

# Nonexplosive Oilfield Products

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## Neo Positive-sealing Elastomeric Plug (NeoPEP) Run-In Procedures

[used with a 2 1/8" NeoHydrostaticSettingTool (NeoHST) & 1 3/4" Electro-Hydraulic Actuator]

Document # DRI-0500-0000

### Recommended Operations to Maintain Static Wellbore Conditions

The operations below were strictly followed for many decades of high success rate Thru-tubing Plug-back Operations. Many WL operators are unaware of or have chosen to not perform these critical operations.

Maintaining static wellbore conditions during Thru-Tubing Plug-back Operations is critical.

These are recommended procedures that will maintain a relatively static shut-in tubing pressure (SITP) and overall wellbore pressure when making multiple wireline (WL) & Slickline (SL) runs in and out of the well

1. Perform the lubricator pressure test using the appropriate water solution e.g., fresh water, brackish water, or weighted brine.
  - a. Use a 25% glycol/water solution if there is gas below the Master Valve (MV).
  - b. The pressure test should be at least 250 psi above the SITP.
2. Once the lubricator pressure test is finished, reduce the lubricator pressure to be 50-100 psig above the SITP.
3. Slowly crack open the MV and allow pressure equalization. Record the lubricator/wellhead SITP.
4. Descend into the well.
5. Monitor, record and adjust the wellhead pressure throughout descent and ascent operations. This must be done during every RIH until the plug is pressure tested.
  - a. Record the SITP before and after opening the MV on every RIH. Call this the recent SITP.
  - b. Maintain a constant wellhead pressure equal to the recent SITP ± 50 psig for that RIH.
    - i. Wellhead pressure can increase due to descending line displacement while RIH, bleed off wellhead pressure at the surface to maintain recent SITP ± 50 psig.
    - ii. Wellhead pressure can decrease due to ascending line displacement while coming out of the hole (COOH). Pump 25% glycol water solution into the wellhead to maintain the recent SITP ± 50 psig.
6. Perform a pressure test when and as instructed.

The following steps now provide Run-In Procedures for setting the NeoPEP:

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1. Run a gage ring to *xxxxx + 20 ft.* Slow down at all restrictions. POOH. Ensure that there is at least **2000 psi** of BHP at the plug setting depth. If there is not enough pressure do not run the **NeoPEP**; we recommend the use of **NeoT-TBP** in this scenario.
2. Attach the Collar Locator (CCL) to the wireline cable head. The CCL should be a “Shooting” type.
3. Perform a functional test of the CCL and the 1 ¼” actuator. If test fire is performed, the operator or engineer must ensure that no voltage potential remains on the wire line. **Note:** the actuator on surface takes around **80 volts/ 225 mA.**
4. Attach the 2 ½” **NeoHST** to the CCL and cable head. At this point you can take the length dimensions and keep it in your records for setting reference.
5. Remove the setting sleeve from the **NeoHST**, and attach the test sub at the bottom section in the setting tool. Lube the test mandrel and screw the sub all the way. Manually tighten.
6. Lift the setting tool from horizontal to vertical inside the lubricator. If not possible to lift inside the riser, the tool string must be supported along the length of the tool as it is lifted.
7. A test can be performed on the **NeoHST** inside the riser. However, it is not recommended to test the **NeoHST** at a pressure exceeding the bottom hole pressure inside the lubricator. The pressure test will prove the seal integrity in the setting tool.
8. Once the test is performed, verify the setting tool integrity by removing the test sub. If the **NeoHST** is loaded with water, the seal integrity has failed. Make the proper correction by inspecting the setting tool once again during a complete disassembly.
9. Attach the setting sleeve at the bottom of the **NeoHST** and tighten the socket screw. Once this step is completed, stab the **NeoPEP** thru the bottom of the setting sleeve and verify that the **NeoPEP** is latched. **Note:** The **NeoPEP** has two ¼” Special shear screws located on top. Align the setting sleeve with both holes over the top of **NeoPEP** and insert the shear screws at least ¼” deep. The **NeoPEP** top section and anchor should be attached to the setting sleeve with a couple inches of slack below the anchors.
10. If you stab the plug horizontally with the lubricator down, make sure that the BHA is latched with the tool catcher inside the lubricator in order to avoid damage to the weak point on the **NeoPEP**. Pick up the riser.
11. Equalize the riser and SITP prior to opening wellhead valves.
12. Run in hole (RIH) with the **NeoHST** & **NeoPEP**. Do not exceed 100 ft/min. (33 mts). Slow down at any restriction to 20 ft/min. (6 mts).

