Cryogenic Plant Commissioning Readiness Checklist

A practical pre-start review for LNG, LIN, LOX, LAr and LH_2 facilities. Use it to find gaps before first product, not during it.

1. Mechanical completion and punch list

- ■ Equipment, piping, valves, instruments, supports and insulation checked against approved drawings and datasheets.
- ■ Punch-list items closed or formally accepted, with critical items cleared before any cold service.
- ■ Line numbers, tag numbers and flow directions verified against P&ID and isometrics.
- ■ Access, escape routes, lifting points and operating platforms usable as built.
- ■ Spare parts, special tools and operator consumables on site.

2. Cleaning, inerting and drying

- ■ Pipe cleaning, blowing or flushing completed and verified on every system, including small-bore and instrument lines.
- ■ Inerting completed where flammable or oxygen-sensitive service requires it, with oxygen content measured and recorded.
- ■ Drying completed to the dew point target agreed for the design, measured at the point that matters, not only at the outlet.
- ■ Dead legs, low points and vents identified and treated, since they hold moisture and air longest.
- ■ Dew point and purity results recorded with instrument, location and time.

3. Pressure, leak and function testing

- ■ Pressure and leak tests completed per the applicable design code, with test medium, pressure and hold time recorded.
- ■ Safety valves set, sealed and certified, with set pressures matching the current design case.
- ■ Instrument loops calibrated and checked end to end, including alarm and trip setpoints.
- ■ Interlocks and shutdown logic tested with simulated signals, not only inspected.
- ■ Leak-test results signed off by the responsible discipline.

4. Cooldown preparation

- ■ Cooldown sequence and allowable cooling rate agreed, with the stress limits they protect stated in writing.
- ■ Expansion and contraction allowances confirmed on supports, guides, bellows and insulation penetrations.
- ■ Vent, relief and boil-off gas routes established and proven able to take the cooldown flow.
- ■ Cooldown monitoring plan in place: temperature points, frequency, hold points and who signs each one.
- ■ Procedure reviewed with the operators who will execute it, not only with the engineering team.

5. First product and performance tests

- ■ Test conditions defined so they match the guarantee conditions, including flow, pressure, ambient and product state.
- ■ Instrument accuracy confirmed where results will be compared against guarantees.
- ■ Acceptance criteria and pass rules written before the test starts, so the result is not negotiated afterwards.
- ■ Product quality and boil-off measurement method agreed with all parties.
- ■ Test records and deviations documented for handover.

The five questions that decide whether the plan is ready

→ Who signs the hold point that allows cooldown to begin?

→ Which measurement proves the system is dry enough?

→ What happens if cooldown is faster or slower than planned?

→ Which instrument values will be used to judge the performance test?

→ What is the defined action if a punch item is still open at first product?

This checklist supports planning and review. Test media, pressures, temperatures, dew point targets and acceptance criteria depend on the design code, fluid, materials and project specification, and must be confirmed for each plant.

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