ORION Technical Solutions

# Instrumentation Inspection Checklist
## (Part 3 of 7 – PRESSURE Instruments & Transmitters)

NOTE – THIS CHECKLIST APPLIES ONLY TO PRESSURE INSTRUMENT SPECIFICS.
THIS CHECKLIST SHOULD BE USED IN CONJUNCTION WITH THE GENERAL CHECKLIST (Part 1) THAT APPLIES TO GENERIC CHECKS FOR ALL INSTRUMENTS.

☐ CHECK IMPULSE (SENSING) LINES FOR ANY POCKETS THAT COULD TRAP AIR OR GAS WHERE IT SHOULDN'T BE.

- ALL GASES WILL HAVE SOME CONDENSATION THAT WILL WORK DOWNWARD, AND ALL LIQUIDS HAVE SOME AMOUNT OF GASES ENTRAINED THAT WILL VAPORIZE OUT AND RISE UPWARDS.
- IMPULSE LINES SHOULD HAVE A TAPER OF ABOUT 1" PER FOOT, TO ALLOW FOR GASES OR LIQUIDS TO RETURN TO PROCESS.

☐ LOOK AT INSTALLATION OF TUBING ALL THE WAY BACK TO PROCESS TO SEE IF THERE IS A LIKELIHOOD OF SLUDGE BUILDUP, OR INLINE PRESSURE SNUBBERS (OR POROUS FILTERS), VALVES, KINKS, DENTS, OR ANYTHING ELSE THAT MIGHT CAUSE THEM TO CLOG, OR SLOW REACTION TIMES, ETC.

☐ LOOK FOR ANY 'WET-LEGS' THAT MIGHT NOT STAY FULLY WET.

☐ LOOK FOR 'WET-LEGS' WHOSE TEMPERATURE CAN VARY CONSIDERABLY. CHANGES IN WET-LEG TEMPERATURE CAN ALTER THE DP READING DUE TO DENSITY CHANGES.

☐ ENSURE IMPULSE LINES AND FITTINGS ARE TIGHT AND DO NOT LEAK (OR SHOW EVIDENCE OF LEAKAGE). IF ANY ODDITIES ARE NOTICED IT MAY BE GOOD TO APPLY SOME SNOOP TO THE FITTINGS TO LOOK FOR ANY LEAKS.

☐ VERIFY MANIFOLD VALVES OPERATE SMOOTHLY AND PROPERLY.

☐ SOME DP TEST PROCEDURES (SIS AND OTHERS) SETUP TO ALLOW PROCESS GAS/LIQUID TO FROM THE HP AND LP LINES TO VENTS TO ENSURE THEY ARE NOT CLOGGED. THIS PROCEDURE NEEDS TO BE ENGINEERED AND VETTED – BUT IT CAN BE EXTREMELY VALUABLE, SINCE CLOGGING IS ONE OF THE MOST LIKELY DANGEROUS-UNDETECTED FAILURE MODES FOR DP INSTRUMENTS. ACTUAL PROCEDURES VARY.

☐ FACTOR IN STABILIZATION TIME (PRESSURE AND TEMPERATURE) OF TEST EQUIPMENT TUBING, PUMPS, ETC. – ESPECIALLY WITH LOWER PRESSURE MEASUREMENTS AND ESPECIALLY WITH GAS/AIR SOURCE.

☐ VERIFY NO SLUDGE BUILD UP (OR SPOTS WHERE IT COULD BUILD UP). NOTE CONDITION OF MATERIAL THAT COMES OUT DURING ANY VENTS OR WHEN CONNECTING/DISCONNECTING TEST FITTINGS.

☐ ENSURE ANY SQUARE ROOT FUNCTIONS ARE PROPERLY CONFIGURED AND SETUP. (EXAMPLE: DP FLOW SQUARE ROOTING IS TYPICALLY HANDLED IN THE CONTROLLER – IF SIGNAL IS ALSO SQUARE ROOTED IN THE TRANSMITTER THE VALUES BETWEEN 0 AND 100% WOULD BE DRAMATICALLY OFF TARGET.