

**Top Well Kill Team**  
**Installation of Yellow POD onto Horizon LMRP from Q4000**  
**Initial Draft 6 May 2010**

**Key Points of the POD Installation**

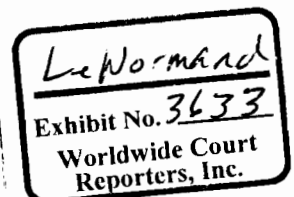
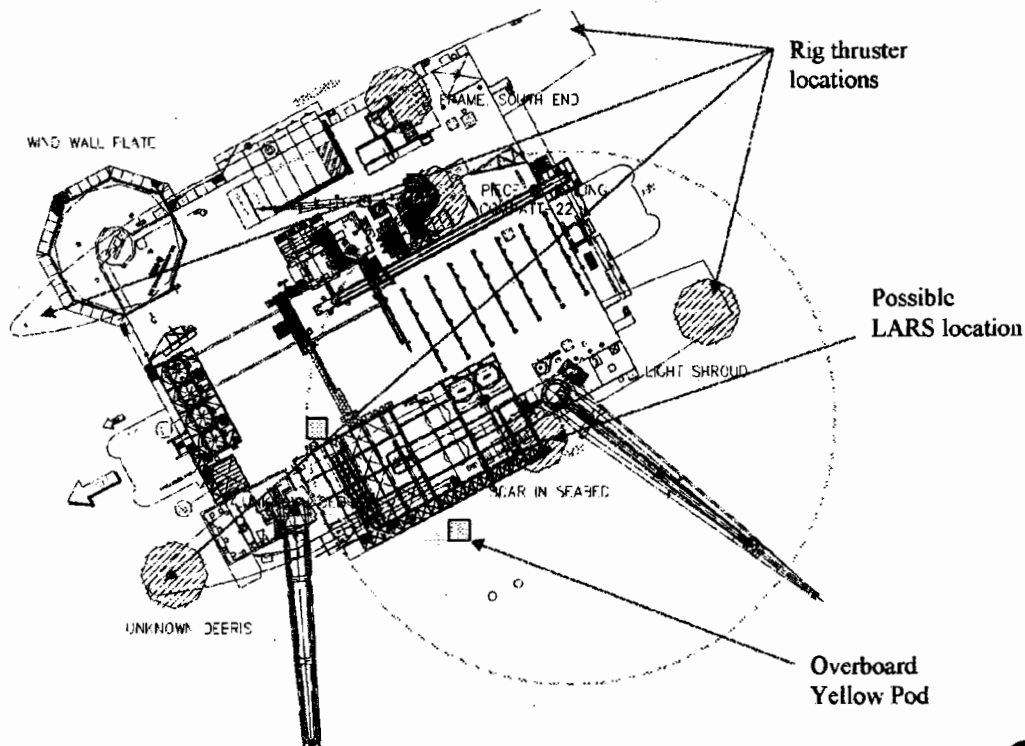
1. Q4000 will deploy pod and retain control of the pod during well kill operations.
2. The final position of the Q4000 will be +/- 350 feet SE of Horizon BOP, in 5000 ft water depth.

