



**HPOIL GAS PRIVATE LIMITED**  
**(A Joint Venture of HPCL & OIL)**

**TENDER FOR EXAMINATION AND HYDROSTATIC TESTING OF TYPE-I/II/IV  
CNG CASCADES OF AMBALA-KURUKSHETRA & KOLHAPUR GA**

**TECHNICAL VOLUME**

**TENDER NO. HOGPL/2025-26/C&P/022**

**DATE: 22.10.2025**

## **1. Scope of work**

The scope of work shall be as follows.

### **1.1 GENERAL:**

- 1.1.1 Workshops recognized by Petroleum and explosive organization as “CNG cylinder testing stations” can only test cascades. The bidder shall have valid authorization from Petroleum of Explosive and Safety Organization for CNG cylinder retesting. The authorization should be valid throughout the tenure of the contract.
- 1.1.2 The Contractor along with the bid shall submit valid authorization letter from PESO. Bidder along with the bid shall also submit details of testing equipment available with them. HPOIL may inspect testing facility of bidder for ascertaining its capability
- 1.1.3 All the tubing work necessary for removal of cascade from station/LCV/HCV is in bidder's scope. After removal of cascade, tubing necessary for operation of station/LCV/HCV is also in bidder's Scope. Tubing and fittings required for the purpose will be provided by HPOIL. The bidder shall have to use same material at all the station/LCVs.
- 1.1.4 The scope/specification covers the minimum specified requirement for the various activities to be carried out by the contractor toward the refurbishment, testing and certification of various capacity CNG cascades at HPOIL, Ambala-Kurukshetra GA /Kolhapur GA
- 1.1.5 Bidder shall, with due care diligence; execute the work in compliance with all laws, by laws, ordinances, regulations etc. And provide all services and labour inclusive of supervision thereof.
- 1.1.6 Before starting of work, contractor shall himself familiarize for the work having obtained approval/clearance from HPOIL.
- 1.1.7 Without limiting the generality thereon, contractor shall do all work necessary at each of the job which is complete in all respect with site restoration.
- 1.1.8 Bidder shall apply and obtain all necessary permits for cylinder testing and related work to be performed. After completion of the work a joint inspection shall be done at work place.
- 1.1.9 Bidder shall carry provide cylinders testing certificate and necessary documents along with bill/cascade.
- 1.1.10 Bidder shall responsible for indemnity of HPOIL's cascade/cylinder.
- 1.1.11 Bidder shall manage octroi and RTO related expenses, if any, related to other state where designated testing facility is located, same will under Bidders scope
- 1.1.12 Bidder shall be borne transit insurance.
- 1.1.13 Bidder shall carry out work with safe operating practices and hand over in well operating condition.
- 1.1.14 Bidder shall observe all prevailing HSSE norms & labour laws applicable to them during the period of contract.
- 1.1.15 Bidder shall strictly adhere to the environment norms as per the existing local rules and owner's environment management system.
- 1.1.16 In case of any hazard like fire, leakage etc. due to gross negligence of the contractor, HPOIL reserves the right to impose penalty up to actual damage cost and or termination of work order depending upon the gravity of the situation.
- 1.1.17 After checking of the cylinders, report to be submitted for any defective parts replacement with photographs attached, after confirmation spares required to be replaced. All spares of the CNG cascades are in scope of Contractors.

