**Standard Operating Procedure for Improved Drainage**

**Sustainable Design and Systems Medicine Lab**

**Rowan University, Glassboro, NJ**

Date (Time): ( )

Crew:

Order Number:

Drum Line Number:

Feed Tank Number:

Previous Product on Family Line (KV40/KV100): ( )

Previous Product on Drum Line (KV40/KV100): ( )

Flushing Product (KV40/KV100): ( )

Line Temperature:

1. Record the above information
2. At the start of the changeover, ensure the back-pressure regulator valve is closed (air pressure is set to zero) and the sampling ball valve at the spear is closed. This will ensure that the air or oil in the manifold will not vent at the filling spear. The pump at the feed tank should be on
3. Ensure the inlet butterfly valve to the filter is closed
4. Open the butterfly valve at the header (manifold) for the designated filter line (engine, gear, etc.)

**Air Blow and Drain Residual Oil from Filter**

1. Open the main header valve for the compressed air line to supply air to all filters
2. Open the ball valve at the air supply line to the designated filter to allow compressed air into the filter housing
3. Simultaneously open the spring-loaded drain valve at the bottom of the filter (for approximately 30 seconds to drain oil. Many operators feel the side of the filter for vibrations caused by the air and oil mixture to determine the end of this time)
4. Then release the spring-loaded ball valve handle
5. Keep the main header valve and ball valve to the air supply lines open
6. **Safety Note: Ensure that another operator is stationed at the air supply line to shut off air supply in case of an emergency**

**Air Blow System to Drain Residual Oil**

1. Walk over to the spring-loaded ball valve on the ¾” bleed line located on the manifold
2. Observe pressure gauge on manifold which should be about 80 psig
3. Open the spring-loaded ball valve on the ¾” bleed line located on the manifold to drain oil from manifold for 30 seconds
4. Release the handle on the spring-loaded ball valve on the ¾” bleed line
5. The system should still be pressurized to about 80 psig
6. Walk over to the filling station and set the flush timer for 30 seconds
7. Open the back pressure regulator to 100% at the filling station. (The indicator needle should be straight up) Record this pressure below:

Back Pressure regulator valve pressure setting (psig):

1. Make sure that the drain is below the flushing spear
2. Push the start flush button to air blow the line for 30 seconds
3. Walk over to the filter and close the main header valve and ball valve to the air supply lines
4. Walk over to the spring-loaded ball valve on the ¾” bleed line located on the manifold
5. Open the spring-loaded ball valve for 10 seconds to relieve any excess pressure from the system
6. Close the spring-loaded ball valve

**Charging the Line**

1. *Note: This section (charging the line) is to clear the line of most air*
2. Go to DISPLAY screen and record the current volume of the feed tank on the datasheet. Record this volume below:

(Before opening filter butterfly valve) Record Current Display value:

1. Slowly open the inlet butterfly valve to the filter to charge the line with flush oil. The butterfly valve should be fully open
2. Set flush timer for 40 seconds
3. Make sure that the drain is below the flushing spear
4. Push the start flush button to begin charging line for 40s
5. After 40s charging is complete, open sampling ball valve for 5s to clear sampling valve
6. Close sampling valve
7. Go to DISPLAY screen and record the Current volume of the feed tank corresponding to charging. Record this volume Below:

(After Charging) Record Current DISPLAY value:

**Flushing the Line**

1. Using flush time chart determine flushing time (e.g., if flush time is 60s)
2. Set flush timer for designated flushing time
3. Make sure that the drain is below the flushing spear
4. Push the start flush button to flush line for designated time
5. After flushing, open sampling valve for 5s to clear sampling valve
6. Collect a sample for lab testing and send the sample to the lab
7. Go to Display screen and record the current volume of the feed tank after flushing. Record this volume below:

(First Flush) Final Recorded Display Screen Volume:

1. **If flush fails**, repeat flushing procedure until final sample passes and record final Display screen volume below
2. Record the below information once the sample passes:

(Additional flushes due to fail) Final Recorded Display Screen Volume:

Final Sample Passing Viscosity:

Comments: