CERTIFICATION ENGINEERS INTERNATIONAL LIMITED

(A GOVT. OF INDIA UNDERTAKING)

ENGINEERS INDIA BHAWAN
KHARGHAR, NAVI MUMBAI- 410 210

CAPACITY BUILDING WORKSHOP
PETROLEUM AND NATURAL GAS REGULATORY BOARD (PNGRB)
24TH FEB 2025, HOTEL CROWNE PLAZA,
MAYUR VIHAR, NEW DELHI.

PREPARED BY : RAJESH BEHERA
CEIL

HISTORY

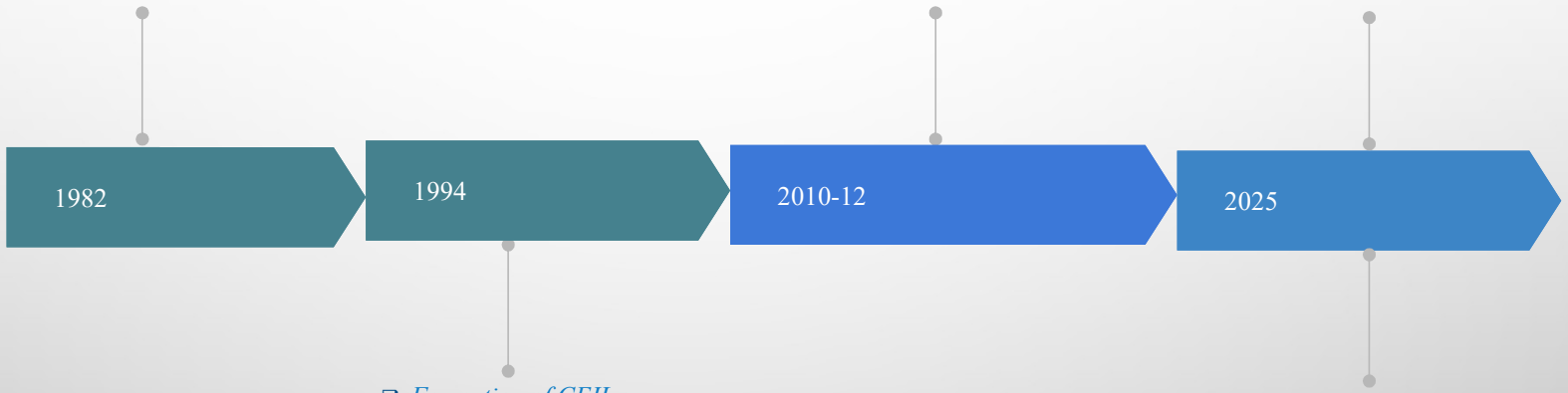
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)
ENGINEERS INDIA LIMITED
(A Govt. of India Undertaking)

In 1982, Engineers India Limited (EIL- A Govt. of India Undertaking) formed 'EICA' (Engineers India Certification Agency) for Certification of installations of ONGC

On 26th Oct 1994, CEIL was incorporated as a wholly owned subsidiary company of EIL for a undertaking Third Party Inspection, Certification and Recertification Assignments

सर्टिफिकेशन इंजीनियर्स इंटरनेशनल लिमिटेड
(भारत सरकार का उपक्रम, इंजीनियर्स इंडिया लिमिटेड की सहायक कम्पनी)
CERTIFICATION ENGINEERS INTERNATIONAL LTD.
(A Govt. of India Undertaking, Subsidiary of EIL)

EVOLUTION & KEY MILESTONES (30YEARS)



- *Formed 'EICA'* (Engineers India Certification Agency)

- *Formation of CEIL* a wholly owned subsidiary of EIL

- CEIL approved by PNGRB
- T4S audit, IMS Audits and ERDMP Audits for Oil & Gas Sectors

- Completed Successfully more than 30 nos. of Audits in FY 2023-24
- T4S audit of more than 20 entities, more than 40 facilities, 3500 km of pipelines
  IMS audit of more than 20 entities, more than 40 facilities 5000 km pipelines,
  ERDMP of more than 20 entities, 66 O&G facilities

CEIL'S EXISTANCE IN VARIOS SECTORS

REFINERIES/GPU

PIPELINES

CNG RO & CGD

POL TERMINALS

- *MAJOR OMC , CGD & NGPL CLIENTS*

MAJOR CGD CLIENTS

MAJOR OBSERVATIONS (CGD)