**High Level Installation Sequence**

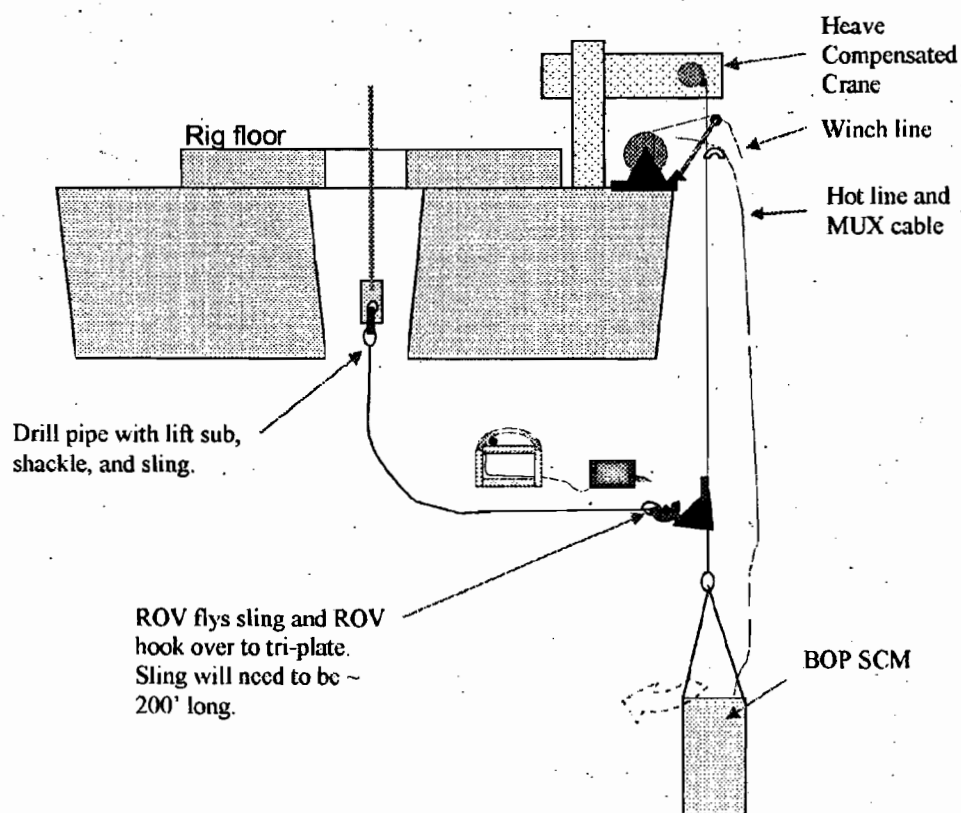
1. Clump weight for hotline/mux cable routing needs to be preinstalled prior to starting the following steps. The clump weight position needs to be finalized.

