MC252 Demobilization Project

for

MC252-1

Choke and Kill Gooseneck Recovery Procedure

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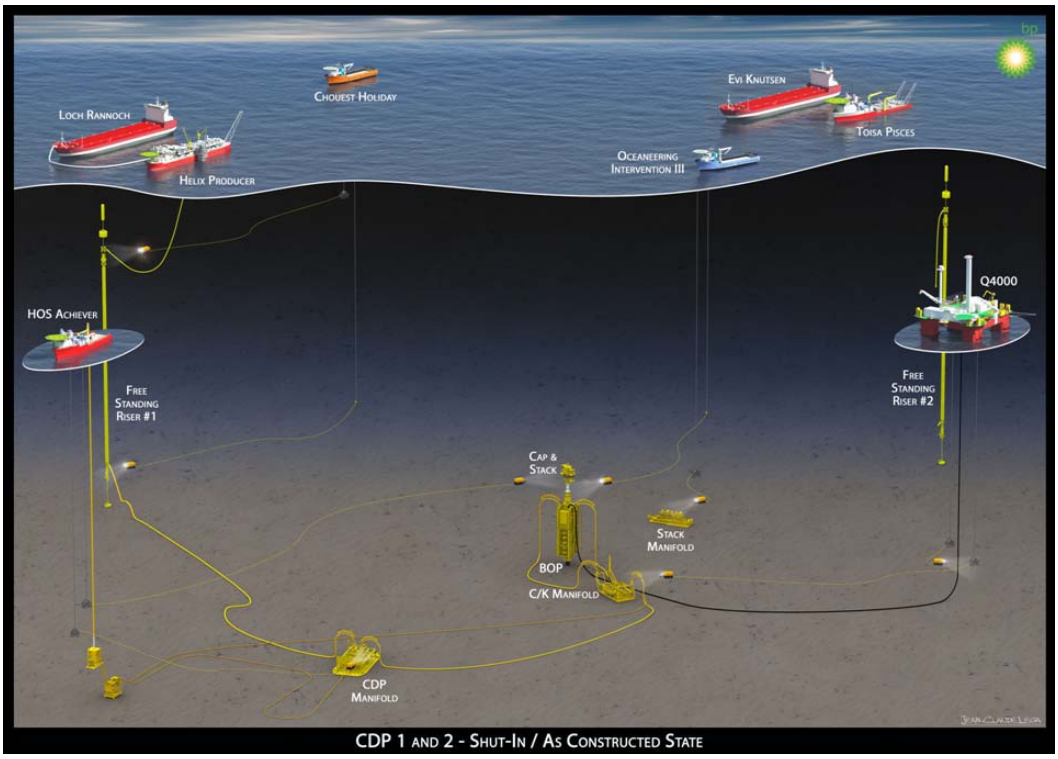
1 Introduction

The Containment and Disposal Project (CDP) objective was to contain the spill flowing at the BOP level located at MC252-1. This was accomplished utilizing a Free Standing Riser system composed of rigid pipe-in-pipe riser, flexible jumpers, containment and storage vessels, and an IWOCS-based/Hydrate Inhibition System (HIS).

As part of the Macondo Demobilization Project (MDP) these CDP system components will undergo de-commissioning and de-construction. This process requires that hydrocarbons/drilling mud, or base oil/drilling mud, be purged from the jumpers, flowlines, risers, and manifolds; the HIS be flushed; and of all of these components are recovered to the surface for transport, preservation, and storage.



CDP 1 and 2 - Shut-In / As Constructed State

This procedure defines the offshore activities to be performed during the disconnection and recovery of the Choke and Kill Goosenecks from the BOP and Choke and Kill Manifold. For reasons of safety, it is planned to leave the severed sections of flexible jumper on the seabed and only the goosenecks will be recovered to surface.

The recovery of the Choke and Kill Goosenecks is part of a larger effort to deconstruct, recover and demobilize the MC 252 temporary response equipment. A holistic recovery plan (MC252-1 Temporary Installed Subsea Equipment Recovery Plan, 2200-T2-DO-PR-4746) has been developed which includes categorizing response equipment as:

- Evidence (Legal Hold).
- Temporary Kit to be Recovered (Non-Legal).
- Abandon In-Place.

It should be noted that the Choke and Kill Goosenecks have not been characterized as legal hold kit. Therefore, custody transfer and quarantine protocols do not apply to the recovery and demobilization of the equipment to be recovered per this procedure. The legal hold category primarily pertains to BOP and flow-related equipment.

The equipment will be recovered to surface and demobilized.

1.1. Scope

This document describes the detailed procedure for recovering the Goosenecks, two (2) of which were connected to the BOP and are now currently wet-stored on subsea mud-mats in the vicinity of the MC252 wellhead. The other three (3) Goosenecks are connected to the Choke and Kill Manifold. As proposed in procedure 2200-T2-DO-PR-4746, the 1,400-ft flexible will be abandoned in place after its manifold end gooseneck has been recovered.

Note: **At the time of writing this procedure, the Chouest Holiday was the chosen construction vessel for performing the Gooseneck recovery operations.**

If at the time of the actual operation the Chouest Holiday is unavailable for conducting operations, a vessel or drill rig with the following specification will be made available:

- **DP 2 vessel.**
- **Crane with minimum 20-Te capacity, capable of reaching 5,000-ft subsea.**
- **Two (2) work class ROV's.**

The following is an outline of the works that will be performed under this procedure:

- Position vessel over recovery location.
- Commence preliminary preparations for recovery.
- Lower and connect crane to Goosenecks at the wet-stored / Manifold locations.
- Use saw cutter to cut the flexible pipe behind the Goosenecks.
- Recover Gooseneck to the surface for shipment and storage onshore.

1.2. Reference Documents

Table 1: Reference Documents

[1]	BP	Subsea Evidence Basket Recovery	2200-T2-DO-PR-4789
[2]	Cameron	Installation and Operation Procedure, 3-in - 15K Integral Mini connector for Deep Water Horizon BOP	X-276223-01
[3]	BP	Equipment Demobilization Tracking Procedure	2200-T2-DO-PR-4831

2 Acronyms

Abbreviation	Definition
A/R	Abandonment and Recovery
AHC	Active Heave Compensation
Approx	Approximately
CDP	Containment and Disposal Project
DBM	Discrete buoyancy module
Deg	Degree
Dwg	Drawing
FSR	Free Standing Riser
ID	Inside Diameter
JSA	Job Safety Analysis
No or #	Number
NE	North East
NW	North West
MDP	Macondo Demobilization Project
OD	Outer Diameter
QTY	Quantity
Ref	Reference
ROV	Remotely Operated Vehicle
Stbd	Starboard
SWL	Safe Working load
SE	South East

Abbreviation	Definition
SW	South West
TBD	To Be Determined
Te	Tonnes (metric)
WD	Water Depth
WT	Wall Thickness

3 Technical Data

3.1. Goosenecks Overview

Table 2: Flexible Jumper Overview

Name	Weight	Location	Approx WD (ft)	Dwg No.	Handling Procedure	Gooseneck Lift Frame SWL
BOP Gooseneck #1 (180-deg) Kill	2.1-Tons	Wet Parked	5,000	SK-151594-02	220-T2-DO-PR-4789	6-Tons
BOP Gooseneck #2 (180-deg with 30-deg out of Bend) Choke	2.1-Tons	Wet Parked	5,000	SK-151594-03	220-T2-DO-PR-4789	6-Tons
Gooseneck #3 (Kill)	1.79-Tons	Choke and Kill Manifold	5,000	SK-151594-01	220-T2-DO-PR-4789	5-Tons
Gooseneck #4 (Choke)	1.79-Tons	Choke and Kill Manifold	5,000	SK-151594-01	220-T2-DO-PR-4789	5-Tons
Gooseneck #5 (1,200-ft Jumper)	1.79-Tons	Choke and Kill Manifold	5,000	SK-151594-01	220-T2-DO-PR-4789	5-Tons

3.2. Flexible Pipe Overview

Table 3: Flexible Pipe Data

Inner Diameter (in)	Outer Diameter (in)	Weight (lb/ft)
3.00 (1)	6.762	45.4 in air empty

[1]Data obtained from Wellstream HPHT flexible pipe specification sheet, see appendix 2.

4 Preparations

4.1. Pre-Recovery Activities

The following operations will occur prior to initiating Gooseneck recovery activities:

- ROV personnel to ensure chop saw and super grinder are ready for subsea use.
- At least one ROV is to be outfitted with an API 17H dual port hotstab, able to deliver up to 3,000-psi.
- Ensure proper rigging for recovery of Goosenecks has been identified and rigged up on crane.
- Prepare and conduct JSEA.
- Confirm a favorable weather window exists to proceed with the estimated duration of the Gooseneck recovery works. Re-evaluate, as needed, if forecasts or on-site weather conditions change. The Vessel Master, Superintendent and BP Company representative will mutually agree that a weather window exists.

4.2. Limiting Environmental Criteria

The limiting significant wave height (H_S) and associated wave period for the Iron Horse were 8.2-ft (2.5-m) and 10-seconds.

Should the sea state present a wave height greater than allowable or a longer wave period, the following alternatives may be considered:

- Orient the vessel so the wave heading is a quartering, following or head sea.
- Apply active heave compensation.

The required weather sensitive window: Planned duration + 50% contingency.

4.3. Methodology

4.3.1. *Cutting the Flexible Jumper*

To cut through the flexible jumper body it is intended to use the 22-in Oceaneering Chop Saw (Oceaneering Doc. # D-0028148), which the ROV will first clamp around the flexible jumper carcass just below the bend stiffener and then operate the saw to sever the jumper. If the chop saw is unable to cut through the flexible then the contingency is to use the Oceaneering Super Grinder type cutter to cut through the bolts on the Grayloc connector immediately behind the gooseneck.

4.3.2. *Recovery of Choke and Kill Goosenecks at the BOP (Wet-Stored on Mattresses)*

1. Recovery vessel to set up in DP at location.
2. Deploy ROV's to seabed.
3. Lower crane wire and position over gooseneck mattresses on seabed with the aid of ROV.
4. ROV to connect pennant to any accessible Gooseneck lift point (masterlink).
5. Commence lifting the Gooseneck with the crane until sufficient height is achieved to make cut (approximately 20-ft).
6. ROV to clamp chop saw around the flexible body ready to make the cut.

Note: Ensure ROV's tether is clear of flexible before making cut.

