical Manager
- Former Cameron Technical Supervisor (27 years’ experience in Cameron)

Mr. Victor Lee
Manufacturing Director
- 35 Years’ Experience in Global Oil and Oilfield Service Industry
- 17 Years’ Experience in FMC Singapore
- 8 Years’ Experience in (GE) Vetco Gray

Mr. See Teck Kiat
Quality Director
- 32 Years’ Experience in Global Oil and Oilfield Service Industry
- 5 Years’ Experience in FMC
- 15 Years’ Experience in (GE) Vetco Gray
- 5 Years’ Experience in Aker Solutions
1.2 Engineering and Technical Capability

Key Technical & Manufacturing Personnel

Mr. John Regan
Market Director of Houston Office
- 20 Years’ Experience in Global Oil and Oilfield Service Industry
- 5 Years’ Experience in API company, Senior Engineer in the Design and Production of Hydraulic Control
- 8 Years’ Experience in Baker (CAC), Senior Engineer
- 7 Years’ Experience in SIGMA, Sale Manager

Sigui Li
Technology Officer
- 33 years of offshore drilling experience
- Senior Engineer for deep sea drilling
- Petroleum engineering doctor

Pengju Zhang
Technical general manager
- 25 years’ experience in subsea equipment manufacturing and servicing Industry
- Senior Engineer
- Specialist for subsea equipment

Jun Li
Management Representative
- Header of certification audition for international oil companies like Shell and
- 21 years’ experience in oil and gas industry
- Senior engineer
- Wellhead and Christmas tree technical specialist
1.2 Engineering and Technical Capability

Certificates and patent rights
1.2 Engineering and Technical Capability

PR2 Capability

Certified by SWRI
Certified by MERL
Certified by DNV
Certified by Moody
Certified by BV
1.2 Engineering and Technical Capability - test capability

PR2 Test Center at MSP/Drilex Plant

Sandy Erosion Test Lab

PR2 Performance Test Lab

Fire-Resistant Test System

Non-Metallic Seal Test Lab
Testing equipment covers all scopes of products with a maximum testing pressure of 30,000 psi
Reliable testing procedures validated by third party
Computerized recording system to ensure the precision of test result
All parts are traceable
1.2 Engineering and Technical Capability - machining capabilities

Machining center

Medium CNC HBM Machine  Large CNC HBM Machine  CNC Hort. Turner  NDT Inspection Equipment
MSP/Drilex R&D and results of subsea wellhead system equipment
2.1 MSP/Drilex R&D

MSP has the first-class R & D team, who can develop the latest innovation technology on deep sea oil and gas field production system, and MSP has already developed a series of key subsea equipments with independent intellectual property rights successfully, including subsea wellhead, subsea Christmas tree, subsea automatic control system, subsea automatic docking and sealing connector, etc. After years of research and development, MSP now has become the only enterprise in China who has successfully developed and put into use the subsea oil and gas production system, with the only subsea oil and gas exploitation equipment system engineering service team.
2.1 MSP/Drilex R&D

Technical Resources

Number of Employees with more than 10 years’ experience in Oil and Gas Industry: 320

Number of Employees with Bachelor Degrees or above: 358

Number of Employees with Master Degree or above: 95

Number of Employees with Senior Engineers Qualification: 7

Number of Employees with more than 10 years’ experience in Oil and Gas Industry: 320
2.2 R&D results

Patents

200 Patents
2.2 R&D results

Oil & gas leakage sensor and controller on subsea production equipment

- **Oil & gas leakage sensor and controller on subsea production equipment**: Depending on sonar detection technology, the subsea wellhead and Christmas tree system can detect the leakage of oil and gas in real time, and give a warning and automatically shut-off the production system.
2.2 R&D results

Seismic and marine hydrological sensor and controller on subsea production equipment:

Depending on sonar detection technology, the subsea wellhead and Christmas tree system can detect the earthquake in real time, and give a warning and automatically shut-off the production.
2.2 R&D results

- Patent for mechanical and hydraulic dual function locking technology on subsea wellhead system which can ensure first-time sealing of the wellhead system: Since the mechanical or hydraulic operation tools are based on a single function, in the process of sealing work during installation, it can be influenced by the water buoyancy currents or oblique force, which will cause the mechanical working tool releasing vertical weight is insufficient, resulting in seal failure, and can be directly converted into hydraulic pressure type pressure function and water, meet the one-time subsea wellhead sealing operation without repeatedly work on the drilling tool.
2.2 R&D results

<table>
<thead>
<tr>
<th>Subsea pipeline repair system</th>
<th>Cruise monitoring &amp; alarm system on subsea oil &amp; gas production safety</th>
<th>Subsea oil leakage Safety technology of “automatic shut-off”</th>
<th>New wellhead device for pumping wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>In case of subsea pipeline damage or leakage, automatic subsea repair and metallic sealing can be adopted</td>
<td>Used for cruise monitoring on subsea oil &amp; gas fields and pipelines to prevent leakage and ensure continuous inspection on production safety</td>
<td>Can avoid major accidents similar to the Mexico Gulf blowout</td>
<td>MSP / DRILEX has obtained a patent for new wellhead feature equipment (patent number CN93225398.9) since 1993, the horizontal structure is now mainly used in subsea horizontal wellhead system equipment. Thereafter, MSP / DRILEX has kicked off its adventure in developing high-end oil &amp; gas equipment technology, innovation and application.</td>
</tr>
</tbody>
</table>

**Rotary universal BOP (patent number : 200620044632.9)**

- Can avoid major accidents similar to the Mexico Gulf blowout

**Smart automatic BOP for Pressure-under-balanced drilling**

**Subsea mudline Christmas tree**

- Subsea oil & gas production system designed and installed below the mudline, and widely used in shallow sea and major channel area to protect the waterway passage
Main subsea projects
3.1 Subsea products & Service

**Subsea wellhead & Production system**
- Meet the deep water critical requirement, high corrosion, high pressure and large flow
- Intellectual control of down hole operation, production and safety management

**Subsea automatic connection & sealing system**
- Design for automatic connection and sealing
- Easy, quick, simple connection
- Metal to metal seal

**Subsea manifold**
- Design for automatic connection and sealing
- Easy, quick, simple connection
- Metal to metal seal

**Subsea control System**
- Real-time automatic remote control and monitoring
- Intellectual, numeric management
- Multiple function technology for oilfield production & safety

MSP/DRILEX is the first manufacturer in China that possesses API 17D License
**Deep Water Christmas Tree**

<table>
<thead>
<tr>
<th>TECHNICAL PARAMETER</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>API 17D/API 6A</td>
</tr>
<tr>
<td>Duration</td>
<td>20 years</td>
</tr>
<tr>
<td>Size</td>
<td>3.7m<em>4m</em>3.1m</td>
</tr>
<tr>
<td>Designed depth</td>
<td>1500 meters</td>
</tr>
<tr>
<td>Connector size</td>
<td>18-3/4” H-4</td>
</tr>
<tr>
<td>WP</td>
<td>10000PSI</td>
</tr>
<tr>
<td>MC</td>
<td>HH-NL &amp; FF-LL</td>
</tr>
<tr>
<td>Temp Class</td>
<td>U (-18°C<del>121°C) &amp; L-U (-46°C</del>121°C)</td>
</tr>
<tr>
<td>PSL</td>
<td>3G</td>
</tr>
<tr>
<td>PR</td>
<td>2</td>
</tr>
</tbody>
</table>

1500m Deep water Christmas Tree
3.2 Project experience

MSP/Drilex supplied the followings to China National Offshore Oil Corporation (CNOOC) in respect of Project Liuhua, Project Panyu and Project Yacheng:

1. The Subsea Wellhead and X-mas Tree;
2. The Automatic Subsea Control System;
3. The Subsea Docking Connector System;
4. The Subsea BOP;
5. The Subsea Riser; and
6. The relevant maintenance service.
3.2 Project experience
-Liuhua 11-1

HT-D is the first Subsea Christmas Tree with designed depth of 500m. Currently there are 7 Christmas Tree used in the Liuhua 11-1 Project (additional 1 set awaiting for deployment), with daily output of 1 million barriers.
The system is applied in Oil Field Liuhua 11-1 in South China Sea and controls 25 Christmas trees. The water depth is 350 meters with 5,000 psi working pressure. They system is designed for subsea Christmas tree, tubing hanger, etc.
Currently MSP/DRILEX is assembling a Subsea Christmas Tree equipment with designed depth of 1,500m. The equipment was delivered to CNOOC at the end of year 2015.
3.2 Project experience

-Yacheng 13-4

Subsea Connector for Project Well Yacheng

4 sets of mechanical locking subsea pipe connector, a set of hydraulic lock underwater pipe connector in 2011 put into use in the South China Sea.
3.2 Project experience
- Engineering Service

**Engineering Services Projects**

- First subsea connector was installed in December 2011
- The first subsea control system (IWOCs) was installed and tested on site in October 2014
- Since October 2012, all the six sets of subsea Christmas tree have been successfully operated
3.3 Onshore products & Service

**Automated Production Control System**
- Installed on top of a well to regulate the pressure and volume of oil & gas flows
- An assembly of values, spools, hangers, sealing units and other components
- Direct hydrocarbon flows from wells to collection system

**Surface Production Equipment**
- Comprehensive system to control and monitor the status of production wells
- Integration with production equipment
- Intelligent control of well opening and closing sequences
- Extensive data collection capability
- Environmental and safety oriented

**Production Control System**
- Single well control systems
- Multiple well control systems

**Other Products & Services**
- Wide range of drilling system components, such as BOP
- Pumping units and other production equipment
- Services

**Major Products**
- Production trees
- Manifolds
- High-pressure valves and other components

**Production Tree**
- Services
3.3 Onshore products & Service

- 15000PSI WELLHEAD & X’MAS TREE
- SOLID BLOCK TREE
- DUAL-TUBING PRODUCTION TREE
- COMPACT HORIZONTAL TREE
- MD GATE VALVE MD

MAIN SUBSEA PROJECTS

Solid Block Trees
Compact Horizontal Tree
Dual-Tubing Production Tree
MD Gate Valve, Metal to Metal Seal up to 20,000psi Working Pressure
Thermal Wellhead
PART 4

Future development on MSP/Drilex subsea oil and gas drilling & production system equipment
MSP/DRILEX will remain committed to providing innovational subsea technology, products, service and customer-centered integrated solutions for the oil and gas industry, closely tracking the advanced technology in the filed of subsea equipment, learn from the advanced company in the field. The subsea drilling and production equipment system is more intelligent and integrated, and international exchanges are widely carried out. We choose the frontier projects of technological development, integrate R & D resources, overcome the difficulties of frontier technology, and carry out international cooperation in depth, so as to achieve win-win results.

4.1 Future development