**INSERT PICTURE OF PLACEMENT OF CLUMP WEIGHT**

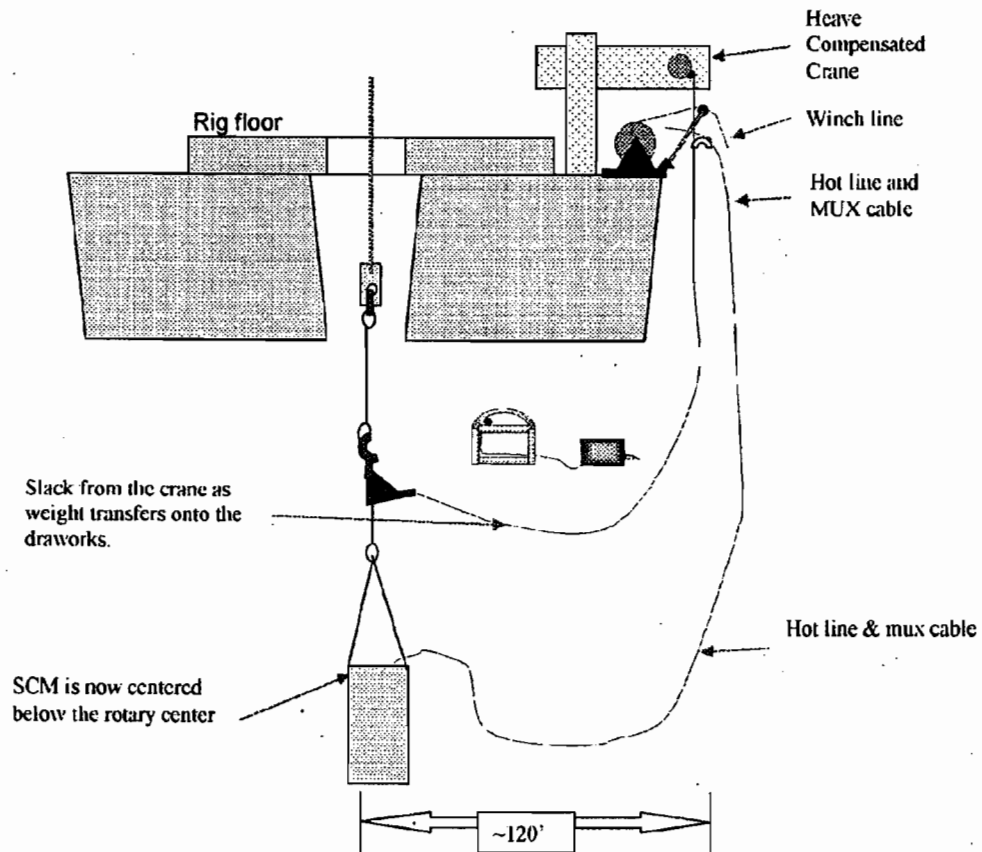
2. Yellow POD will be deployed over the side of Q4000, and transferred subsea to a drill pipe running string. POD will be run on drill pipe through the drill floor.