- 1.1.18 Bidder must give a certificate about quality after completion of the work jointly signed by the HPOIL representative and contractor's representative.
- 1.1.19 If the works are not done as per the HPOIL satisfaction level then contractor shall do the necessary rework at his own cost.
- 1.1.20 The Bidder must have all the required instruments, i.e. high pressure pump, drying unit, ultrasonic thickness measuring instruments, oxygen analyzer & other required instruments to carry out the jobs. The bidder shall submit list of such tools as part of bid.
- 1.1.21 Bidder shall calibrate SRV, PG's, TG's of the cascades as per the standards with Master traceable to National or International standards and submit the calibration certificate & tag /sticker to be provided in instrument.
- 1.1.22 The bidder must have trained work force to do the SS double ferrule connections, tube bending joints etc. The training has to be imparted by M/s Swagelok or M/s Parker Hannifin, Mumbai. List of such persons along with copies of training certificates have to be provided along with the offer.
- 1.1.23 The Bidder shall paint the cylinders after priming and surface preparation by sand blasting/automatic wire brushing as per the industry practice. The Bidder shall also paint the structure of cascade as per the industry painting standards. The paint done on cylinder and structure should be of good quality and fit for 3 years period. Any defect in painting will be repaired by bidder on free of cost basis else will lead to penalty. Any cost associated with rework of painting viz transportation, dismantling & assembling of cascade etc will be in bidder's scope and HPOIL will not pay any amount against this. The Bidder shall complete testing work within 21 days. Delay in completion of testing work will lead to penalty as per the penalty clause.
- 1.1.24 The bidder shall replace defective spares after confirmation by HPOIL. Payment for replacement of replaced spares will be made as per the SOR & bidder to submit the testing & other certificate for replaced spares. The bidder shall prepare reconciliation statement and shall return used spares to HPOIL.
- 1.1.25 Defective spares required to be replaced, to be done by the contractor with approved brand & amount to be claimed in RA bill as per SOR. Defective spares to be returned to HPOIL with complete defect details. And all the testing & other certificates to be provided by contractor
- 1.1.26 In case of any hazard like fire, leakage etc., due to gross negligence of contractor's manpower, HPOIL reserves the right impose penalty depending upon the gravity of the situation.
- 1.1.27 The Bidder must have all the required instruments, i.e. high pressure pump, drying unit, ultrasonic thickness measuring instruments, baroscopic camera, oxygen analyzer, rolling machine for internal and external cleaning, sand blasting machine & other required instruments to carry out the jobs. The bidder shall submit list of such tools as part of bid.
- 1.1.28 **Work planning:** Contractor shall notify the HPOIL Engineer-In-Charge about all the activities planned for the day through an email/fax along with DPR

## **2. SCOPE OF WORK AT HPOIL's SITE-**

- 2.1 Dismantling cascade, tubes and fittings at HPOIL's site.
- 2.2 Safe loading of CNG cascade on truck through crane at HPOIL's site.
- 2.3 Contractor shall carry out transportation of cylinder and cascade from HPOIL's location to their work premises.
- 2.4 After testing of cylinder cascade, contractor shall carry out loading of the cascade on truck through crane.
- 2.5 Contractor shall carry out transportation of CNG cascade from their work premises to HPOIL's site.
- 2.6 Safe unloading of cascade at HPOIL's site through crane.
- 2.7 Refitting and assembling of cascade at HPOIL's site.
- 2.8 Pneumatic testing of SS tubes after refitting of cascade at HPOIL's site.

## **3.0 SCOPE OF WORK AT CCOE WORK PREMISES-**

- 3.1 Contractor shall carry out testing of CNG cascade cylinders at CCOE approved testing facility as per IS 7285 Standard, OISD 179 and Gas Cylinder Rules 2004 & its amendment 2016.
- 3.2 Contractor shall carry out following activities at his works.
- 3.3 Unloading of CNG cascade by crane.

- 3.4 Dismantling all fittings, tubes and cylinders.
- 3.5 Opening valves and De-gassing the cylinders by Nitrogen gas.
- 3.6 Cleaning the cylinders from inside with wire brush and internal steel shot blasting.
- 3.7 Weighing the cylinder.
- 3.8 External inspection (thickness, buldge, burn, dents, dig etc.).
- 3.9 Wall thickness measurement with ultrasonic.
- 3.10 Internal inspection (Hardness test, ultrasonic thickness test, bend test, depth of folding at neck etc.
- 3.11 Hydrostatic stretch test.
- 3.12 Steam and vacuum cleaning of cylinders.
- 3.13 External shot blasting of cylinders and frame structures.
- 3.14 Fixing of valves, pneumatic testing.
- 3.15 Deshaping of unserviceable cylinders.
- 3.16 Cascade painting and marking as per IS 7285 & relevant standards.
- 3.17 Check the good working condition of valve, threading, burst disc, tunings and fittings.
- 3.18 After testing of cylinders, contractor shall carry out loading and fixing cylinders on cascade frame.
- 3.19 Contractor shall carry out refitting and assembling tubes, valves and fittings.
- 3.20 Handing over material like Burst disk, valves, gauges, ss fittings, to HOGPL which is used against non-repairable or replaced against faulty with prior intimation to EIC of HOGPL.