7. ROV to cut through flexible.
8. If the chop saw is unable to cut through the flexible then the contingency is to use a super grinder cutter to cut through the bolts on the Grayloc connector.
9. Once cut free from the flexible, continue to lift the gooseneck and recover to surface.
10. Upon recovery of the BOP goosenecks to deck. Ensure storage and demobilization is per procedure "Subsea Basket Recovery" (2200-T2-DO-PR-4789).
11. Repeat the above steps to recover 2nd Gooseneck connector from its wet-parked position on the seabed mattress.

4.3.3. *Recovery of Goosenecks at the Choke and Kill Manifold*

12. Recovery vessel to set-up in DP at location.
13. Deploy ROV's to seabed.
14. Move ROV with chop saw in position to cut flexible pipe below the bend stiffener.
15. ROV to clamp chop saw around the body of the flexible ready to make the cut.

Note: Ensure ROV's tether is clear of flexible before making cut.

16. If chop saw is unable to cut through the flexible then the contingency is to use a super grinder cutter to cut through the bolts on the Grayloc connector.
17. Lower vessel crane wire and position over Choke and Kill Manifold location.
18. ROV to connect pennant to Gooseneck connector attached to manifold.
19. Second ROV to use API 17H dual port hot stab to release the Cameron mini-connector and disconnect Gooseneck connector from the manifold.
20. Once disconnected recover the Gooseneck onto the deck. Ensure storage and demobilization is per procedure "Subsea Basket Recovery" (2200-T2-DO-PR-4789).
21. Repeat the above steps for remaining two (2) gooseneck connectors attached to Choke and Kill Manifold.

4.4. Recovery Operation for Goosenecks

4.4.1. *NE Kill (180-deg) BOP Gooseneck Recovery Work Plan*

Photo 1: North East Kill 180-deg BOP Gooseneck

Step	Description	References / Notes
1.	Vessel to set up in DP at location for recovery of 180-deg Kill line BOP Gooseneck.	
2.	Lower vessel crane wire into position over gooseneck under guidance from ROV.	MDP-38-HI-DG-0078-01
3.	ROV to connect pennant wire from vessel crane to masterlink on BOP Kill line Gooseneck. **Note: There are several lift points on the gooseneck razor-back lift beam. Any of these may be used and ROV should select the most accessible lift point to attach the lift line.** **Note: Buoyancy may or may not be attached to the gooseneck at the time of recovery. If fitted, the buoyancy should be left in place and recovered with the gooseneck.**	MDP-38-HI-DG-0078-01

Step	Description	References / Notes
4.	Crane to start lifting the Gooseneck and flexible until gooseneck is raised approximately 15 – 20-ft above seabed, or until ROV can get access to make the cut.	MDP-38-HI-DG-0078-01
5.	ROV to clamp chop saw around flexible ready to make cut. **Note: Ensure ROV's tether is clear of flexible before making cut.**	
6.	Once confirmed and ready, perform the cut. If Chop saw fails to cut flexible, the gooseneck Grayloc clamp bolts will be cut with the super grinder tool.	MDP-38-HI-DG-0078-01
7.	After cut is complete, ROV to do a visual check to inspect for any discharge of fluid. **Note: Refer to Attachment 4 and Attachment 5 for documentation, recording and communication regarding discharge of fluid.**	
8.	ROV to remove dummy Moffat hot stab from Gooseneck receptacle (allow dummy stab to hang on lanyard) and open ball valve.	MDP-38-HI-DG-0078-02
9.	ROV to remove dummy hot stab from the connector actuation panel and open isolation valve.	
10.	Lift the gooseneck and recover to surface.	MDP-38-HI-DG-0078-02
11.	Upon recovery of the gooseneck to the deck, ensure storage and demobilization is per Chain of Custody procedure (2200-T2-DO-PR-4831).	MDP-38-HI-DG-0078-02

4.4.2. *NW Choke (180-deg with 30-deg Bend) BOP Gooseneck Recovery Work Plan*

Photo 2: North West Choke180-deg with 30-deg Bend BOP Gooseneck

Step	Description	References / Notes
1.	Vessel to set up in DP at location for recovery of 180-deg Choke line BOP Gooseneck.	
2.	Lower vessel crane wire into position over gooseneck under guidance from ROV.	MDP-38-HI-DG-0078-01
3.	ROV to connect pennant wire from vessel crane to masterlink on BOP Kill line Gooseneck. **Note: There are several lift points on the gooseneck razor-back lift beam. Any of these may be used and ROV should select the most accessible lift point to attach the lift line.** **Note: Buoyancy may or may not be attached to the gooseneck at the time of recovery. If fitted, the buoyancy should be left in place and recovered with the gooseneck.**	MDP-38-HI-DG-0078-01
4.	Crane to start lifting the Gooseneck and flexible until gooseneck is raised approx 15 – 20-ft above seabed, or until ROV can get access to make the cut.	MDP-38-HI-DG-0078-01

Step	Description	References / Notes
5.	ROV to clamp chop saw around flexible ready to make cut. **Note: Ensure ROV's tether is clear of flexible before making cut.**	
6.	Once confirmed and ready, perform the cut. If Chop saw fails to cut flexible, the gooseneck Grayloc clamp bolts will be cut with the super grinder tool.	MDP-38-HI-DG-0078-01
7.	After cut is complete, ROV to do a visual check to inspect for any discharge of fluid. **Note: Refer to Attachment 4 and Attachment 5 for documentation, recording and communication regarding discharge of fluid.**	
8.	ROV to remove dummy Moffat hot stab from Gooseneck receptacle (allow dummy stab to hang on lanyard) and open ball valve.	MDP-38-HI-DG-0078-02
9.	ROV to remove dummy hot stab from the connector actuation panel and open isolation valve.	
10.	Lift the gooseneck and recover to surface.	MDP-38-HI-DG-0078-02
11.	Upon recovery of the gooseneck to the deck, ensure storage and demobilization is per Chain of Custody procedure (2200-T2-DO-PR-4831).	MDP-38-HI-DG-0078-02

4.4.3. *NE (135-deg) Manifold Gooseneck Recovery Work Plan*

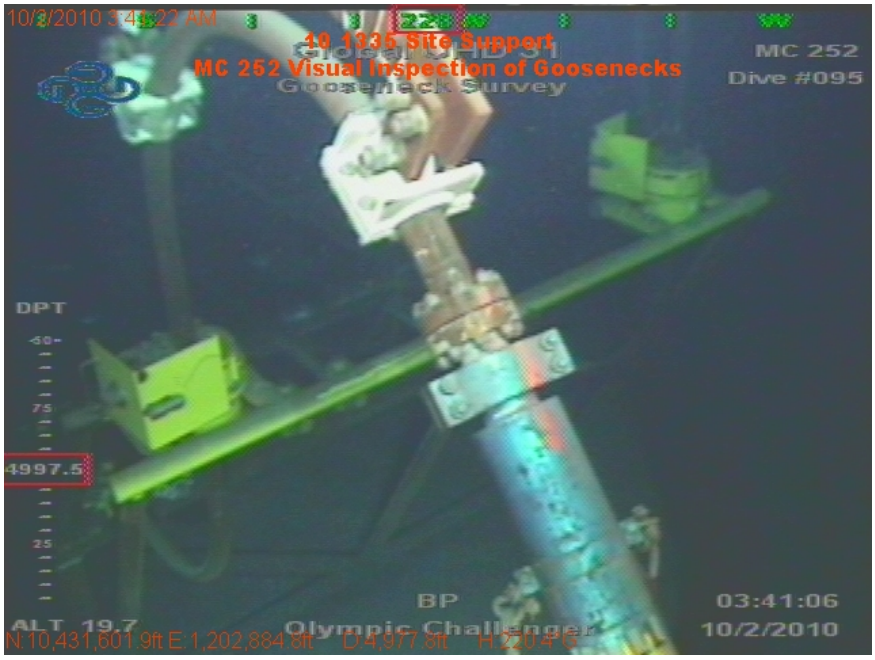


Photo 3: North East - Kill 135-deg Manifold Gooseneck

Step	Description	References / Notes
1.	Vessel to set up in DP over Choke and Kill Manifold location.	
2.	Move ROV in position to cut the flexible Jumper just below the North East Choke and Kill Manifold Gooseneck.	MDP-38-HI-DG-0083-01
3.	ROV to clamp chop saw around flexible ready to make cut. **Note: Ensure ROV's tether is clear before making cut.**	
4.	Once confirmed and ready, cut the freely hanging flexible pipe below the bend stiffener.	MDP-38-HI-DG-0083-01
5.	When cut is complete the severed flexible will drop to the seabed.	MDP-38-HI-DG-0083-01

Step	Description	References / Notes
6.	ROV to connect pennant wire from crane to masterlink on the gooseneck. **Note: There are several lift points on the gooseneck razor-back lift beam. Any of these may be used and ROV should select the most accessible lift point to attach the lift line.** **Note: Buoyancy may or may not be attached to the gooseneck at the time of recovery. If fitted, the buoyancy should be left in place and recovered with the gooseneck.**	MDP-38-HI-DG-0083-01
7.	At the Cameron connector operating panel, remove the dummy hot stab, open the isolation valve and insert the API 17H dual port hot stab.	MDP-38-HI-DG-0083-01
8.	With the crane in AHC, take up the slack in the rigging and hold minimal load (1 – 2-tons).	
9.	Operate the Cameron mini-connector to release the connector and gooseneck from the hub (see Cameron Procedure in Attachment 6). The operating pressure to unlock the connector should be 2,000-psi, but up to a maximum of 3,000-psi may be applied if connector fails to open. **Note: The visual indicator rods will show when the connector is unlocked, but the connector should immediately release from the hub when the connector is functioned.**	
10.	Once the connector is fully unlocked and free from the manifold hub, remove the hot stab, leave the isolation valve open and do not replace the dummy hot stab.	
11.	ROV to do a visual check to inspect for any discharges of fluid once gooseneck has been disconnected from the Choke and Kill Manifold. **Note: Refer to Attachment 4 and Attachment 5 for documentation and communication regarding discharge of fluid.**	
12.	Lift the gooseneck and recover to surface.	MDP-38-HI-DG-0083-01
13.	Upon recovery of the gooseneck to the deck, ensure storage and demobilization is per Chain of Custody procedure (2200-T2-DO-PR-4831).	MDP-38-HI-DG-0083-01

