



NUCLEAR POWER CORPORATION OF INDIA LTD.

(A Government of India Enterprise)

Directorate of Technology Development

Nabhikiya Urja. Bhavan, Anushaktinagar, Mumbai – 400 094

No. NPCIL/DTD/60431/2014/M/252

November 05, 2014

Sub: Letter of Appreciation to M/s Electronet Equipments Pvt. Ltd., Pune, Maharashtra

Ref: Development of Electronic Pressure & Differential Pressure Transmitters for Nuclear Applications

M/s Electronet Equipments who are developing Electronic Pressure & Differential Pressure Transmitters for Nuclear Applications against development contract from NPCIL requested a letter of appreciation for applying to Government for Award Scheme for Small and Medium Scale Industries.

The format required for the Award application covers few topics to bring up importance of the item they developed, the need for development, previous source of supply, advantage of the design being used, overall benefits, indigenization etc., and as covered below:

1.0 Importance of Pressure & Differential Pressure Transmitters for Nuclear Applications

These electronic Pressure/ Differential Pressure Transmitters (PT&DPT) are required for pressure and level/flow measurement in harsh/ high radiation environments. Capacitance type sensors are used to sense the pressure/differential pressure and radiation qualified electronics is used to convert capacitance signal to electrical signal (4 to 20 mA).

These transmitters are required to be used in next generation of Indian Nuclear Plants (NPP) i.e., 700 MWe PHWRs, two units each of which are under construction at Gujarat & Rajasthan and 2 units each at 3 more sites are under various stages of sanction by Government of India. For these 10 Units of 700 MWe PHWRs, a large number of Nuclear Qualified Pressure/Differential Pressure Transmitters are required.

2.0 Previous source:

As of now, the pressure/diff. pressure transmitters needed for nuclear applications were available only from manufacturers like M/s Rosemount, Nuclear Instrument Inc., USA (Emerson Group). No Indian manufacturer in India manufactures/qualify the Pressure/Differential Pressure transmitters as required for nuclear applications. Owing to the legal issues and embargo involved in the import of such transmitters, NPCIL decided to get these Pressure/Differential Pressure transmitters indigenously developed for use in Indian Nuclear Plants.

श्री. विवेक / Mr. VIVEK
श्री विवेक / Associate Director
एनपीसीआईएल / Nuclear Power Corporation of India Ltd.
भारत सरकार का उद्यम / A Govt. of India Enterprise
नभिकिया उर्जा भवन, अणुशक्तिनगर, मुंबई - 400 094
Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai - 400 094



3.0 Advantage in design

The electronic Pressure/Differential Pressure Transmitters developed for Nuclear Applications are Capacitance based 2-wire 4-20mA output. Capable of measuring absolute, gauge as well as differential pressures, these transmitters provide stable and high accuracy. Though the Sensor cells are imported from a renowned company/common source for all international brands, the electronics and the housing is fully indigenized by M/s Eletronet Equipments, Pune.

These Pressure/Differential Transmitters are radiation qualified up to 5 MRad in development prototype stage and 1.5 MRad for Design prototype model. Presently the transmitters are qualified for LOCA/MSLB (steam and temperature profile for V2 area) and planned for further upgrade to higher radiation and temperature/pressure conditions to consider Beyond Design Basis Accident (BDBA) condition. The design prototype model is qualified through Environmental Conditions, EMI-EMC, Seismic, Thermal Ageing for 10 years of operation life and Design Basis Accident Conditions like Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB) conditions meeting various requirements of Indian and International Standards like IS, IEC & IEEE.

4.0 Overall benefits

The Pressure Transmitters developed for Nuclear Applications are indigenously developed electronic transmitters. These transmitters have undergone stringent quality checks at every stage of development and manufacturing, thus assuring absolute quality control and life expectancy.

The indigenization program will reduce our dependence on foreign source and uncertainties due to embargo on import of electronic Pressure & Differential Pressure Transmitters for Nuclear Applications and also save foreign exchange expenditure.

5.0 Indigenous development

NPCIL is encouraging Indian vendors to develop Radiation Qualified electronic Pressure & Differential Pressure Transmitters to work in harsh environments. The indigenous development is to avoid dependence on foreign vendors and import of Nuclear Pressure/Diff. Pressure Transmitters is not feasible due to technology denial regime/foreign embargo.

A development work order was thus placed on M/s Eletronet Equipments Pvt. Ltd., Pune, Maharashtra for development of electronic Pressure/ Differential Pressure Transmitters for Nuclear Applications. Since then, they have worked with dedication and took our development as a challenge. They have adopted number of innovative approaches for successful development of these Radiation Qualified Electronic Pressure/ Differential Pressure Transmitters and qualified and supplied full quantity of these design prototype electronic Pressure/Diff. Pressure Transmitters (PT& DPT) as per development contract.

M. BHASKAR / M. BHASKAR
Asst. Director / Associate Director
Nuclear Power Corporation of India Ltd.
(A Govt. of India Enterprise)
Mumbai - 400 094

We are pleased to certify that M/s Electronet Equipments Pvt. Ltd., Pune, Maharashtra has successfully developed and produced Pressure/ Differential Pressure Transmitters for Nuclear Applications against the first development order and have capability to meet bulk manufacturing requirement for projects as well as for any replacement requirement for imported transmitters being used in existing operating NPPs for similar specifications/applications.

We congratulate M/s Electronet Equipments Pvt. Ltd., Pune, Maharashtra for successful development of electronic Pressure & Differential Pressure Transmitters for Nuclear Applications.

With Regards


05/11/2014

(M. Pramanik)

Associate Director,

Directorate of Technology Development & Convener,

Development Task Force on Electronic Transmitter for Nuclear Application

M. PRAMANIK / M. PRAMANIK
ए. डायरेक्टर / Associate Director
एन. पी. ई. कॉर्पोरेशन / Nuclear Power Corporation of India Ltd.
भारत सरकार का उद्यम / A Govt. of India Enterprise
पम्पहाटो रोड नं. १३७, मुम्बई-४०० ०९४
Nuclear Power Corporation, Maharashtra - 400 094.