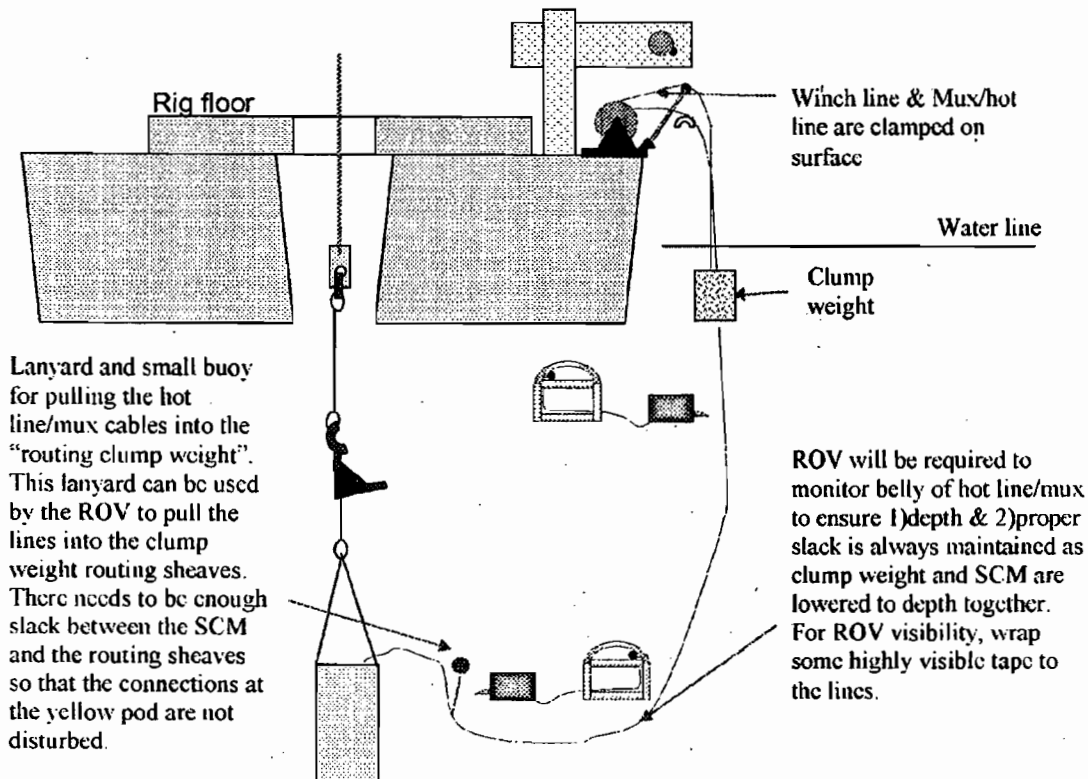
- A. Lower pod overboard while rig is at the 500'R circle.
- B. Pick up the yellow pod and overboard in preparation for a subsea transfer.
- C. At the same time, lower the drill pipe with a lift sub and a subsea sling arrangement to **xx'** below the water line. **The Mux /hot line need to payout at the same time.**