4.4.4. *NW (135-deg) Manifold Gooseneck Recovery Work Plan*

Photo 4: North West - Choke 135-deg Manifold Gooseneck

Step	Description	References / Notes
1.	Vessel to set up in DP over Choke and Kill Manifold location.	
2.	Move ROV in position to cut the flexible Jumper just below the North West Choke and Kill Manifold Gooseneck.	MDP-38-HI-DG-0083-01
3.	ROV to clamp chop saw around flexible ready to make cut. **Note: Ensure ROV's tether is clear before making cut.**	
4.	Once confirmed and ready, cut the freely hanging flexible pipe below the bend stiffener.	MDP-38-HI-DG-0083-01
5.	When cut is complete the severed flexible will drop to the seabed.	MDP-38-HI-DG-0083-01

Step	Description	References / Notes
6.	ROV to connect pennant wire from crane to masterlink on the gooseneck. **Note: There are several lift points on the gooseneck razor-back lift beam. Any of these may be used and ROV should select the most accessible lift point to attach the lift line.** **Note: Buoyancy may or may not be attached to the gooseneck at the time of recovery. If fitted, the buoyancy should be left in place and recovered with the gooseneck.**	MDP-38-HI-DG-0083-01
7.	At the Cameron connector operating panel, remove the dummy hot stab, open the isolation valve and insert the API 17H dual port hot stab.	MDP-38-HI-DG-0083-01
8.	With the crane in AHC, take up the slack in the rigging and hold minimal load (1 – 2-tons).	
9.	Operate the Cameron mini-connector to release the connector and gooseneck from the hub (see Cameron Procedure in Attachment 6). The operating pressure to unlock the connector should be 2,000-psi, but up to a maximum of 3,000-psi may be applied if connector fails to open. **Note: The visual indicator rods will show when the connector is unlocked, but the connector should immediately release from the hub when the connector is functioned.**	
10.	Once the connector is fully unlocked and free from the manifold hub, remove the hot stab, leave the isolation valve open and do not replace the dummy hot stab.	
11.	ROV to do a visual check to inspect for any discharges of fluid once gooseneck has been disconnected from the Choke and Kill Manifold. **Note: Refer to Attachment 4 and Attachment 5 for documentation and communication regarding discharge of fluid.**	
12.	Lift the gooseneck and recover to surface.	MDP-38-HI-DG-0083-01
13.	Upon recovery of the gooseneck to the deck, ensure storage and demobilization is per Chain of Custody procedure (2200-T2-DO-PR-4831).	MDP-38-HI-DG-0083-01

4.4.5. *SW (135-deg Q4000) Manifold Gooseneck Recovery Work Plan*

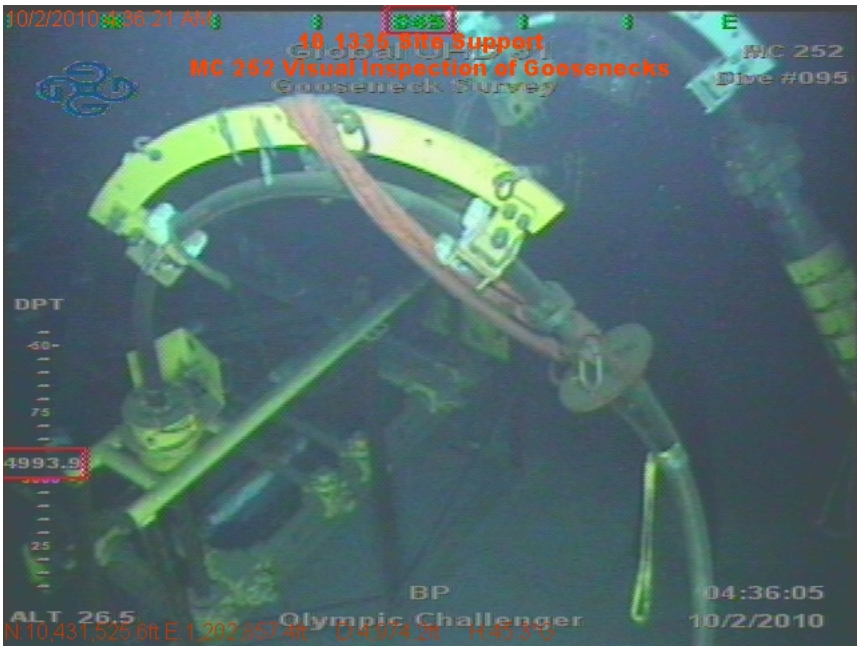


Photo 5: South West - Q4000 135-deg Manifold Gooseneck

Step	Description	References / Notes
1.	Vessel to set up in DP over Choke and Kill manifold location.	
2.	Move ROV in position to cut the flexible Jumper just below the South West Choke and Kill Manifold Gooseneck.	MDP-38-HI-DG-0083-01
3.	ROV to clamp chop saw around flexible ready to make cut. **Note: Ensure ROV's tether is clear before making cut.**	
4.	Once confirmed and ready, cut the freely hanging flexible pipe below the bend stiffener.	MDP-38-HI-DG-0083-01
5.	When cut is complete the severed flexible will drop to the seabed.	MDP-38-HI-DG-0083-01

Step	Description	References / Notes
6.	ROV to connect pennant wire from crane to masterlink on the gooseneck. **Note: There are several lift points on the gooseneck razor-back lift beam. Any of these may be used and ROV should select the most accessible lift point to attach the lift line.**	MDP-38-HI-DG-0083-01
7.	At the Cameron connector operating panel, remove the dummy hot stab, open the isolation valve and insert the API 17H dual port hot stab.	MDP-38-HI-DG-0083-01
8.	With the crane in AHC, take up the slack in the rigging and hold minimal load (1 – 2-tons).	
9.	Operate the Cameron mini-connector to release the connector and gooseneck from the hub (see Cameron Procedure in Attachment 6). The operating pressure to unlock the connector should be 2,000-psi, but up to a maximum of 3,000-psi may be applied if connector fails to open. **Note: The visual indicator rods will show when the connector is unlocked, but the connector should immediately release from the hub when the connector is functioned.**	
10.	Once the connector is fully unlocked and free from the manifold hub, remove the hot stab, leave the isolation valve open and do not replace the dummy hot stab.	
11.	ROV to do a visual check to inspect for any discharges of fluid once gooseneck has been disconnected from the Choke and Kill Manifold. **Note: Refer to Attachment 4 and Attachment 5 for documentation and communication regarding discharge of fluid.**	
12.	Lift the gooseneck and recover to surface.	MDP-38-HI-DG-0083-01
13.	Upon recovery of the gooseneck to the deck, ensure storage and demobilization is per Chain of Custody procedure (2200-T2-DO-PR-4831).	MDP-38-HI-DG-0083-01

4.5. Contingency for Emergency Abandonment

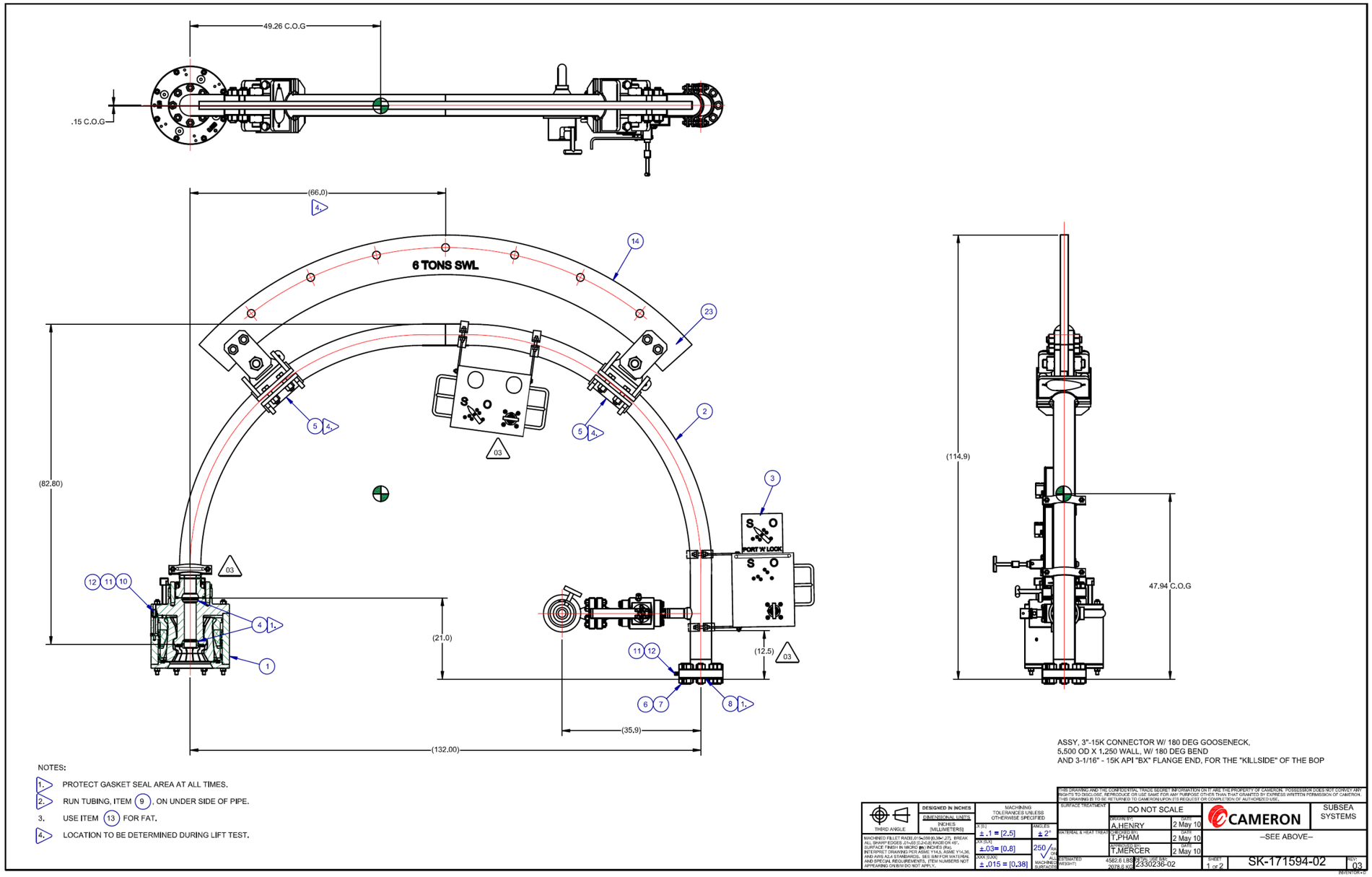
In event of a weather emergency during Gooseneck recovery operation, the crane would be disconnected from Gooseneck / flexible and all ROV's recalled to surface.

