Metrological Centre in the Ukraine:

Elster-Instromet helps turn a vision into reality

In November 1998 NJSC "Naftogaz of Ukraine" and the EU began a cooperation which, within the framework of the EU-financed INOGATE Programme, has led to one of the most impressive investments in the field of natural gas measurement worldwide: The Metrological Centre in Boyarka (Kiew, Ukraine). Elster-Instromet is happy to have played a key role in this and will continue to do so.

The INOGATE Programme stands for "Interstate Oil and Gas Transport to Europe" and is an international cooperation programme aiming to promote the regional integration of the participating countries. Everybody in the gas industry has fresh memory about the gas transport conflict between Russia and the Ukraine just a few months ago with rumours about gas theft etc. This underlines the fact that you can only talk about losses in pipelines once the actual input and output can be measured accurately. The facilities in Boyarka will help the region to establish a metrological regime which is appropriate for the massive volumes of gas being shipped and transited and its value.

The initial grant was issued in October 2001 and construction work started soon afterwards. During this first phase of the project, which was financed by the INOGATE Programme, Elster-Instromet was responsible for supplying the equipment to determine the volume and quality of natural gas. Now, in the second phase, financed by NJSC "Naftogaz of Ukraine", Elster-Instromet has been commissioned to carry out all start-up work and training of personnel.

The entire construction and concept was set up considering the experiences gained in highly recognised metrological centres worldwide such as Alfortville in France, Pigsar in Germany, Westerborg in the Netherlands and TransCanada Calibration in Manitoba (Canada).

It is unique that the physical master systems – together with the gas flow master systems – and related laboratories for pressure, temperature, gas composition, humidity and density are to be found in a single location, allowing to calibrate meters and transfer standards for all types of measurement devices related to natural gas and energy measurement.

Fig. 1: "Cutting the ribbon" during the official opening on 21 Dec 2006

Fig. 2: Bell prover and weighing tank Primary Standards

The Boyarka Centre is located on the premises of a compressor station, which is an integral part of the trunk pipeline system for natural gas transport to the western border of Ukraine. This also includes a take-off station to supply the city of Kiew. Therefore, natural gas is available as a calibration medium for a wide range of flow rates and pressures. The following master systems are implemented at the Boyarka Centre:

- a Primary Standard system for checking sonic nozzles operating with natural gas with a test volume of 3.0 m^3 for flow rates of 1.6 – 250 m^3/h at a pressure of 6 – 46 bar with a measurement uncertainty below 0.1%.
- a Primary Standard bell prover operating with natural gas or air, with a volume of 3.5 m^3 for flow rates up to 400 m^3/h with a measurement uncertainty below 0.1%.

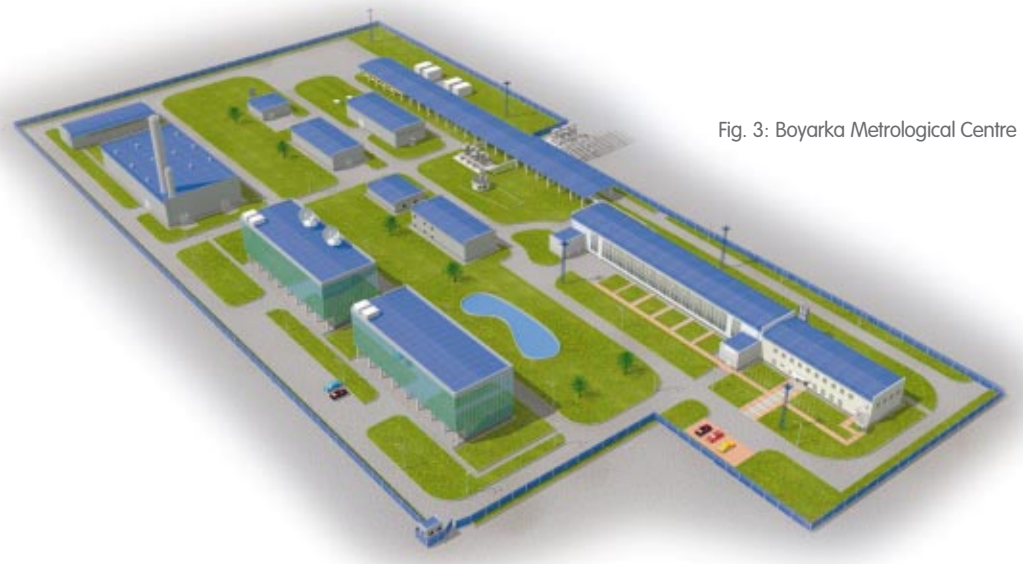

Fig. 3: Boyarka Metrological Centre

Fig. 4: Ultrasonic master meters lined up in the Secondary Standard

- a Secondary Standard sonic nozzle rig for natural gas at flow rates of 1.6 – 10 000 m³/h at a pressure of 37 – 46 bar with a measurement uncertainty below 0.2%.
- a Secondary Standard rotary and turbine rig operating with air for flow rates of 1.0 to 24,000 m³/h at a pressure of 1 bar with a measurement uncertainty below 0.2%.
- a Secondary Standard system with rotary, turbine and ultrasonic meters using natural gas for flow rates of 4.0 to 60,000 m³/h at a pressure of 40 bar with a measurement uncertainty below 0.2%, for testing meters with a max. DN of 1000 mm (40").
- further Transfer Standard meters like an 80 bar rotary meter for flow rates up to 400 m³/h, two 80 bar turbine meters for flow rates up to 2,000 m³/h and an 80 bar turbine meter for flow rates up to 8,000 m³/h.

Elster-Instromet NV, having supplied the majority of Primary, Secondary and Transfer Standards, has rendered a convincing performance and was therefore selected by NJSC „Naftogaz of Ukraine" to lead the important second phase for the start-up of the Boyarka Metrological Centre. We will do our utmost to make this a success and to help the region reach its targets in natural gas metrology.

Vitaly Pogorilyy office@elster-instromet.kiev.ua