- *AS PER F. NO. INFRA/T4S/SC-6/4/18, (T4S FOR RO) SCHEDULE – 3 [see regulation 6(3)] storage, handling and dispensing at CNG dispensing stations, cl.no 17.9 each installation shall have minimum two numbers hand held explosive meter in working conditions at all times. presently, one hand held explosive meter available at each installation.*
- *For internal corrosion assessment, internal corrosion monitoring coupon & probes feasibility may be explored for installation & its implementation at strategic location. No such arrangements observed in any installations.*
- *The work permit shall be issued by designated person and be followed and the annexure – vi (a) and vi (b) in schedule 1 shall be followed. presently, entities have developed work permit system which is common for all works, but there is no provision of permission by dealer incase there is any work done in CNG(RO) . dealer intervention is required in work permit as per annexure – vi (a) and vi (b) in schedule 1 whenever work is done in CNGRO station.*
- *AS PER CL.7.2 OF T4S OF RO REGULATION, cylinders are to be permanently and clearly marked for "CNG ONLY" and also labelled " CNG ONLY " in letter at least 25 mm high in contrasting colour in a location which shall be visible after installation.*
- *AS PER APPENDIX-II (SEE REGULATION 7) – "list of critical activities in CGD network" (sr. no 3) of 'integrity management system for the city or local natural gas distribution networks- 2013' which states, "GIS mapping of the network" shall be in place within 3 years from the year of authorization.*

- *As per PNGRB regulation 2013, schedule 5, cl. b, thickness assessment and periodic review against baseline values for all cgd network skids, drs and pressure vessels shall be done once in a year. presently , thickness assessment done, but no comparison is done with baseline data. it is compared with retiring thickness. format to be revised.*
- *Recommended to carry out risk assessment done yearly by considering 23 threats as per ASME B 31.8 S and in line with the schedule 6.*
- *Opportunity based assessment for condition of PE and assessment of wear and tear and material conformance to the moc during construction with available material test certificate to be done.*
- *As per IMS documents following has been considered as key performance indicators under category of operational measures. PSP, CP current demand change, ground bed resistance, no. of coating defects, availability of pipelines and associated equipment KPI parameters have been defined based on operational measures, performance measures and direct integrity measures, however, recommended to perform evaluation KPI v/s Actual (entire CGD network).*
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- *As per f. no. pngrb/auth/1-cgd(16)/2020 (p-2748), 23rd november, 2020, access code for city or local natural gas distribution networks) regulations, 2020,following parameters needs to be monitored:*

Parameters	Limit
Hydrocarbons dew point (Degree Celsius, max.)	0
Water dew point (Degree Celsius, max)	0
Hydrogen Sulphide (ppm by wt. max.)	5
Total Sulphur (ppm by wt. max.)	10
Carbon dioxide (mole % max.)	6
Total inerts (mole %)	8
Temperature (Degree Celsius, max.)	55
Temperature (Degree Celsius, min.)	10-20
Oxygen (% mole vol. max.)	0.2
Wobbe Index for domestic consumers (based on MJ/SCM)	39-53

The gas analysis should be in line with is:15958.

- *TREM card, MSDS not updated as per latest ERDMP regulations.*
- *The Vent height of the Dispensers are not designed to comply that vent height shall be minimum 3mtrs.*
- *Leakage Surveys using gas detectors shall be done in accordance with the requirements of ASME B 31.8.*

ASME B 31.8 cl.851.3 states "leakage surveys each operating company of a transmission line shall provide for periodic leakage surveys of the line in its operating and maintenance plan. the types of surveys selected shall be effective for determining if potentially hazardous leakage exists. the extent and frequency of the leakage surveys shall be determined by the operating pressure, piping age, class location, and whether the transmission line transports gas without an odorant".

- *AS PER LIST OF CRITICAL ACTIVITY OF T4S REGULATION OF PNGRB, GAS DETECTORS NEEDS TO BE INSTALLED AT ALL CRITICAL LOCATIONS (CGS AND DRS).*
- *NON-FLP TYPE TLP LOCATED IN HAZARDOUS AREA AT BANUR SERVICE STATION (MOTHER STATION) . SAME TO BE REVIEWED FOR SAFE INSTALLATION IN HAZARDOUS AREA. REFER IS:8062, CL. 11.4, AS BELOW:*

11.4 Installations in Dangerous Atmospheres

11.4.1 Cathodic protection can introduce hazards in areas in which an inflammable mixture of gas, vapour or dust (that is hazardous atmosphere) may be present which could be ignited by an electric arc or spark. In a cathodic protection system, a spark may be caused by one or more of the following reasons:

a) Disconnection of bonds across pipeline joints.
b) Short-circuit of isolating joints, for example, by tools lying across a joint or breakdown due to voltage surges on the pipeline induced by lightning or electrical switching surges.
c) Disconnection or breakage of cable carrying cathodic protection current.
d) Connection or disconnection of instruments employed for measuring and testing of cathodic protection system.

11.4.2 In locations where any of the above hazards may arise, the operating personnel should be given suitable instructions and warning notices should be displayed.

11.4.3 It should be noted that likelihood of sparking is greater with impressed current system than with sacrificial anode system.

- *Risk assessment done yearly by considering 23 threats as per asme b 31.8s and inline with clause 6.*
- *As per T4S regulation, individual pressure regulating station (IPRS): located at the premises of an individual customer and having facilities similar to dprs however, monitor regulator may or may not be provided. metering facilities may or may not be part of this station. presently mrs is only single stream instead of dual stream.*

- *SITE SPECIFIC OBSERVATIONS*
- *Exd type blind plugs to be provided for spare entry in JB of flooding system located in hazardous area.*

- *SOP of operation of co2 flooding system in manual mode during auto failure to be displayed near the co2 flooding system.*
- *Where buried pipes come out of the ground, the underground coating on the pipe will continue for a length of at least 300 mm above ground. .*

- *Vent height of Dispensers observed to be less than 3 mtrs.*

- *Vent height of Dispensers to be increase to 3 mtrs.*

- *LCV filling point Vent height observed to be less than 3 mtrs.*

- *Identification nos. to be provided for valve chambers and same to be painted on chamber cover for identification.*

- *Fencing to be provided for above ground piping for protection and avoiding vehicles hitting the piping.*

- *Insulation mats to be provided in electrical room in accordance with latest IS: 15652.*

- *Double earthing to be done for all jb's of 240v and above located inside electrical room.*

- *Interlock bypass register was not available.*

NGPL OBSERVATIONS

- *Fire suppression panel is located in control room and flooding activation and abort switches are located in panel only.separate flooding activation and abort switches to be positioned outside individual room protected with flooding.*
- *Warning signages outside room for CO2 Fire suppression system not available.*
- *Electrical Siren located in control room is powered by 230V AC supply. Same recommended to be supplied through UPS system as during emergency electrical isolation shall be activated and Siren could not be operated.*
- *During UT measurement of above ground piping, it is recommended to include details of UT machine no.by which measurement is done along with date of calibration and next due date of calibration of used UT machine for traceability in the thickness report about the UT machine used for the measurements.*
- *ECC rooms should have at least two exits and adequate ventilation .*
- *In communication Flow chart, ECC is not mentioned in flow chart.*
- *In Other Gas Installations, Electric operated fire sirens with audible range of 1 km shall be installed. Provision shall be made for continuous availability of power to this system during emergency shut down. In SV stations such provisions not available.*

SITE SPECIFIC OBSERVATIONS

- *SOP for QOEC to be displayed near the location of QOEC.*
- *The torch available with security is found to be non-flame proof.*
- *In Mock drill reports , the actual response time column is left blank for many cases.*
- *Mutual aid agreement should be reviewed from time to time to add new threats and resources.*
- *Keys of Emergency gates should be properly tagged and stored properly.*
- *Shift wise and area wise identification of First Aid trained personnel should be done and displayed.*
- *List of authorized persons should be displayed at the entry of substations.*
- *Emergency path markers to be displayed at strategic places to show the evacuation route*
- *Escape routes from Buildings and hazardous areas to assembly point or outside the plant were not marked.*
- *Earthing Layout drawings not displayed at site.*

FEW GLIMPSES OF MOCK DRILLS CONDUCTED DURING AUDITS

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THANK YOU