- D. Pick up the drill pipe and slack off on the Heave Compensated crane to transfer the weight of the SCM from the crane to the drawworks. The SCM will start to move towards the rotary center. Therefore, the hot line/Mux cable need to be ready to pay out when the weight transfer begins.
- E. Pay out xx' of hotline/mux until SCM is under the center of the rotary table per the figure below.

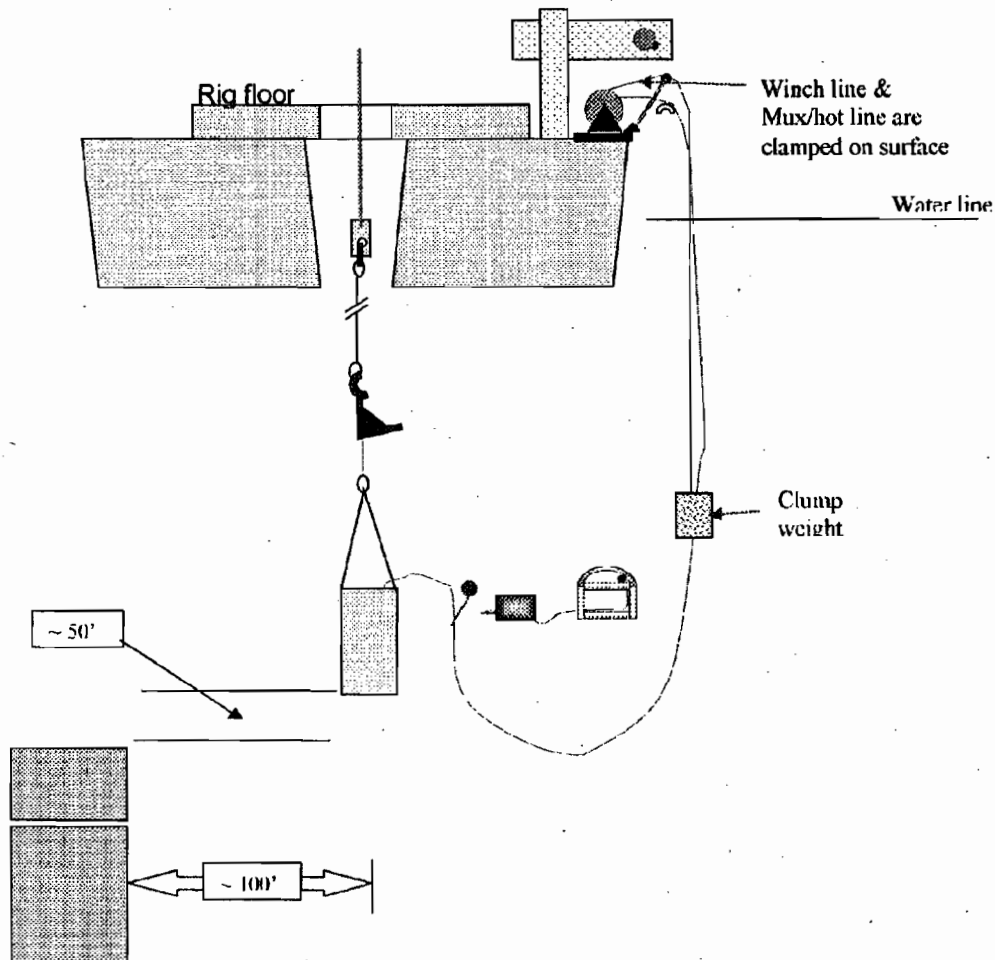


- F. Once the weight of the SCM is on the drill pipe, ROV disconnects hook from the tri-plate and heave compensated crane pulls hook back to surface.
- G. If necessary, the crane may be used to pick up the clump weight and overboard it. This would require another subsea handshake using the ROV. However, if the crane can place the clump weight such that the A-frame of the LARS can overboard it, a subsea handshake won't be necessary. It would be preferable if the LARS could overboard the clump weight.
- H. (assuming the clump weight is now connected to the wire winch) Lower the clump weight to ~ 10' below surface. *Install guillotine per OIE guidelines.*
- I. Once the clump weight 10' below the water, make up the first mux/hot line clamp to the winch wire. **(NEED HELP HERE. HOW DO WE MAKE THESE CLAMPS UP WHEN WE HAVE TENSION ON THE WIRE. WHERE DO WE MAKE THEM UP? DO WE NEED TO WORRY ABOUT THE CLUMP WEIGHT WRAPPING AROUND THE HOT LINE AND MUX CABLE? )**
- J. Ideally, there will be ~ 500' to 600' of mux/hot line cable between the yellow BOP pod and the first clamp point. It is permissible to have more than 500' but not less than 500'.