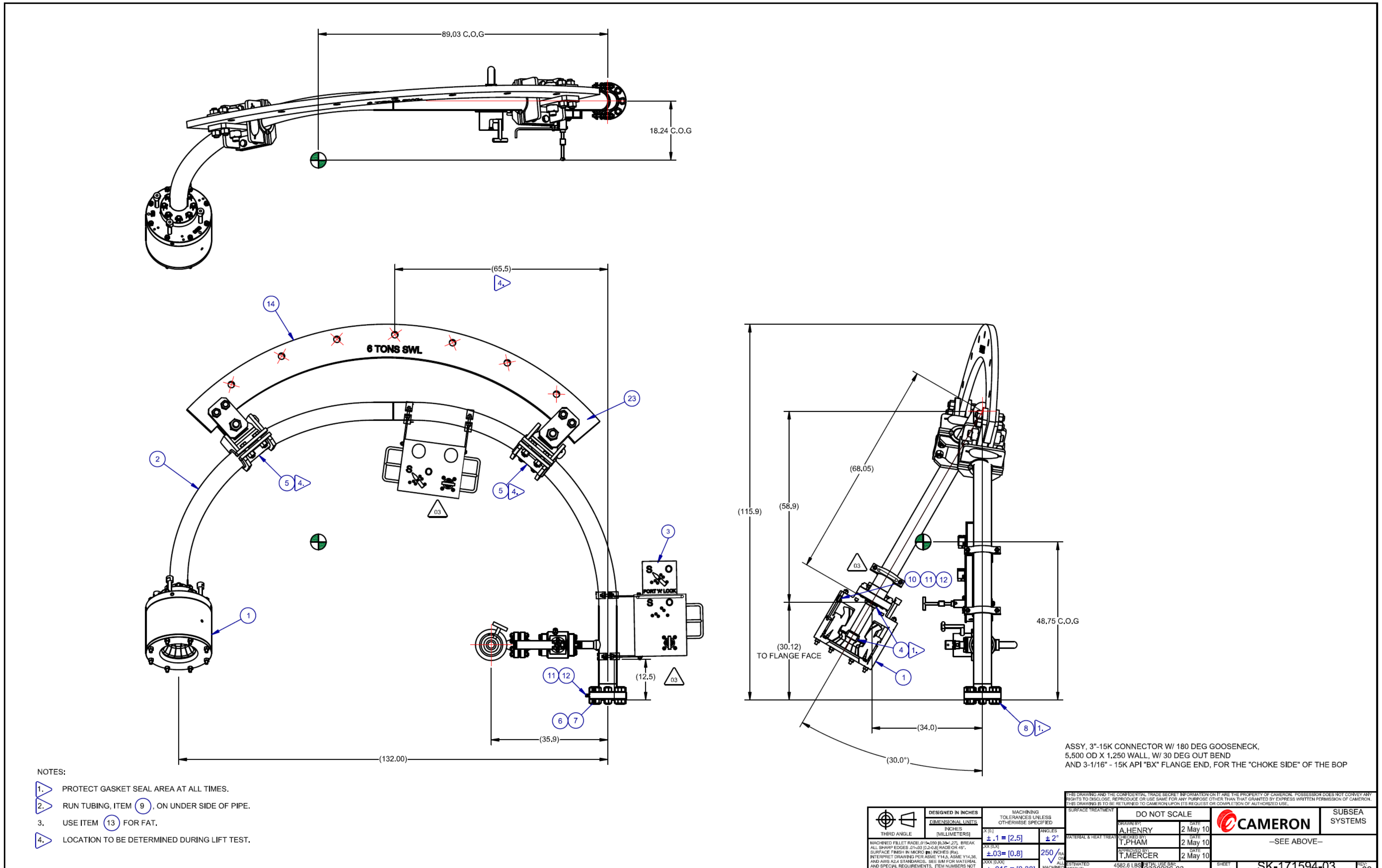
4.6. Tagging of Equipment

For material tracking, it is necessary to tag each item recovered from the seabed with a label identifying the piece of equipment and which pipeline / jumper the piece of equipment was connected to as part of the CDP system.

A plastic waterproof label will be attached to each gooseneck connector upon recovering the connector to deck of the construction vessel. The label will identify which manifold / BOP the connector was connected to and which jumper the connector was connected to.

Attachment 1: Gooseneck Drawings

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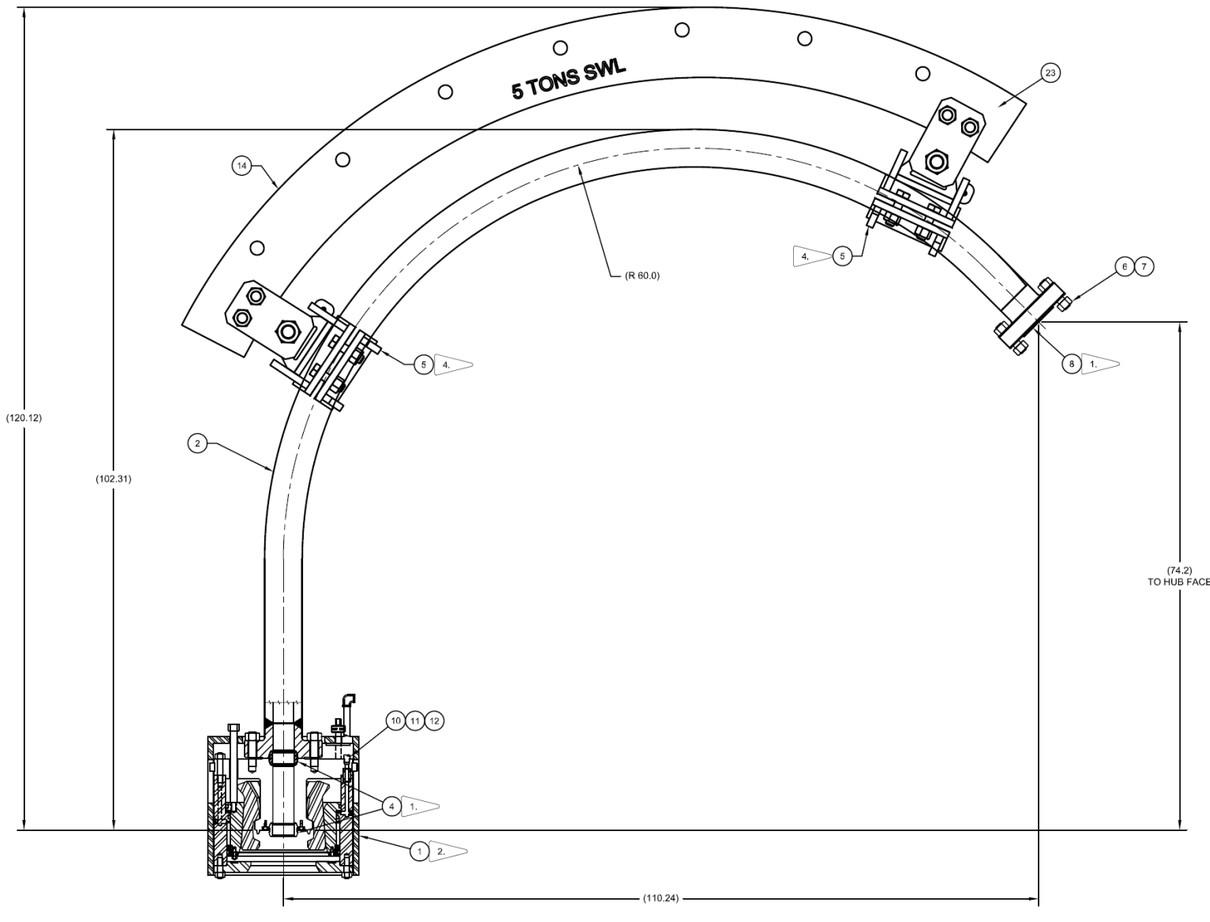
(30.0°)
NOTES:
1. PROTECT GASKET SEAL AREA AT ALL TIMES.
2. RUN TUBING, ITEM 9, ON UNDER SIDE OF PIPE.
3. USE ITEM 13 FOR FAT.
4. LOCATION TO BE DETERMINED DURING LIFT TEST.
ASSY, 3"-15K CONNECTOR W/ 180 DEG GOOSENECK,
5.500 OD X 1.250 WALL, W/ 30 DEG OUT BEND
AND 3-1/16" - 15K API "BX" FLANGE END, FOR THE "CHOKE SIDE" OF THE BOP
THIS DRAWING AND THE CONFIDENTIAL TRADE SECRET INFORMATION ON IT ARE THE PROPERTY OF CAMERON. POSSESSION DOES NOT CONVEY ANY RIGHTS TO DISCLOSE, REPRODUCE OR USE SAME FOR ANY PURPOSE OTHER THAN THAT GRANTED BY EXPRESS WRITTEN PERMISSION OF CAMERON. THIS DRAWING IS TO BE RETURNED TO CAMERON UPON ITS REQUEST OR COMPLETION OF AUTHORIZED USE.
THIRD ANGLE
DESIGNED IN INCHES
DIMENSIONAL UNITS
INCHES [MILLIMETERS]
MACHINING TOLERANCES UNLESS OTHERWISE SPECIFIED
.X [0.] ± .1 = [2.5]
ANGLES ± 2°
.XX [0.X] ±.03= [0.8]
.XXX [0.XX] ± .015 = [0.38]
250 RA ON ALL MACHINED SURFACES
MACHINED FILLET RADII .015-.050 [0.38-1.27]. BREAK ALL SHARP EDGES .01-.03 [0.2-0.8] RADII OR 45°. SURFACE FINISH IN MICRO (m) INCHES (Ra). INTERPRET DRAWING PER ASME Y14.5, ASME Y14.36, AND AWS A2.4 STANDARDS. SEE B/M FOR MATERIAL AND SPECIAL REQUIREMENTS. ITEM NUMBERS NOT APPEARING ON B/M DO NOT APPLY.
SURFACE TREATMENT
MATERIAL & HEAT TREAT
DO NOT SCALE
DRAWN BY: A.HENRY DATE 2 May 10
CHECKED BY: T.PHAM DATE 2 May 10
APPROVED BY: T.MERCER DATE 2 May 10
ESTIMATED WEIGHT: 4582.6 LBS 2078.6 KG
INITIAL USE B/M: 2330236-03
CAMERON
SUBSEA SYSTEMS
–SEE ABOVE–
SHEET 1 OF 2
SK-171594-03
REV: 03
INVENTOR - D



NOTES:

1. PROTECT GASKET SEAL AREA AT ALL TIMES.
2. MINI CONNECTOR PLUMBED WITH ROV PANEL DESIGNED BY OCEANING.
3. USE ITEM (13) FOR FAT.
4. LOCATION TO BE DETERMINED AT LIFT TEST.