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13. When the NeoPEP HST sets down over gas lift mandrels, liners restriction, etc., do not attempt passing with increased line speed. The tool can be stuck at any place or the mandrel can be damaged. Also, deployment of anchors from the NeoPEP can occur.
14. At setting depth, correlate plug position with CCL or Gamma Tool and note the tool weight while logging. The top of the plug will remain at the same depth during setting. Position the top of the plug on **depth xxxxx ft**. Note the tool hanging weight prior to firing the actuator.
15. The 1 3/4" Actuator can be activated with **Positive (+)** or **Negative (-)** polarity. Preferably use a digital panel to actuate the tool. Always manage current applied thru the wireline.
16. Once the setting depth is confirmed and NeoPEP positioned, note the tool weight again. Apply **DC current to fire the actuator: 450-500 mA for 3 seconds**. This will allow well fluid into the setting tool until, ultimately, result in the setting tool separating from the plug. Allow **15 minutes** for the fluid to migrate through the actuator to set the plug. **\*\*\* You can repeat the shooting process again if it is required. Wait 60 seconds before repeating the firing process.**

**Note:** Increased wireline length will affect line resistance. Additional voltage may need to be applied at surface to reach desired voltage at the tool head.

**NOTE:** Having a Gamma tool or Release System Mechanism above the 1 3/4" actuator requires a shooting procedure with **specific polarity**. Ensure which polarity is required to actuate the NeoHST.

17. An indication on the weight indicator may be seen at the surface as the NeoPEP separates from the Hydrostatic Setting Tool. Once the required setting time has elapsed, slack off onto the plug and confirm the setting.


**NOTES:** Once the NeoPEP Setting Tool has been actuated, closely monitor the line weight to look for stroking motion..

Wait 15 minutes before proceeding. While you wait out your 15 minutes, determine the following distances and write them down;

- a. the approximate distance from the bottom of the plug to the top of the nearest perforations below the plug.
- b. the approximate distance from the CCL on the toolstring to the nearest casing collar below the CCL.
- c. the approximate distance from the bottom of the plug to the next casing collar below the plug.
- d. the approximate distance from the top of the plug to the bottom of the nearest existing perforations above the plug.
- e. the approximate distance from the top of the plug to the bottom of the future nearest perforations above the plug.

Knowing the information from steps a – e you can decide whether or not you choose to perform any of the following operations after the 15 minute waiting period.

- f. Slack-off and descend to see if the hang-off weight goes down.
- g. Stop descending if you are convinced that the plug is set and taking weight. Go to step i.

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- h. Continue descending to see if you see the next collar ring. If you do, stop and pull up to the original desired setting depth, stop and wait 5 minutes.
- i. If you choose to do so, pick up to a depth that is 15 feet above the setting depth and then repeat steps f – h or go to the next step.

**Call NeoProducts for support if you believe the plug is not set in the casing.** If you are unable to talk to the manager on call wait a minimum of 3 hours before pulling out the well.

- j. If you believe the plug is set, pick up to the next collar ring on your CCL and then descend and tag the plug again.

If the plug takes weight POOH per standard safe practice.

- 18. Pull the NeoHST off the plug slowly and log off depth. Get a copy of this log. This will show that the plug was set on depth. Go back and tag the plug. Slack-off onto the plug an additional 5 ft. below slack-off weight determined in step 14. Log off of the plug to the end of the tubing. Get a copy of it and turn in with your Data Report. Pull out of hole (POOH). Speed should be dictated by safe operating guidelines.
- 19. When the NeoHST is returned to the surface, the top half of the multiple stages will have trapped pressure inside. Slowly back off the tandem subs to the point where the bleed off holes are past the o-rings and allow the pressure to bleed off each side.

### Tools required for Field Service:

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| <ul style="list-style-type: none"> <li>a) Set of 2 1/8” Parmalee wrenches.</li> <li>c) Allen wrench set. (Medium size)</li> <li>e) Needle Nose pliers</li> <li>g) Snap ring pliers (small tip)</li> <li>i) ¼” Deep socket</li> <li>k) Ohmmeter.</li> <li>m) Personal Protection Equipment.</li> </ul> | <ul style="list-style-type: none"> <li>b) Pipe Wrenches # 18</li> <li>d) Flat &amp; Phillips screw driver (small tip).</li> <li>f) Set of Chain Vice grip</li> <li>h) Measuring tape.</li> <li>j) O ring Pick removers.</li> <li>l) Lubri-plate grease.</li> </ul> |
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