#### **4.0 SPECIFICATION OF WORK:**

Work shall be carried out as per following safe engineering practices.

- 4.1 Degassing.
- 4.2 Internal and External examination.
- 4.3 Record of test.
- 4.4 Marking.
- 4.5 Painting.
- 4.6 Calculation sheet.
- 4.7 History card.
- 4.8 Related instrument calibration.
- 4.9 Explosive meter check up.
- 4.10 Cylinder weight check up.
- 4.11 Final inspection.

#### **5.0 Re-Testing of cylinder:**

- 5.1 Shot blasting of cylinder before testing.
- 5.2 Cleaning of cylinders.
- 5.3 Ultrasonic testing of cylinders.
- 5.4 Hydro testing of cylinders as per Gas Cylinder Rules.
- 5.5 Issuing test certificates.
- 5.6 After hydro testing, tag plate shall be installed on cascade having following details:
  - Cascade Sl. No.
  - Cylinder Nos. (from/to)
  - Hydro testing date
  - Next due date
  - Year of supply
- 5.7 Moreover, implementation of permanent and temper proof barcode/QR code as per Gas Cylinder Cylinder, 2025.
- 5.8 Punching of hydro testing date on cylinder neck is not allowed. Metal plate (challa) mentioning the hydro test date and next due date shall be fixed on each cylinder valve. Shape and colour coding of circular plate to be fixed on cylinder valve shall be as per Gas Cylinder Rule 2004 & its amendment in 2016.

#### **6.0 CNG cylinder valves:**

- 6.1 Cleaning and overhauling of complete valves (Teflon packing, gland nut, spindle seat, retainer plate etc.

- 6.2 Burst disc, needle valve checking & replacement of all burst disc and damaged spares. All the spares shall be in contractor's scope.
- 6.3 Testing of all valves for leak/passing by purging Nitrogen up to 150 bar.
- 6.4 Replacement of all 40 nos. of burst discs is mandatory in all cascades and in the scope of contractor under hydro testing. Contractor is required to include the rate of burst discs in hydro testing work. No additional payment will be given against replacement of burst discs.
- 6.5 Replacement of supporting rubber packing of all 40 nos. of cylinders is mandatory in all cascades and in the scope of contractor under hydro testing. No additional payment will be given in this regard.
- 7.0 Cylinder clamps:**
- 7.1 Remove the clamps from cascade.
- 7.2 Replace the old studs with the new studs.
- 7.3 Zinc plating the complete clamps
- 7.4 Refix the clamps by using new lock nuts.
- 8.0 Cascade Tubings:**
- 8.1 Dismantling the complete SS tubings.
- 8.2 Checking of all nut & ferrule & cleaning.
- 8.3 Replacement of Knob (3-way valve) pressure gauges, SRV as per the standards. All spares shall be in scope of contractors.
- 8.4 Refixing of tubing, if requirement replace tubing. Contractor shall provide the SS tubes.
- 8.5 Hydro testing of tubing at 300 bars.
- 8.6 Flushing of complete tubing by using Nitrogen.
- 8.7 Pressure testing of cascade tubing.
- 9.0 Cascade Frame:**
- 9.1 Checking of cascade frame for any damage or corrosion.
- 9.2 Repairing the damage parts.
- 9.3 Sand blasting of complete frame including Angles, Brackets & Channels.
- 9.4 Refixing the Angles & Channels & Angles by using new Nut Bolts
- 9.5 Painting of cylinders, cascade frame.
- 9.6 Cylinders frame shall be painted with one coat of Epoxy Primer.
- 9.7 Two coats of white Epoxy colour shall be applied after proper drying of Primer on the Cylinder body & Neck shall be painted with PO Red colour as per the Gas Cylinder Rules 2004.
- 9.8 Two coats of Yellow Epoxy Colour shall be applied after proper drying of Primer on the Cascade frame.
- 9.9 Ensure that only branded paints shall be used i.e. ASIAN/BERGER/SALIMAR
- 10.0 Loading & Unloading of CNG Cascade Cylinder:**
- 10.1 Loading/Unloading of CNG Cascade Cylinder shall be carried out either by Hydra or Mobile crane, depending of the requirement of specific job. Any other lifting equipment identified on case basis shall also be included as part of this Contractor's scope.
- 10.2 Mobile crane with Telescopic boom of required capacity. The capacity of crane shall be calculated by the Contractor prior to start of job keeping in view the load to lifted and the distance/angle of lift and loading.
- 10.3 Any damage/accident of cascade or third party during loading/unloading/transportation or during hydro testing- It shall be the sole responsibility of service provider and cost incurred for any damage shall be borne by service provider.
- 11.0** All the tubing work necessary for removal of cascade and for ensuring smooth operation of CNG station after cascade removal will be in the bidder's scope. Any damage to the cascade due to poor workmanship shall be the responsibility of the bidder and he shall rectify the same together with material, free of cost. Tube and fittings required for other reasons such as non-suitability for further user or any modification desired by HPOIL, will be provided by HPOIL.