EST. WT: 3950 LBS

CAD

TOLERANCE UNLESS OTHERWISE SPECIFIED
.X ± 1 = ±2,5 mm
.XX ± 03 = ±.7 mm
.XXX ± 015 = ±.35 mm
ANGLES ± 2

SURFACE FINISH EQUALIVALENTS ENGLISH/METRIC
250 / MACHINED SURFACES

UNLESS OTHERWISE SPECIFIED; ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES .01 +.03 R OR 45°.
INTERPRET DWG PER ANSI Y14.5 STANDARD. SEE B/M FOR MATERIAL AND SPECIAL REQUIREMENTS.
ITEM NUMBERS NOT APPEARING ON B/M DO NOT APPLY.

SURFACE TREATMENT
MATERIAL & HEAT TREAT

DO NOT SCALE

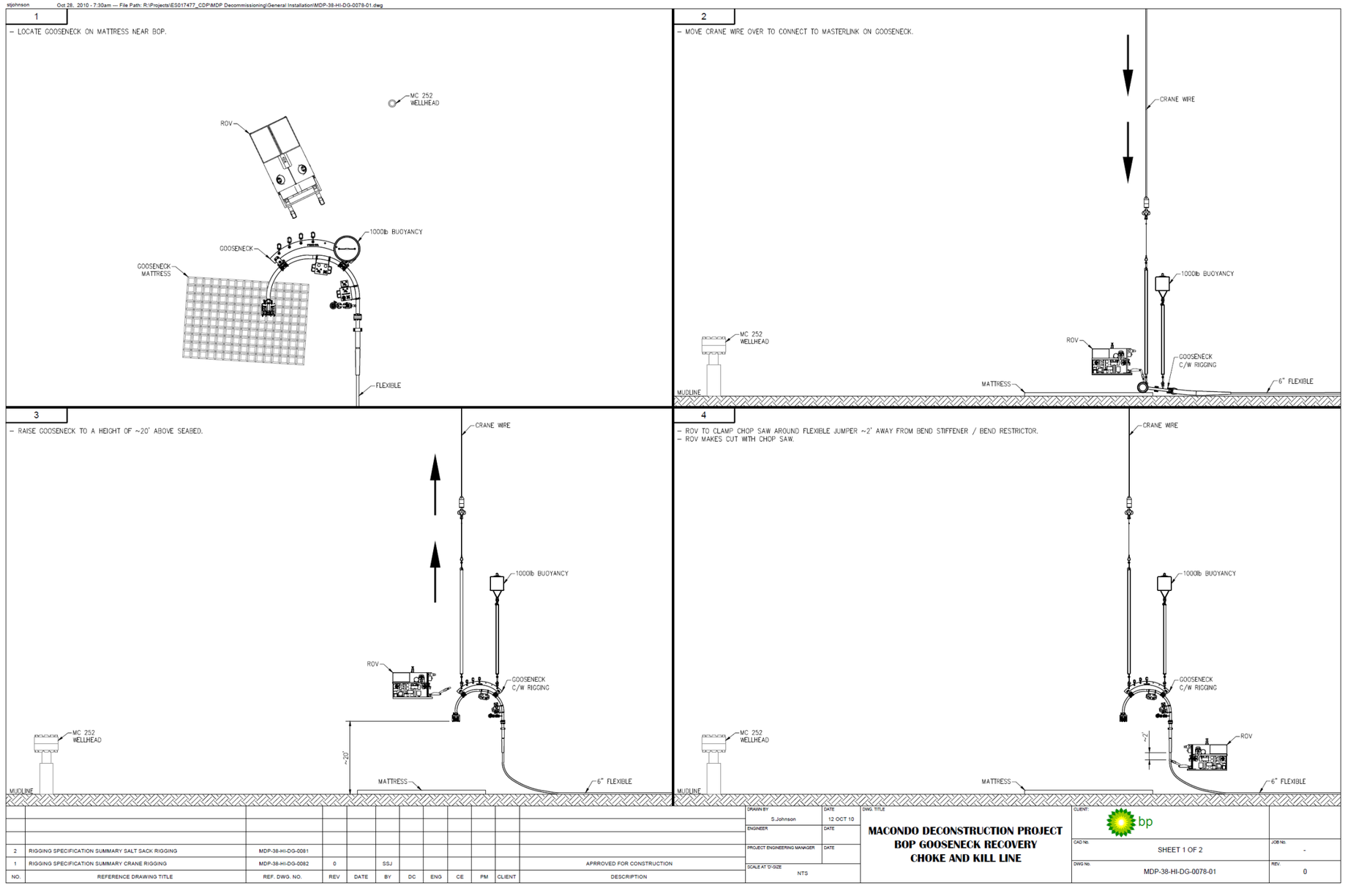
DRAWN BY	A. HENRY	DATE 2 MAY 10
CHECKED	T. PHAM	DATE 2 MAY 10
APPROVED	T. MERCER	DATE 2 MAY 10

Cameron Corporation
Cameron Drillston
P.O. Box 1212
Houston, TX 77251-1212

ASSY, 3"-15K MINI CONNECTOR GOOSENECK, 5,500 OD X 1,250 WALL, W/ 135° BEND AND 3-1/16" - 15K API 'BX' FLANGE END

SUPERSEDES | DATED | INITIAL USE B/M: 2330236-01 | SHEET 1 OF 2 | SK-171594-01

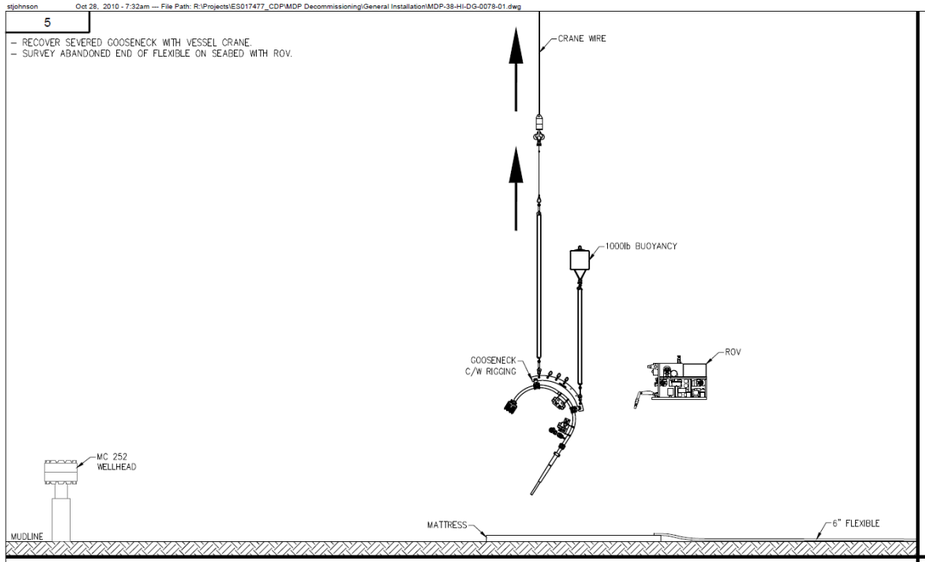
03 REV


stjohnson Oct 28, 2010 - 7:30am — File Path: R:\Projects\IES017477_CDP\MDP Decommissioning\General Installation\MDP-38-HI-DG-0078-01.dwg
1
– LOCATE GOOSENECK ON MATTRESS NEAR BOP.
MC 252 WELLHEAD
ROV
1000lb BUOYANCY
GOOSENECK
GOOSENECK MATTRESS
FLEXIBLE
2
– MOVE CRANE WIRE OVER TO CONNECT TO MASTERLINK ON GOOSENECK.
CRANE WIRE
1000lb BUOYANCY
MC 252 WELLHEAD
ROV
GOOSENECK C/W RIGGING
MATTRESS
6" FLEXIBLE
MUDLINE
3
– RAISE GOOSENECK TO A HEIGHT OF ~20' ABOVE SEABED.
CRANE WIRE
1000lb BUOYANCY
ROV
GOOSENECK C/W RIGGING
MC 252 WELLHEAD
~20'
MATTRESS
6" FLEXIBLE
MUDLINE
4
– ROV TO CLAMP CHOP SAW AROUND FLEXIBLE JUMPER ~2' AWAY FROM BEND STIFFENER / BEND RESTRICTOR.
– ROV MAKES CUT WITH CHOP SAW.
CRANE WIRE
1000lb BUOYANCY
GOOSENECK C/W RIGGING
MC 252 WELLHEAD
~2'
ROV
MATTRESS
6" FLEXIBLE
MUDLINE
2 RIGGING SPECIFICATION SUMMARY SALT SACK RIGGING MDP-38-HI-DG-0081
1 RIGGING SPECIFICATION SUMMARY CRANE RIGGING MDP-38-HI-DG-0082 0 SSJ APPROVED FOR CONSTRUCTION
NO. REFERENCE DRAWING TITLE REF. DWG. NO. REV DATE BY DC ENG CE PM CLIENT DESCRIPTION
DRAWN BY S.Johnson DATE 12 OCT 10
ENGINEER DATE
PROJECT ENGINEERING MANAGER DATE
SCALE AT 'D'-SIZE NTS
DWG TITLE
MACONDO DECONSTRUCTION PROJECT
BOP GOOSENECK RECOVERY
CHOKE AND KILL LINE
CLIENT bp
CAD No. SHEET 1 OF 2
JOB No. -
DWG No. MDP-38-HI-DG-0078-01
REV. 0

stjohnson Oct 28, 2010 - 7:32am --- File Path: R:\Projects\IES017477_CDP\MDP Decommissioning\General Installation\MDP-38-HI-DG-0078-01.dwg

5

- RECOVER SEVERED GOOSENECK WITH VESSEL CRANE.
- SURVEY ABANDONED END OF FLEXIBLE ON SEABED WITH ROV.



