



**SUBSEA
SYSTEMS**

DIV. BAUGH CONSULTING ENGINEERS, INC.

SUBSEA WELLHEAD PROTECTION METHOD

**Larger and larger subsea BOP
Stacks impart:**

Higher weight loads

Higher riser side loading &

Longer moment arms

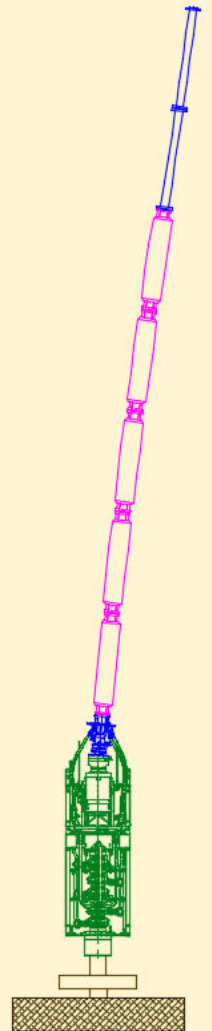
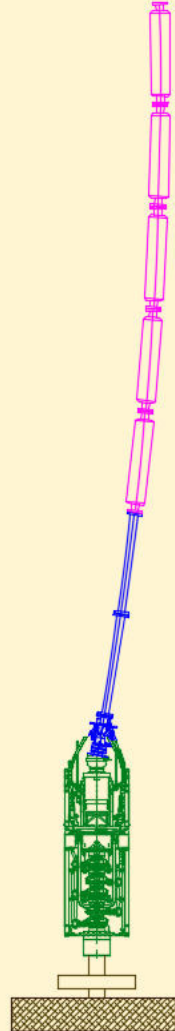
to older subsea wellhead systems.

**The older wellhead systems were
designed to accommodate the
loads imparted by older BOP
Stacks and Risers, which in many
cases was considerably lower
than contemporary loadings.**

CONVENTIONAL METHOD

**The figure on the left shows the
98% buoyed riser joints at the top
and the heavy bare riser joints at
the bottom.**

**This causes the heavy riser near
the BOP Stack to impart a moment
on the stack. And by definition has
a greater riser angle than the average
of the riser.**



PROTECTION METHOD

**The figure on the right basically turns the riser upside down putting the
heavy bare riser joints at the top. The buoyed riser joints are at the BOP
stack and be “over buoyed” to make sure the angle at the bottom less
than the average angle of the riser. The illustrated angle in the right figure
is 1/2 of the angle in the left figure.**

Beta Subsea Systems offers a combination of patent licensing, engineering, manufacturing capabilities, and products to assist you grow your business.

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PATENT PENDING