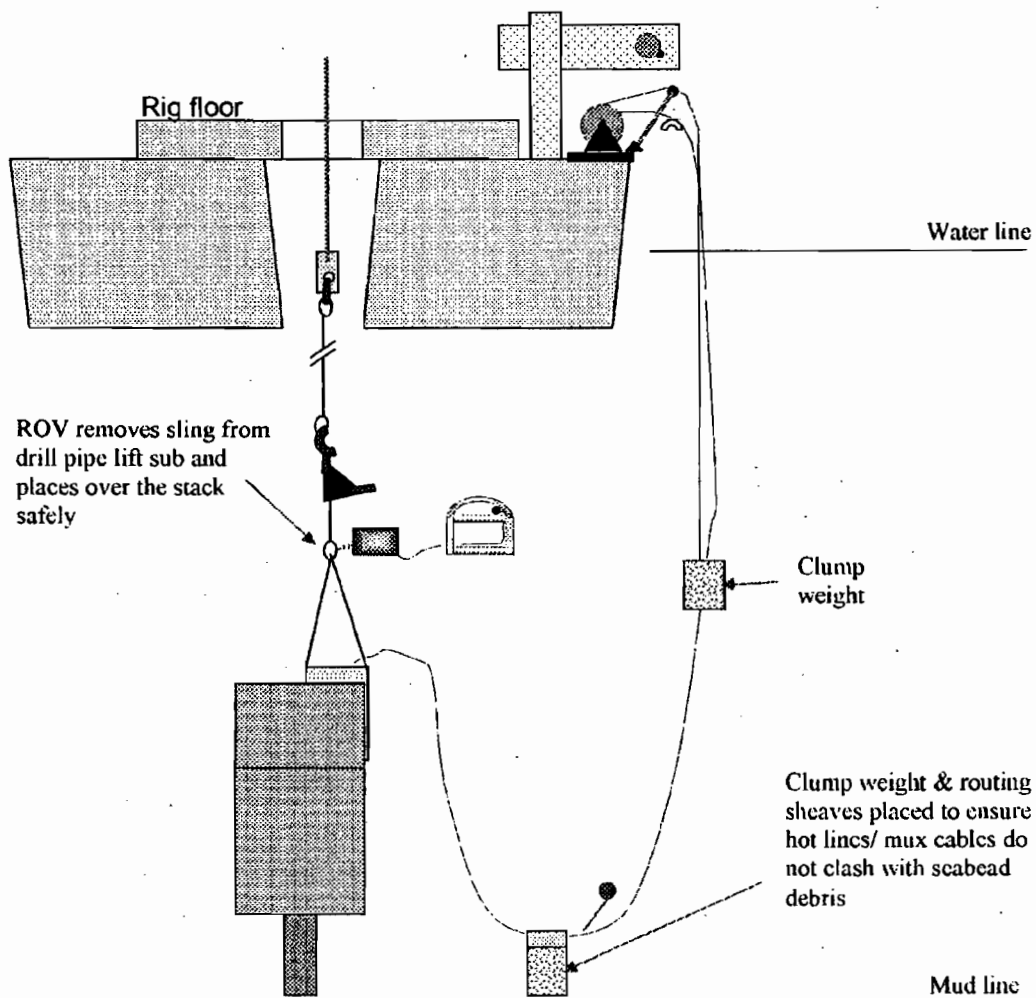


3. Mux cable and hot line will be run on winch and downline, clamped together, every 50 feet. Both POD and mux cable/hot line will be run simultaneously (POD on drill pipe through rotary, mux cable/hot line on winch wire over the side of the Q4000). ROV line of sight and communication between drill floor and winch operator is critical.

- A. Lower the BOP SCM and the clump weight to 200' above the mudline (need to check the water depths from the rig location to the horizon BOP). This should be done while still on the edge of the 500' R safezone.
- B. Move the rig to within 100' of the Horizon BOP stack. ROV continues to monitor the hot line / mux cable belly to ensure proper slack, monitors clump weight and Yellow pod for potential subsea structure interference.
- C. When the rig is within 100' of the Horizon stack, lower the Yellow pod and clump weight to within 50' of elevation of the yellow pod landing point on the Horizon BOP stack.