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2	RIGGING SPECIFICATION SUMMARY SALT SACK RIGGING	MDP-38-HI-DG-0081									
1	RIGGING SPECIFICATION SUMMARY CRANE RIGGING	MDP-38-HI-DG-0082	0		SSJ						APPROVED FOR CONSTRUCTION

DRAWN BY: S.Johnson — DATE: 12 OCT 10
ENGINEER — DATE
PROJECT ENGINEERING MANAGER — DATE
SCALE AT 'D'-SIZE: NTS

DWG. TITLE: **MACONDO DECONSTRUCTION PROJECT**
BOP GOOSENECK RECOVERY
CHOKE AND KILL LINE

CLIENT: bp
CAD No.: SHEET 2 OF 2
JOB No.: -
DWG No.: MDP-38-HI-DG-0078-02
REV.: 0

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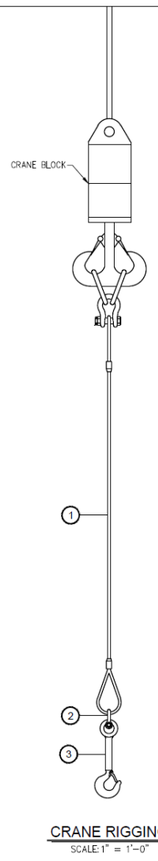


CRANE RIGGING
SCALE:1" = 1'-0"

RIGGING DETAILS-MATERIAL TAKE-OFF TABLE

IDENT	QTY	DESCRIPTION	LENGTH ft.	MBL (Te)	SWL (Te)	UNIT WT. (Te)	TOTAL WT. (Te)	EYE DETAILS	
								TOP EYE	BTM EYE
1	1	ø1" WIRE ROPE SLING	10	–	–	–	–	SOFT	SOFT
2	1	CROSBY G-2130 SHACKLE	–	–	6.5	–	–	–	–
3	1	CROSBY LONG SHANK ROV HOOK	–	–	11.5	–	–	–	–

OVERALL LOAD DATA		
ITEM	DESCRIPTION	MASS
1	MASS OF OBJECT	–
2	MASS OF CONTENTS/FILL	–
3	MASS OF RIGGING	–
4	DESIGN TRIM	–

PROJECT SPECIFIC NOTES

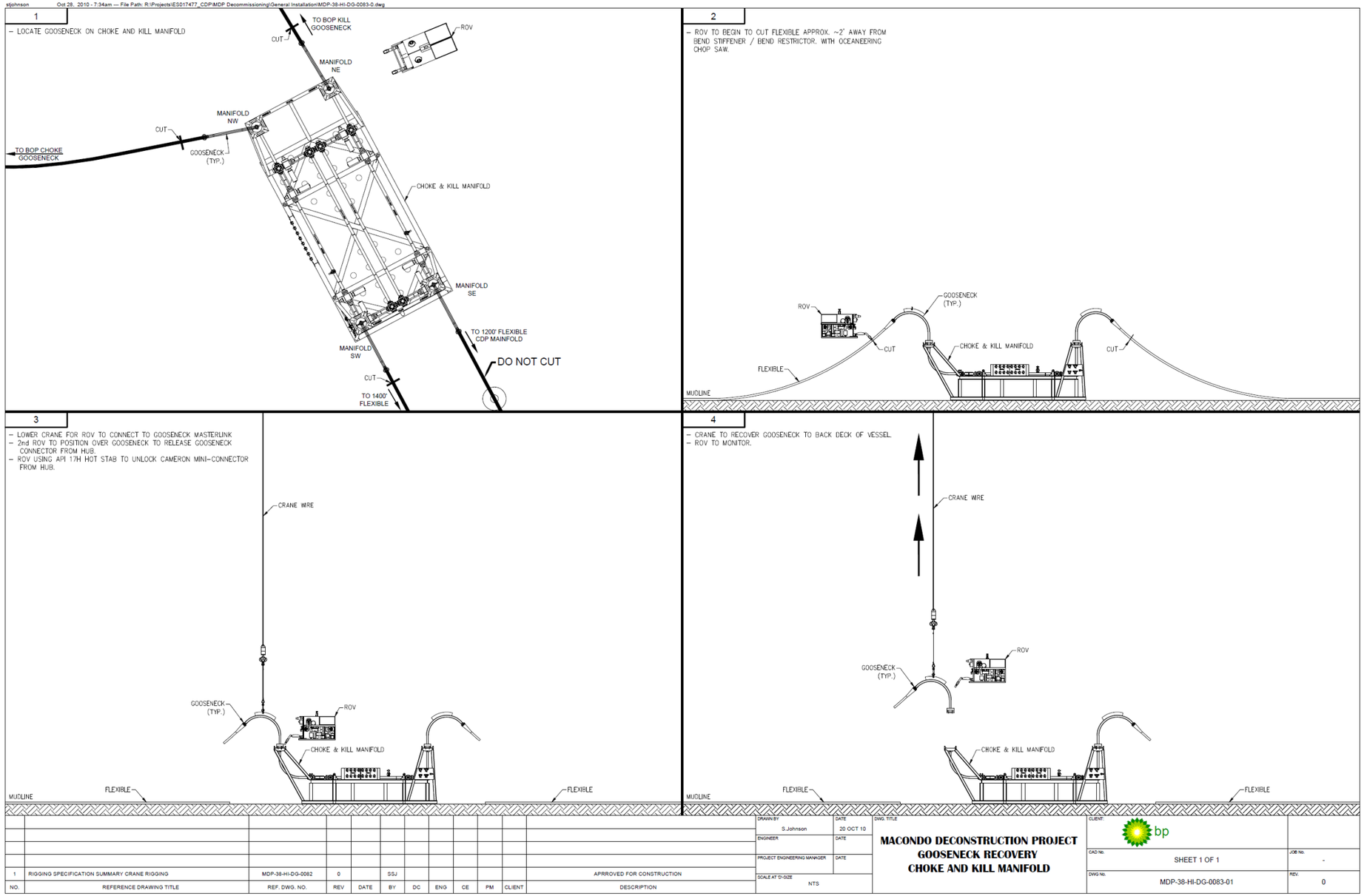
1 Te=1 tonne= 1000 kg (MASS)

NO.	REFERENCE DRAWING TITLE	REF. DWG. NO.	REV	DATE	BY	DC	ENG	CE	PM	CLIENT	DESCRIPTION
			0								APPROVED FOR CONSTRUCTION

DRAWN BY: G.CARDONA — DATE: 20 OCT 10
ENGINEER — DATE
PROJECT ENGINEERING MANAGER — DATE
SCALE AT 'D'-SIZE: AS SHOWN

DWG. TITLE: **MACONDO DECONSTRUCTION PROJECT RIGGING SPECIFICATION SUMMARY GOOSENECK RECOVERY RIGGING**

CLIENT: bp
CAD No.: -
JOB No.: -
DWG No.: MDP-38-HI-DG-0082
REV.: 0


stjohnson Oct 28, 2010 - 7:34am — File Path: R:\Projects\ES017477_CDP\MDP Decommissioning\General Installation\MDP-38-HI-DG-0083-0.dwg
1
– LOCATE GOOSENECK ON CHOKE AND KILL MANIFOLD
TO BOP KILL GOOSENECK
CUT
ROV
MANIFOLD NE
MANIFOLD NW
CUT
TO BOP CHOKE GOOSENECK
GOOSENECK (TYP.)
CHOKE & KILL MANIFOLD
MANIFOLD SE
TO 1200' FLEXIBLE CDP MAINFOLD
DO NOT CUT
MANIFOLD SW
CUT
TO 1400' FLEXIBLE
2
– ROV TO BEGIN TO CUT FLEXIBLE APPROX. ~2' AWAY FROM BEND STIFFENER / BEND RESTRICTOR, WITH OCEANEERING CHOP SAW.
ROV
GOOSENECK (TYP.)
CUT
CHOKE & KILL MANIFOLD
CUT
FLEXIBLE
MUDLINE
3
– LOWER CRANE FOR ROV TO CONNECT TO GOOSENECK MASTERLINK
– 2nd ROV TO POSITION OVER GOOSENECK TO RELEASE GOOSENECK CONNECTOR FROM HUB.
– ROV USING API 17H HOT STAB TO UNLOCK CAMERON MINI-CONNECTOR FROM HUB.
CRANE WIRE
GOOSENECK (TYP.)
ROV
CHOKE & KILL MANIFOLD
FLEXIBLE
FLEXIBLE
MUDLINE
4
– CRANE TO RECOVER GOOSENECK TO BACK DECK OF VESSEL.
– ROV TO MONITOR.
CRANE WIRE
ROV
GOOSENECK (TYP.)
CHOKE & KILL MANIFOLD
FLEXIBLE
FLEXIBLE
MUDLINE
NO. REFERENCE DRAWING TITLE REF. DWG. NO. REV DATE BY DC ENG CE PM CLIENT DESCRIPTION
1 RIGGING SPECIFICATION SUMMARY CRANE RIGGING MDP-38-HI-DG-0082 0 SSJ APPROVED FOR CONSTRUCTION
DRAWN BY S.Johnson DATE 20 OCT 10
ENGINEER DATE
PROJECT ENGINEERING MANAGER DATE
SCALE AT D-SIZE NTS
DWG TITLE
MACONDO DECONSTRUCTION PROJECT
GOOSENECK RECOVERY
CHOKE AND KILL MANIFOLD
CLIENT: bp
CAD No. SHEET 1 OF 1
JOB No. -
DWG No. MDP-38-HI-DG-0083-01
REV. 0

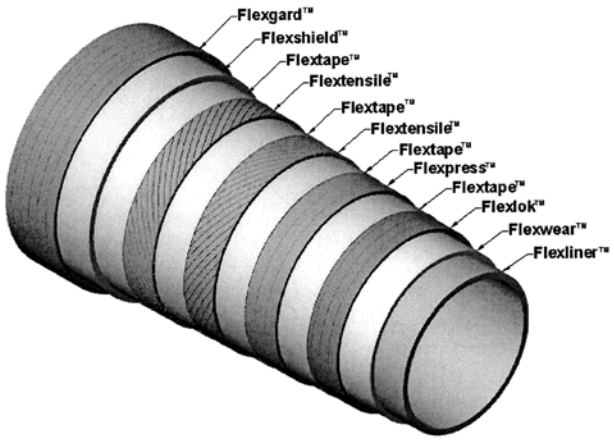
Attachment 2: 6-Inch Wellstream Flexible HPHT Pipe Data Sheet

Wellstream Proprietary

SPECIAL APPLICATIONS
3 in 15000 psi QUASI-STATIC HIGH PRESSURE / HIGH TEMPERATURE (HPHT) PIPE
STRUCTURE NO: SPA-03
U. S. Units Pipe Data Sheet, SPA-08-A02-031016-CHK Rev 2

