

1.11.22. COMPLEX DIAGNOSTIC CONTROL OF BRANCHES OF THE MAIN GAS PIPELINES

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In the report we examine the technology of diagnosing of underground sites of the main gas pipelines which are inaccessible to inspection by intratrumpet means.

Diagnosing is carried out with application of a complex of methods and means of non-destructive testing. Experts contactlessly from the earth surface define depth of the deposit of a gas pipeline and its position on all line, check efficiency of electrochemical protection, reveal the insulating cover damages, korrozionno-dangerous sites and sites with abnormal mechanical pressure in metal of pipes.

Research-and-production centre “Molniya” has created and has tested new device “M-1” which solves these problems, making electrometric and magnetometric measurements at the same time. It raises efficiency of revealing of korrozionno-dangerous zones and zones of concentration of mechanical pressure.

Then by results of these works we make excavation in the most dangerous zones and carry out detailed inspection of a condition of isolation and gas pipeline metal and welded connections, using various methods of non-destructive testing and define physico-mechanical properties of metal of pipes. We used portable X-ray diffractometer like “Stressrad” for a quantitative estimation of mechanical pressure in a pipe in field conditions.

We develop the actions providing safety operation of gas pipelines, and determine date of the next diagnosing by results of complex technical diagnosing. It allows to provide an exploitation of branches of the main gas pipelines according their technical condition, as proves to be true practice of last decades.

To raise the veracity of estimation and forecast of a technical condition of gas pipelines it is expedient to accomplish at the same time the intratrumpet and land diagnosing, where it is possible.

In view of the natural ageing process and a gradual exit of pipelines out of the project exploitation delays, general requirements to the diagnosis reliability and to the estimation of the remaining life and risks are always increasing.

Reception of new effective decisions in this area demands carrying out of basic researches on physics of a solid, materials technology, studying of the physical phenomenas which should allow to provide integrity and safe operation of gas pipelines and other dangerous industrial objects by means of diagnostic methods.

These works demand the big expenses and the international cooperation of efforts of scientists and experts. Research- and- production centre “Molniya” is ready to offer the experience of the organisation and carrying out of such works.