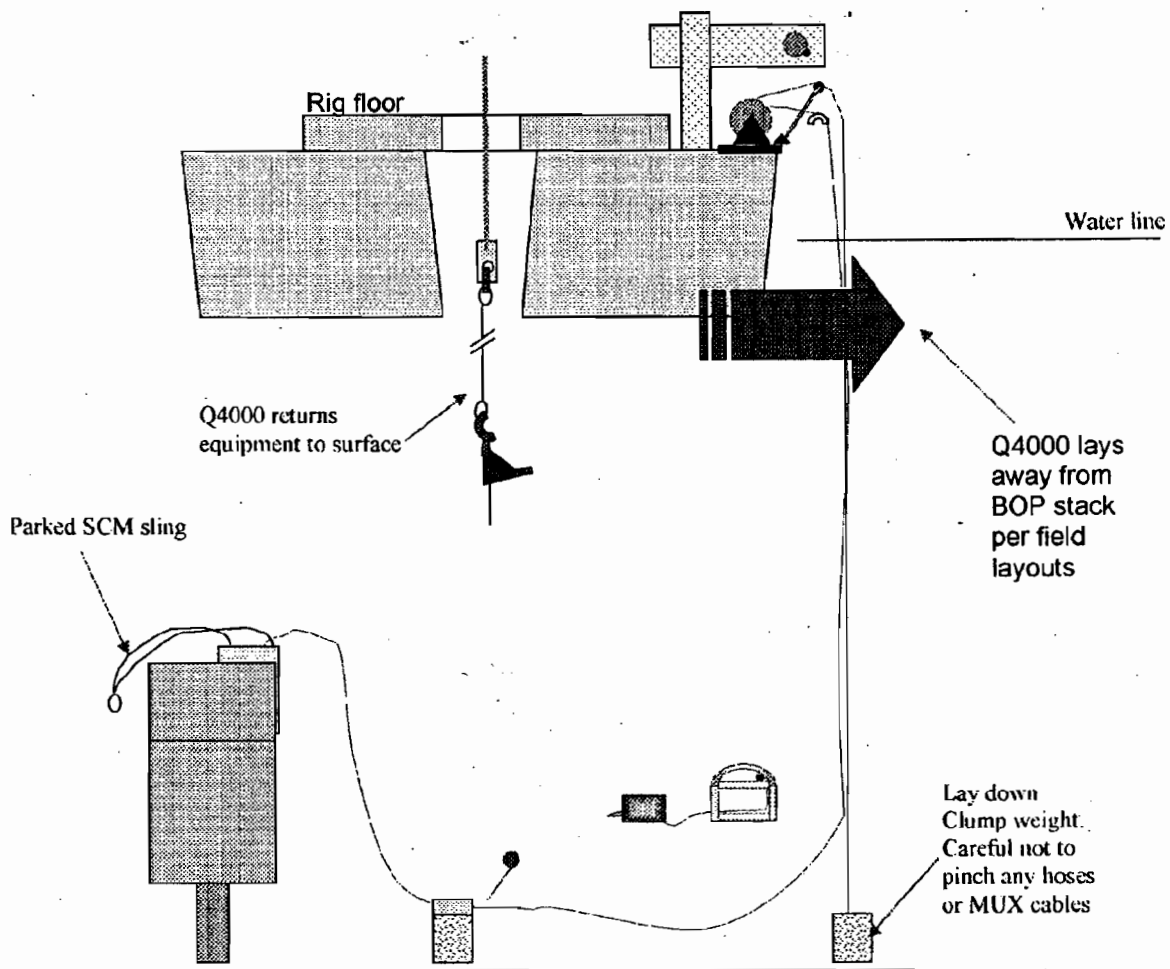


4. Yellow POD will be landed and locked onto Horizon LMRP. Slack off on the drill pipe to get all the weight off of the SCM sling assembly. **QUESTION: DO WE NEED TO PUT BUOYANCY ON THE SLING TO KEEP THE SLING D-RING ELEVATED? HOW WILL WE DISCONNECT THE HOOK FROM THE SLING. IF WE HAVE TO SLACK OFF, WHERE WILL THAT PUT THE D-RING IN RELATION TO THE STACK? Drill pipe stinger disconnected from POD by ROV.**
5. ROV disconnects the ROV hook or ROV shackle that connects the drill pipe lift sub to the SCM sling assembly. ROV should be careful to lay the sling so it can be easily grabbed later and also such that it doesn't damage or get stuck in the BOP stack.