Prepared by: CAK **Checked by:** SM **Approved by:** M.W. Case

Inside Diameter	76.20 mm	3.00 in	**Conveyed Fluid**	various
Outside Diameter	171.75 mm	6.762 in	**Burst/Design Ratio**	1.99
Water Depth	N/A	N/A	**Collapse/Design Ratio**	N/A
Fluid Temperature	130 °C	266 °F		



Design Pressure	103.42 MPa	15000 psi
Factory Test Pressure	155.13 MPa	22500 psi
Burst Pressure	205.36 MPa	29784 psi
Collapse Pressure	N/A	N/A
Collapse Depth	N/A	N/A
Failure Tension	1723 kN	387393 lbf
Storage Bend Radius	1.26 m	4.13 ft
Operating Bend Radius	1.26 m	4.13 ft
Bending Stiffness	7.42 kNm²	17964 lbf ft²
Weight Empty in Air	67.61 kg/m	45.4 lb/ft
Buoyancy in seawater	22.39 kg/m	15 lb/ft
Wt, Seawater in bore	4.68 kg/m	3.1 lb/ft
Wt, S/W-filled in Annuals	1.03 kg/m	0.7 lb/ft
Thermal Cond./Unit Length	4.27 w/m°C	2.47 BTU/hrft°F
OHTC, Uo {based on ID}	17.8 w/m²°C	3.14 BTU/hrft²°F
Pipe torsional stiffness (GJ) at 20 °C:		
Limp direction	181 kNm²	438 Kip ft²
Stiff direction	382 kNm²	925 Kip ft²
Axial Stiffness	159814 kN	35928 Kip

Attachment 3: Cutting Tool Data Sheet

ROV DEPLOYED CHOP SAW

Oceaneering chop saws were designed for seamless ROV cutting operations and have applications in severing pipelines, in removal of scrap or salvage, or other offshore tasks where a cost effective and efficient cutting tool is required.

Suitable for use with ROVs of opportunity, the chop saws are available in various sizes, can be functioned in a manipulator for small diameter cuts or supported by integral flotation for large diameter pipeline or jacket member removals.

OCEANEERING

Oceaneering International, Inc. | Deepwater Technical Solutions (DTS) | 11915 FM 529 | Houston, TX 77041
phone: 832.467.7600 | email: tpool@oceaneering.com | www.oceaneering.com

ROV DEPLOYED CHOP SAW SPECIFICATIONS

Clamp Cylinder
Pressure: 3,000 psi max input
Flow: 1 GPM
Connection Type: 1/4 in JIC

Feed Cylinder
Pressure (Approx): 350 psi cutting down, 575 psi horizontal, 800 psi cutting up
Flow: 0.5 GPM
Connection Type: 1/4 in JIC

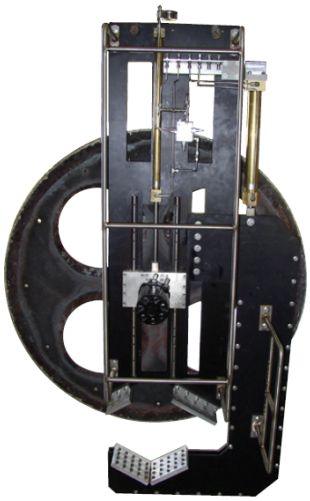
Hydraulic Motor
Pressure: 2,800 psi min - 3,000 psi max input
Flow: 10 to 12 GPM max input
RPM: 100-120 (Maximum)
Connection Type: 3/8 in JIC

Est. Saw Weight: 555 lb in air, 444 lb in SW

Flotation Foam
Density: 30 lb / ft^3
Weight (air): 387 lb
Buoyancy (SW): 435 lb

Saw Size	Blade Diameter	Cut Range (Pipe O.D.)
22 in	22 in	1 in - 8 in All Profiles
32 in	32 in	6 in - 12 in All Profiles
40 in	40 in	8 in - 16 in All Profiles
54 in	54 in	14 in - 22 in All Profiles
60 in	60 in	18 in - 25 in All Profiles

All saws greater than 22-in have accompanying flotation.



OCEANEERING®

Attachment 4: Discharges of Fluid

Once the Goosenecks are cut and disconnected, any visuals of significant residual fluid discharges should be noted on the table below. Scan and email Attachment 4 and Attachment 5 to the Houston IMT Environmental Unit as indicated within Section 8, Appendix 3.

If at any point the Reportable Quantities (RQ) of Methanol (MeOH) or Mono-Ethylene Glycol (MEG) or HW540 exceed the indicated 757-gallons, during subsea Gooseneck recovery activities, we must report these immediately to the Houston IMT Environmental Unit Leader, (James Robinson, Scott Neumann or Ed Peterson) at (281) 849-4167.

Operations are not required to stop for discharges less than 757-gallons in 24-hour period. If the discharges are in excess of the 757-gallons in a 24-hour period, stop the recovery activities until further guidance is provided by the Environmental Unit Leader or designated BP representative or BP Control room.

Discharges

Description	Actual Volume
Choke line BOP Gooseneck location	
Kill Line BOP Gooseneck location	
NE Choke and Kill Manifold Gooseneck location	
NW Choke and Kill Manifold Gooseneck location	
SW Q4000 Choke and Kill Manifold Gooseneck location	

Reference for Discharge

BP Doc# UPS-US-SW-GoM-HSE-PMT-00001

ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF FINAL NPDES GENERAL PERMIT

Final NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GMG290000).

Section 6. Well Treatment Fluids, Completion Fluids, and Workover Fluids

Section 10. Miscellaneous Discharges

And all applicable Tables and / or Appendices where required.

Attachment 5: Discharge Submission Form

Volume Discharged, gallons: **(Reference attached Appendix 4.)**	
Date:	Time:
Point of Contact:	
Telephone:	
Email:	

Once IWOCS/HIS/CFL flushing is complete, capture the actual volumes pumped on the table within Attachment 4. Scan and email Attachment 4 and Attachment 5 to the Houston IMT Environmental Unit as indicated below.

James Robinson = james.robinson@bp.com

Scott Neumann = scott.neumann@bp.com

Ed Peterson = edward.peterson@bp.com

Attachment 6: Contact Information List

Name	Designation	Company	Email ID	Work Phone	Cell
Mike Harville	BP Subsea Installation Lead	BP	mike.harville@BP.com	2813665855	2813841229
Sandy Mackenzie	BP Subsea Installation Lead	BP	Sandy.MacKenzie2@bp.com	2813662808	7135022735
Erick Keith	Project Lead	Technip	ekeith@technip.com	2812497417	
Gordon Reitze	Technip Installation Lead	Technip	GReitze@technip.com	2812494135	2817574205
Edward Galloway	Technical Manager	Oceaneering	egalloway@oceaneering.com	8324677796	2816738025

Attachment 7: Cameron Gooseneck Connector Reference Document

BP Deepwater Horizon

03	04 JUN 10			T. Pham	T. Mercer
02	10 MAY 10			T. Mercer	M. Lara
01	08 MAY 10			T. Mercer	M. Lara
Rev	Date			Originator	Approved

CAMERON

Document Title:

INSTALLATION AND OPERATION PROCEDURE,
3"-15K INTEGRAL MINI CONNECTOR
FOR DEEP WATER HORIZON BOP

PAGE 1 OF 8	Cameron Document No.	X-276223-01	REV. 03

CAMERON	Drawn By T. Mercer	Date 08 MAY 10	Rev 03	Cameron Document No. X-276223-01
	Approved By M. Lara	Date 10 MAY 10		
			Page 2 of 9	

0.0 CHANGE SHEET / REVISION HISTORY

ISSUE	DATE	DESCRIPTION OF CHANGE	REASON FOR CHANGE
01	08 MAY 10	Initial release	
02	10 MAY 10	Updated Section 7.0	Implement Marcus Lara Comments
03	04 JUN 10	Updated procedure to include all connector associated with the top kill and containment manifold operation	Add new connector to procedure

CAMERON	Drawn By T. Mercer	Date 08 MAY 10	Rev 03	Cameron Document No. X-276223-01
	Approved By M. Lara	Date 10 MAY 10		
			Page 3 of 9	

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1.0 SAFETY 4
2.0 SCOPE & OBJECTIVE 4
3.0 REQUIRED EQUIPMENT 5
4.0 GENERAL NOTES 6
5.0 MAINTENANCE TO BE DONE PRIOR TO INSTALLATION 6
6.0 INSTALLATION PROCEDURE 7
7.0 RETRIEVAL PROCEDURE 8
8.0 OPERATION VOLUMES 9

1.0 SAFETY

Cameron is totally committed to a policy of conducting safe operations and maintaining safe work conditions for all of its employees and its Sub-Contractor employees. Cameron shares the vision that we can perform our operations in such a way that no one gets hurt and nothing gets harmed or adversely impacted. To accomplish this, Cameron and Sub-Contractors shall comply with all HSE requirements.

1.1 This procedure shall only be performed by trained and qualified personnel

1.2 Do not tighten or loosen any fittings while the product is under pressure. Before any adjustment is made, the product must be relieved of pressure (0 barg) and isolated from pressure source (HPU).

1.3 All appropriate safety precautions for lifting, dropped objects, and work heights must be observed.

2.0 SCOPE & OBJECTIVE

This procedure outlines the installation and retrieval procedures for the 3"-15K integral mini connector for the Deep Water Horizon BOP. This procedure is applicable for all connectors mentioned in the next section.

