

PER TRI REACTOR INSTRUMENT LIST

Work order #: _____

DATE: ____/____/____

INSTRUCTIONS:

Work required will be highlighted and underlined. This form is to be returned to Per Tri maintenance coordinator after all the jobs have been completed. The form in itself is a reminder for the foreman/ mechanic and a record for operations. Please indicate the date when the job was completed on the blank provided.

A. Flow control valves

Inspection of control valves is to include verification of full travel stroke of the valve. Also valve components such as packing bolts, top works, positioner, tubings, etc. are to be in good working order.

For items 1 - 6 inspection will include pressure checking the signal tubing from the controller to the control valve.

- ____ 1. Inspect, overhaul, repack O₂ FCV.
- ____ 2. Pull, inspect, overhaul, repack HCL FCV.
- ____ 3. Pull, inspect, overhaul, repack N₂ to mixed feed header MLS.
- ____ 4. Pull, inspect, overhaul, repack N₂ to O₂ riser MLS.
- ____ 5. Inspect, overhaul flush water valve(s).
- ____ 6. Inspect, overhaul, repack solenoid valve to O₂ header.
- ____ 7. Inspect, overhaul, repack solenoid valve to mixed feed header.
- ____ 8. Remove, inspect, overhaul, repack blowdown valve.
- ____ 9. Inspect, overhaul, repack steam to organic vaporizer FCV.

B. Level control valves

- ____ 1. Inspect, overhaul, repack organic vaporizer LCV.
- ____ 2. Inspect, overhaul, repack degasser LCV.

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C. Orifice plates

Inspection of orifice plates will consist of visual inspection for wear, nicks and roundness of the orifice. The orifice is to be measured. Any discrepancies should be reported.

- ___ 1. Inspect HCl feed flow orifice plate.
- ___ 2. Inspect organics flow to vaporizer orifice plate. Disconnect impulse lines at the transmitter for water washing of the process line. This indication has not been correct for this last run.
- ___ 3. Inspect steam flow to vaporizer orifice plate.
- ___ 4. Inspect reactor vent flow orifice plate.
- ___ 5. Inspect N₂ to O₂ riser orifice plate.
- ___ 6. Inspect N₂ to mixed feed header orifice plate.
- ___ 7. Inspect O₂ orifice plate.

D. Flow transmitters

Prior to zeroing flow transmitters the signal tubing from the transmitter to the recorder/controller will be pressure checked.

- ___ 1. Zero and calibrate HCl feed flow transmitter.
- ___ 2. Zero and calibrate organics to vaporizer flow transmitter.
- ___ 3. Zero and calibrate steam to vaporizer flow transmitter
- ___ 4. Zero and calibrate reactor vent flow transmitter.
- ___ 5. Zero and calibrate O₂ feed flow transmitter.
- ___ 6. Zero and calibrate N₂ to O₂ riser flow transmitter.
- ___ 7. Zero and calibrate N₂ to mixed feed flow transmitter

E. Pressure transmitters

Proof test of pressure transmitter loops is to consist of the following:

- A. Calibrate the pressure transmitter. Subject to Protective Order of 14th Judicial District Court No. 91-1145

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- B. Pressure check the signal tubing from the transmitter to the recorder/controller.
- C. Check the recorder with 3#, 9#, and 15# output signal from the transmitter and verify 0%, 50%, and 100% recorder readings.
- D. Check the alarms for visual and audible indications and verify that alarms are occurring as follows:

	<u>Set</u>	<u>High</u>	<u>Low</u>	<u>Dev</u>
Organic Press.	20/70	_____	_____	_____
Primary Inlet	DEV	_____	_____	_____
Secondary Outlet	30#	_____	_____	_____
Reactor Dome	35#	_____	_____	_____

- E. Zero the transmitter to the recorder.

- _____ 1. Proof test organic line pressure transmitter loop. Check connection to vent piping for damage.
- _____ 2. Proof test reactor dome pressure transmitter loop.
- _____ 3. Proof test primary inlet pressure loop and enter into proof test records.
- _____ 4. Proof test secondary outlet pressure loop and enter into proof test records.

For the following items 5 and 6 the signal line from the transmitter should be pressure checked prior to zeroing the transmitter.

- _____ 5. Zero and calibrate high pressure Dowtherm pressure transmitter.
- _____ 6. Zero and calibrate low pressure Dowtherm pressure transmitter.

F. Level transmitters

- _____ 1. Remove vaporizer's east float chamber. Prepare it for hydroblasting. Inspect/clean nozzle prior installation. Install vent and drain valves. Remove side drain and plug nozzle. Install plugs on vent and drain valves after the indication has been calibrated. Reinstall heat shields.
- _____ 2. Remove vaporizer's west float chamber. Prepare it for hydroblasting. Inspect/clean nozzle prior installation. Install vent and drain valves. Remove side drain and plug nozzle. Install plugs on vent and drain valves after the indication has been calibrated. Reinstall heat shields.

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- ____ 3. Zero and calibrate degasser level transmitter.
Check flush water rotameter.

G. Thermowells and thermocouples

When hooking thermocouples back up, verify by L&N change that the wire is being hooked to the right thermocouple.

- ____ 1. Replace reactor dome thermowells and thermocouples.
Check each thermowells for weld defects.
- ____ 2. Replace reactor thermowells and thermocouples.
Check each thermowells for weld defects.
- ____ 3. Inspect Rx vent line thermowell and nozzle for
corrosion problems.

H. Pressure control valves

For the following items 1 - 4 the control valves should be stroked and it should be verified that the valves are fully open and fully closed at their respective controller output pressures as indicated.

- ____ 1. Inspect. overhaul, repack Dowtherm 3(o) - 7(c) valve.
- ____ 2. Inspect. overhaul, repack Dowtherm 7(c) - 11(o) valve.
- ____ 3. Inspect. overhaul, repack Dowtherm 11(o) - 15(c) valve.
- ____ 4. Inspect. overhaul, repack both Dowtherm 11 psig valves. Valves open, close at 11#.

For the following items 5 and 6 inspection is to include:

- A. Pressure checking the signal tubing from the controller to the control valve.
- B. Inspecting and correcting any deficiencies in the positioner or valve top works assembly.
- C. Observing and verifying full travel and smooth stroke of the valve.
- ____ 5. Inspect. overhaul, repack reactor vent MLS.
- ____ 6. Inspect. overhaul, repack reactor pressure control valve.

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5. Miscellaneous

1. Rod-out nitrogen tubings to O₂ and organic piping.
Repair/change pressure gauges that are not at zero.
2. Test run, repair L & N.
3. Inspect, clean. repair rotameters.

IMPORTANT NOTES

1. We need the blanks filled out on the pressure transmitters proof test even if there was no difference from the desired settings.
2. When reconnecting the organics flow transmitter orifice plate impulse lines. check them for plugging problems. Drain any liquid (probably water) from the transmitter's impulse lines. Fill lines.
3. The deviation for the primary inlet transmitter is: +3. -3
4. If the need arise to pull a control valve. cover the flanges to prevent foreign material from entering the system
5. Check nitrogen solenoid valves for leak through at the bench

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