

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Kill and Choke Equipment

with type designation(s)
2", 2.5" & 3" Choke and Kill Hoses

Issued to

**Copper State Rubber
Phoenix AZ, United States**

is found to comply with
DNVGL-OS-E101 – Drilling plant, Edition July 2015
DNVGL-SI-0166 - Verification for Compliance with Norwegian shelf regulations - Ch.2 Sec.7
DRILL(N), July 2015

Application :

See Page 2

This Certificate is valid until **2021-11-09**.

Issued at **Houston** on **2016-11-10**

DNV GL local station: **Approval CMC – Houston**

Approval Engineer: **Xiangwen (Maggie) Wang**

for **DNV GL**

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Christian Nilsen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id:
Certificate No: **TAD00000HX**

Product description

2", 2-1/2" & 3" 10,000 WP Choke and Kill Hoses, Spec. 090-1915C-32, 40, 48
2" & 3" 5,000 wp Choke and Kill Hoses, 090-1910C-32, 48

Application/Limitation

<u>Design Parameter</u>	<u>090-1915C</u>	<u>090-1910C</u>
Maximum Allowable Pressure:	10,000 psi	5,000 psi
Minimum Temperature:	-20° F	-20° F
Maximum Temperature:	212° F	212° F
Service:	API 16C FSL-0, 1, 2, 3	API 16C FSL-0, 1, 2, 3

Type Approval documentation

<u>Drawing No.</u>	<u>Rev.</u>	<u>Description</u>
3-15000-ASM	0	Choke and Kill Hose 3"
2.5-15000-ASM	0	Choke and Kill Hose 2.5"
2-1500-ASM	0	Choke and Kill Hose 2"

Tests carried out

1. Procedures related to testing, welding, NDT, etc. are to be reviewed/approved by DNV GL's local Surveyor. Comprehensive material requirements are to be reviewed/approved by DNV GL's local Surveyor.
2. The following documentation was found to be satisfactory for prototype testing purposes:

<u>Document No.</u>	<u>Rev.</u>	<u>Description</u>
SwRI Project 01.20684.15.206[1]	-	Fire performance evaluation report, dated Oct. 5 th 2015
SwRI Project 18057.14.446	-	High pressure high temperature exposure of rubber hose (3" 10K), dated Feb. 6 th 2015
SwRI Project 18.05272	-	3" 10,000 psi choke and kill line final report, dated Dec. 20 th 2002

Marking of product

Marking shall:

- Be reviewed & approved by the local DNV GL Surveyor
- Identify and differentiate each production unit <i.e. serial number>
- Establish traceability to product design and fabrication documentation
- Be in accordance with API 16C §8.4.

Periodical assessment

For retention of Type Approval, DNV GL's surveyor shall perform a survey every second year in accordance with DNV GL Class Programme DNVGL-CP-0338, Section 4.

END OF CERTIFICATE