CAMERON	Drawn By T. Mercer	Date 08 MAY 10	Rev 03	Cameron Document No. X-276223-01
	Approved By M. Lara	Date 10 MAY 10		
			Page 5 of 9	

3.0 REQUIRED EQUIPMENT

P/N	DESCRIPTION
2330236-01	ASSEMBLY, 3"-15K CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 135 DEG BEND
2330236-01-01	ASSY, 3"-15K CHOKE & KILL GOOSENECK, 5.500 OD X 1.250 WALL, W/ 135 DEG BEND, 3-1/16"-15K API X 4-1/16"-10K ADAPTER API FLANGE
2330236-01-02	ASSY, 3"-15K CHOKE & KILL GOOSENECK, 5.500 OD X 1.250 WALL, W/ 135 DEG BEND, 3-1/16"-15K API X 7-1/16"-10K ADAPTER API FLANGE W/ 1" AUTOCLAVE
2330236-02	ASSEMBLY, 3"-15K CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 180 DEG BEND FOR THE "KILLSIDE" OF THE BOP.
2330236-02-01	ASSY, 3"-15K CHOKE & KILL GOOSENECK, 5.500 OD X 1.250 WALL, W/ 180 DEG BEND, 3-1/16"-15K API X 4-1/16"-10K ADAPTER API FLANGE
2330236-03	ASSEMBLY, 3"-15K CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 180 DEG BEND FOR THE "CHOKE SIDE" OF THE BOP.
2330236-04	ASSEMBLY, 3"-15K MINI CHEMICAL INJECTION CONNECTOR, W/ 3-1/16"-15K BLIND FLANGE W/ TWO 3/8 MED PRESSURE AUTOCLAVE PORTS
2330236-05	ASSEMBLY, 3"-15K MINI CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 135 DEG BEND AND CONVERSION API WELDNECK FLANGE 3-1/16" 15K 'BX-154'
2330236-06	ASSEMBLY, 3-1/16-15K MINI CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 135 DEG BEND, W/ ADAPTER FLANGE
2330236-07	ASSY, 3"-15K MINI CONNECTOR W/ DIFFUSER,5.500 OD X 1.25O W, W/ 3-1/16" 15K 'AX' API WELDNECK FLANGE
2330236-08	ASSEMBLY, 3"-15K CONNECTOR GOOSENECK, 5.500 OD X 1.250 WALL, W/ 180 DEG BEND & 3-1/16-15K API "BX" FLANGE END
2330236-09	ASSEMBLY & WELDMENT, 3-1/16-15K CHOKE & KILL CONNECTOR, 5.500 OD X 1.250 WALL, W/ 3-1/16-15K API "AX" FLANGE X 48" PIPE X 3-1/16-15K API BX-154 FLANGE, AND MARINE CHOKE & KILL TARGET VALVE W/ ACTUATOR MCK X 4-1/16-15K AI BX-155 FLANGE; (QP-000162-02)
2010199-01	3-1/16" AX Gasket (Ref.)
702003-15-44	BX-154 Ring Gasket (Ref.)
2010200-03	AX Gasket Retainer Dog (Ref.)
N/A	Remote Operated Vehicle (ROV)

CAMERON	Drawn By T. Mercer	Date 08 MAY 10	Rev 03	Cameron Document No. X-276223-01
	Approved By M. Lara	Date 10 MAY 10		
			Page 6 of 9	

4.0 GENERAL NOTES

4.1 For the purpose of this procedure, Port A refers to the port nearest the ROV panel, and Port B refers to the port away from the ROV panel as shown in Figure 1.

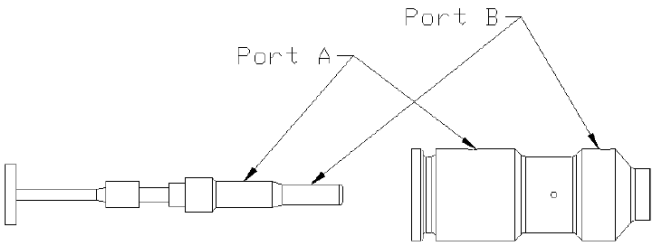

Figure 1: Dual Port Hot Stab Configuration

4.2 ROV must use a Dual Port Hot Stab and it's recommended that this is done with long enough hoses to ensure the ROV can be stabbed into the ROV panel ready to lock the connector but have clearance prior to landing of gooseneck on the hub.

4.3 All pressures specified in this document are gauge pressure.

4.4 Use only appropriate sling assemblies when lifting components. Ensure all personnel follow applicable safety plans during all lifting operations.

4.5 Ensure all equipment has been inspected prior to the enactment of this procedure.

4.6 Engineering shall approve all deviations to this procedure prior to commencement of operation.

4.7 Operation procedure steps are order dependent and shall be followed in sequence.

4.8 All appropriate safety precautions for high pressure operations must be observed.

4.9 Use any water based glycol from a clean container to operate valves.

4.10 **Heave compensation must be used during installation.** 180 deg Gooseneck Connector (PN: 2330236-03) must be installed at a 30 deg angle on the choke side of the BOP. The connector guide nose has been machined away and without heave compensation there is a great risk damaging the gasket during installation.

5.0 MAINTENANCE TO BE DONE PRIOR TO INSTALLATION

5.1 Mark the operating rods PN: 2163497-08 with paint to use as lock and unlock visual indicators. (See Figure 2)

5.2 Prior to landing out the connector, make sure the hub is cleaned and the AX gasket sealing surface is free of debris.

5.3 Make sure the studs & nuts at the bottom of the connector have a rubber hose fitted on each nut prior to installation. This is needed to alleviate the possibility of damaging the hub seal surface during installation.

6.0 INSTALLATION PROCEDURE

Note: Ensure the hydraulics of the ROV is setup such that hydraulic fluid can be expelled or taken in through Port A or B of the dual port hotstab as required for locking and unlocking the connector.

6.1 Ensure a "NEW" AX gasket is installed properly into the connector.

6.2 Prior to land out remove the dummy hot stab and open the Valve on the ROV panel.

6.3 Install the ROV dual port hot stab.

6.4 Pressurize Port B (Unlock Circuit) of the ROV dual port hot stab to 3,000 psi to ensure the actuator ring is stroked up. (See Figure 2) Maintain pressure.

6.5 Land the connector on the hub, as soon as the connector is landed out and visually within level of the mating hub, the ROV should apply 3000 psi to Port A to lock the connector. Ensure visually by monitoring the operating rods that the connector is fully locked.

Note: Once step 6.5 is complete immediately notify the crane operator that the rigging can be slacked off.

6.6 Reduce the pressure on the ROV hot stab to 0 psi and Close the Valve.

6.7 Remove the ROV dual port hot stab from the Connector's ROV panel and replace it with the dummy hot stab.

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7.0 RETRIEVAL PROCEDURE

This procedure assumes the Gooseneck Connector is installed subsea and internal flowline pressure has been reduced to 0 psi.

7.1 Attach the rigging to the connector. Apply 1500 to 2000 lbs of tension.

7.2 Remove the dummy hot stab from the ROV panel and replace it with the ROV dual port hot stab.

7.3 Open the Valve on the ROV panel of the connector assembly.

7.4 Pressurize Port B (Unlock Circuit) of the ROV dual port hot stab to 3,000 psi. (See Figure 2)

Note: Verify the visual indicator marking on the operating rods shows the connector to be unlocked.

7.5 Once the connector is fully unlocked, close the Valve and reduce pressure on the ROV dual port hot stab to 0 psi.

7.6 Remove the ROV dual port hot stab and lift the connector from the hub.

7.7 Upon retrieval of the connector, replace the dummy hot stab into the ROV panel hot stab receptacle.

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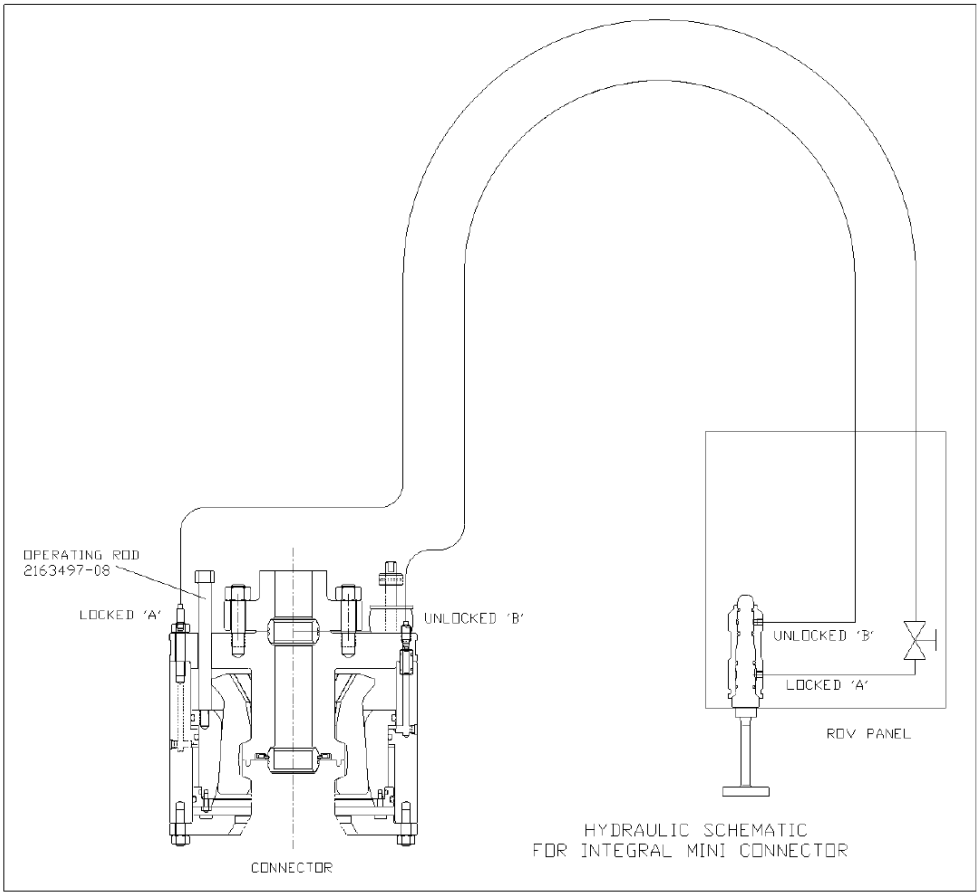

Figure 2: Locking & Unlocking P&ID

8.0 OPERATION VOLUMES

The following table shows the volume of hydraulic fluid required to unlock & lock the Gooseneck Connectors

Function	Volume (Gal)
Lock	0.4
Unlock	0.6
Total Swept Volume	1.0

Attachment 8: MTO

Choke and Kill Gooseneck Recovery MTO

Description		Qty			Supplied by	Status	Final destination	Comments
		Req.	Spare	Total				
Gooseneck Recovery Tools & Rigging (Onboard West Sirius)								
ROV Tooling	22" Chop Saw	1		1	Oceaneering		Chouest Holiday or Iron Horse	
	20" Super Grinder	1	1	2	Oceaneering			
	API 17H hot stab	1	1	2	TBA			
Rigging	Long Shank ROV hooks 11.5 Te	2	1	3	BP			
	Eye to eye wire rope sling length 10ft size 3/4" dia	1	1	2	BP			
	Shackles G-2130 SWL- 6.5Te	5	3	8	BP			
Gooseneck tools & Rigging for **West Sirius**								
Misc.	Gator Basket 10' x 8' half height container	2	0	2	BP		Chouest Holiday or Iron Horse	
	Equipment tags and Tye-wraps	20	10	30	BP			
					BP			
					BP			