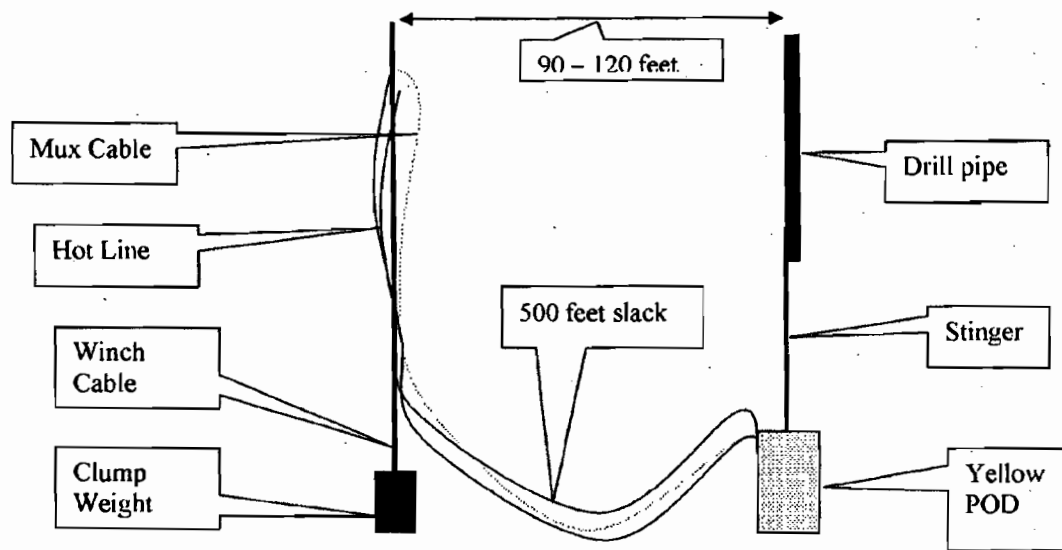


6. Q4000 pull drill pipe back to surface.

7. Have ROV bleed trapped pressure from C/K isolation valve close function, valves should open. ROV to confirm valve movement. (Assuming the well kill lines have been connected and tested).
8. Function test LMRP C & K isolation valves and leave in closed position.
9. Using the lanyard and buoy shown in the above sketch, the ROV grabs and moves the hot line/mux cable into the routing sheaves located on top of the alignment clump weight.
10. Begin laying the downline/mux cable/hot line in SW direction per the field layouts (BP drawing # TBD).

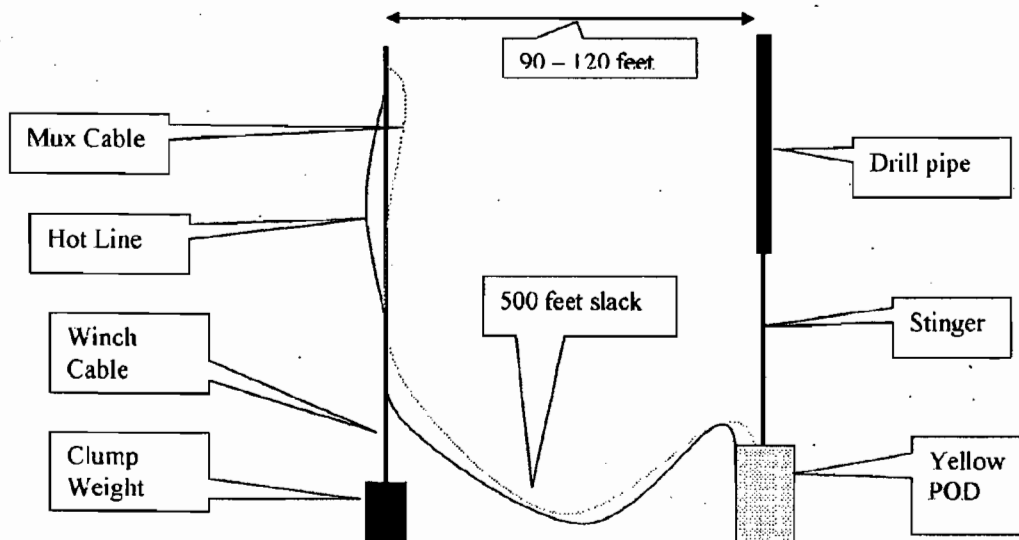


**STUFF FROM STEVE'S PROCEDURE THAT I DIDN'T USE:**





11. Clump weight with guillotine on winch line, clump weight located approx 300 feet away from POD. Location of clump weight is determined by location of deployment winch mounted on Q4000, heading of Q4000, and offset of Q4000 from Horizon BOP.



12. Continue to payout and clamp the mux cable/hot line to the winch cable until final vessel offset position is reached.

#### Assumptions

- LARS will be used to deploy mux cable/hot line and clump weight (with guillotine)
- LARS to be positioned on Q4000, Aft of the secondary ROV (Port Side) – HOLD (Post meeting note: this assumption is counter with field architecture drawing for well kill ops released after 6 May 2010 meeting). Reference field architecture drawing MC252-SK-1001-01 rev A.

#### Pertinent Data

- Estimated weight of POD – 30,000 lbs
- POD voltage – 230 AC
- POD Amperage – 15 Amps normal, 30 Amps max.
- POD power phase – single phase

- Number of wires allocated for power – 4 wires, 2 for primary power, 2 for backup power
- Number of wires allocated for comms – 4 wires, 2 wires (twisted pair) for primary comms, 2 wires (twisted pair) for back-up comms.
- Mux cable connection to POD – Seacon Roughneck drymate connector
- Mux cable is 11,000 feet long
- Hot line is 5,600 feet long. Another 5,000 ft hot line can be spliced onto it.