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| Manual Section<br>7 | Issue Date 06/02/13                              | Revision Date 06/15/21 | Policy Number<br>LLCP-088 |
|                     | <b>Launching &amp; Receiving Scrapers (PIGS)</b> |                        |                           |

### **Purpose**

To establish minimum guidelines for launching & receiving scrapers safely.

### **Scope**

All LLC Companies including, Blanchard Industrial, LLC, GIS Engineering, LLC, Grand Isle Shipyard, Inc., and GWIS, Mack Steel, NuWave, Sun Industries; hereafter identified as “Company”.

### **General Safety Equipment**

The following are examples of general safety equipment relating to launching and receiving pigs:

- Safety glasses with side shields/goggles
- Hard hat
- Rubber gloves
- Steel toe boots, and
- Atmospheric monitor, with LEL and H2S

### **Precautions**

The following are precautions relating to launching and receiving pigs:

- Take steps designed to prevent spills
- Observe all applicable safety procedures and regulations
- Contact appropriate control center and notify them of pending work
- Pipeline scrapers, pigs, or spheres must not be forced through a line with air after the line has been in crude oil or products service. Hydrogen sulfide (H2S) may be present and exposure can be fatal. Air must never be injected into a pipeline that contains or has contained a flammable liquid.
  - **Caution must be exercised to prevent fire or personal injury while removing or installing a pipeline scraper, pig, or sphere. All pressure must be vented before opening the scraper barrel.**
- Vent all pressure before opening the scraper barrel.
- Do not stand in front of the scraper trap closures while opening.
- A fire extinguisher must be available when performing this job.
- Prior to returning the scraper barrel to service, all drain and vent valves must be closed (and sealed, if appropriate).
- Sediment and scale from sour crude oil lines (iron sulfide) that accumulates in strainers or scraper traps at stations or facilities must be properly disposed of immediately after removal
- Sediment from scraper traps must be disposed of properly

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## Launching of Scrapers/Spheres (Pigs)

### Valve Alignment

Verify the valve alignment for isolation of launching barrel. The following steps also apply to valves:

- Ensure that the bypass valve is open
- Ensure that the inlet valve is closed
- Ensure that the outlet valve is closed
- Lock and tag the valves
  - **If valves are line of sight and only one person is doing the job, the lockout/tagout is not required unless local procedure dictates otherwise.**

The following relates to draining the launching barrel:

- Open the drain valve slowly to the sump, and
- Verify drainage into the sump and check pressure gauge to verify valves are not leaking and pressure is bled off, then close drain valve.

### Launching

- Verify that the launcher is drained by observing pressure gauge. Vent and drain the line. Do not stand in front of the scraper trap door.
- Place waste collecting device below the door.
- Open door slowly, load correct scraper into barrel, and inspect door O-ring/gasket for damage.
- Close and secure the door.
- Remove locks and tags. (if necessary)
- Open inlet valve slightly to fill barrel slowly.
- Close vent valve once barrel is full of liquid.
- Open inlet valve fully once pressure gauge indicates full pipeline pressure.
- Open outlet valve and close by-pass valve.

### Launching Scrapers and/or Spheres (Pigs) Verification

The following steps are to be used to verify that the scraper was launched.

- Allow flow through the barrel until signal device (if so equipped) is tripped or until sufficient time has passed to ensure device has cleared the barrel.
- Follow the steps in the “Launching” section of this procedure for valve alignment, draining the scraper barrel, and launching.
- Verify that launcher is drained by observing pressure gauge and drain line. Do not stand in front of scraper door.
- Place waste collecting device below door.
- Open door slowly, verify that scraper is not in the barrel, and inspect door O-ring/gasket for damage.
- Close and secure door.
- Close drain valves.
- Remove locks and tags.

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- Open inlet valve slightly to fill barrel slowly.
- Close vent valve once barrel is full of liquid. Check scraper barrel for leaks.
- Open inlet valve fully once pressure gauge indicates full pipeline pressure.
- Open outlet valve and close by-pass valve.
- Place seals and record per local procedures. (if necessary)
- Reset signal device (if so equipped).

### **Clean Up**

- Dispose of paraffin, sediment, and foreign objects per local operating procedures.
- Leave barrel area clean and oil free.
- Report equipment problems through normal channels.