- 12.0** The transportation of cascades from HPOIL station to contractor's workplace is in contractor's scope.
- 13.0** The normal operating pressure of CNG cylinders is 255 kgf/cm<sup>2</sup> and testing shall be carried out at 435 kgf/cm<sup>2</sup> or as mentioned in the cylinder.
- 14.0** Testing shall be witnessed by TPI (engaged by vendor/Contractor) agency authorised by PNGRB & IRN report shall be submit to HOGPL for further dispatch clearance.

**15.0 Quality Assurance / Quality Control**

- 14.1** The supplier shall prepare a detailed Quality Assurance Plan for the execution of Contract for various facilities, which will be mutually discussed and agreed to.
- 14.2** The supplier shall establish document and maintain an effective quality assurance system outlined in recognized code.
- 14.3** The Purchaser i.e. HPOIL , while agreeing to a Quality Assurance Plan shall mark the stages where they would like to witness the tests; review any or all stages of work at shop / site as deemed necessary for quality assurance.
- 14.4** All work executed shall be strictly in accordance to latest editions of IS 7285, OISD 179, Gas Cylinder Rules 2004 etc.
- 14.5** Hydro testing facility shall have valid PESO license. Hydro testing work shall be directly carried out by bidder, any subletting for hydro testing work shall not be allowed.

**16.0 Penalty against Non-Performance:**

- 15.1** If cascade is not lifted from HPOIL site within 10 days from written intimation by EIC of HPOIL , penalty shall be imposed on service provider as per below detail:
- If cascade is lifted from HPOIL site for hydro testing within 10 days from intimation: No Penalty.
  - If cascade is not lifted from HPOIL site for hydro testing within 10 days: Penalty of Rs. 500.00 per day shall be imposed on service provider.
- 15.2** If cascade is not hydro tested/commissioned at site within the period of 21 days from the date of lifting of cascade from HPOIL site, penalty shall be imposed on service provider as per below detail:
- If tested cascade commissioned at HPOIL site within 21 days from date of lifting from HPOIL site: No Penalty.
  - Penalty of Rs. 1000.00 per day for delay beyond 21 days.

However, Maximum penalty (in any case) shall be limited to 60% of total cost of hydro testing (Total of Hydro testing/transportation/Loading unloading/transit insurance etc.) for particular cascade having delay in hydro testing/commissioning at HPOIL site.

If delay is due to unavailability of site by HPOIL, no penalty shall be imposed on service provider on verification by EIC of HPOIL .

- 17.0** If any extra work required to complete the job (rather than defined above), that shall also be in the scope of contractor without any additional cost to HPOIL .
- 18.0** Contractor shall note that HPOIL's Station are within AMBALA-KURUKSHETRA/Kolhapur GA / Out of octroi limit. Contractor shall issue Rahadari Pass for movement of the cascades whose octroi has to be paid by contractor.
- 19.0** The cascade as a complete assembly shall be issued to bidder against the Gate Pass.
- 20.0** Octroi for all free issue materials as applicable shall be reimbursed as per actual on submission of documentary proof.