### **Receiving and Removing Scrapers/Spheres (Pigs)**

#### **Valve Alignment**

Verify that the launcher barrel is ready to receive by ensuring that the;

- By-pass valve is closed
- Inlet valve is open
- Outlet valve is open

#### **Verify Scraper in Receiver**

The following relate to verifying the scraper in receiver;

- Read signal device (if so equipped)
- Open by-pass valve, close inlet and outlet valves

#### **Draining**

- Verify that by-pass valve is fully open. Close inlet and outlet valves.
- Lock and tag these valves
- Open drain valve slowly
- Open vent valve on receiver
- Verify drainage into sump, and check pressure

#### **Removing Scrapers**

- Verify that the receiver trap is depressurized and drained.
- When opening, do not stand in front of, or place any body parts in front of the scraper door.
- Place waste collecting device below door.
- Open door slowly, remove scraper and all paraffin, sediment and foreign objects; inspect door O-ring/gasket for damage.
- Close and secure door.
- Remove locks and tags (if necessary).
- Open inlet valve slightly to fill barrel slowly.
- Close vent valve once barrel is full of liquid.
- Open inlet fully once pressure gauge indicates full pipeline pressure

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- Open outlet valve slowly
- Close by-pass valve.
- Replace seals and record per local procedures (if necessary).
- Reset signal device (if so equipped)

### **Clean Up**

- Dispose of paraffin, sediment, and foreign objects per local operating procedures.
- Leave barrel area clean and oil free.
- Report equipment problems through normal channels.

### **De-Watering and Cleaning Pipelines**

It Company policy to use launchers and receivers while using pigs to de-water and clean pipelines. It is the responsibility of the supervisor to make sure if third party contractor performs the cleaning they use launchers and receivers. All work is to be stopped until the launchers and receivers are in place and safely in operation. Failure to comply with this policy could result in up to termination.

### **De-Watering Procedure**

- Install the launcher and receivers on the line segment that is to be de-watered.
- Procure the necessary air compressor and connect air supply to the launcher.
- Establish communications between the launcher crew and the receiver crew.
- Construct the de-watering structure as per the environmental requirements of the project at the end of the pipeline segment being de-watered.
- Secure de-watering permit from the testing lab or from the Operator.
- Secure the necessary pigs to de-water the line segment.
- Place waste collecting device below door.
- Open the vent on the launcher to verify no pressure on the launcher.
- Open the vent closer to the launcher pig trap, standing clear of the barrel of the launcher.
- Load the pigs into the launcher.
- Close the vent valve on the launcher.
- Open the air supply line from the air compressor.
- Open the supply valve on the launcher carefully.
- Once the pressure has equalized in the launcher, open the valve completely or as specified by the specification of the de-watering process (refer to de-watering specifications).
- Communicate with receiver crew to let them know that the pig is traveling toward them.
- Receiver crew opens the de-water outlet valve off of the receiver and directs the water into the de-water structure.
- Receiver crew communicates with the launcher crew to regulate the air pressure in running the pig as needed.
- Once water stops exiting the receiver and air is the only thing exiting the receiver trap, the receiver crew will communicate with the launcher crew to close the air supply valve on the launcher.

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- The receiver crew will monitor the pipeline segment air pressure and when the pressure has stopped the process is completed.

### **Cleaning Procedure**

This process will require the receiver to be changed out from the de-watering process to a receiver that will allow the cleaning pigs to be contained once they reach the end of the pipeline segment, but still be accessible to be removed from the receiver.

- The launcher and air compressor will still be setup from the de-watering process.
- Secure the necessary pigs to clean the line segment.
- Place waste collecting device below door.
- Open the vent on the launcher and to verify no pressure on the launcher.
- Open the closer to the launcher pig trap, standing clear of the barrel of the launcher.
- Load the cleaning pigs into the launcher.
- Close the vent valve on the launcher.
- Open the air supply line from the air compressor.
- Open the supply valve on the launcher carefully.
- Once the pressure has equalized in the launcher, open the valve completely or as specified by the specification of the cleaning process (refer to cleaning specifications).
- Communicate with receiver crew to let them know that the cleaning pig is traveling toward them.
- Receiver crew stands clear of the receiver and waits for the cleaning pigs to arrive.
- Receiver crew communicates with the launcher crew to regulate the air pressure in running the cleaning pig as needed.
- Once the cleaning pigs arrive at the receiver, the receiver crew communicates with the launcher crew and notifies them that the cleaning pigs have arrived and the air inlet supply valve on the launcher is closed.
- Retrieve the cleaning pig from the receiver and notify the launcher crew that the cleaning pig has been removed.
- The launcher crew can continue the process of loading the cleaning pig and repeat the process as many times as necessary.