

1.11.8. INSTRUMENTAL COMPLEX “M1” FOR CONTACTLESS DIAGNOSTICS OF GAS PIPELINES

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Contactless over-ground examination of gas pipelines is based on the combined application of examination procedures and methods:

1. Electrometric diagnostics (determination of the degree of gas pipeline electric protection; depth of occurrence; search of local damages; identification of places of insulation coating local damages; evaluation of the state and efficiency of electrochemical protection means; determination of corrosion aggressiveness of soil);
2. Magnetometric examination (determination of magnetic field deviations over gas pipeline and zones of mechanical stresses concentration related with this phenomenon);
3. Aerial thermal and optic examination;
4. Examination of insulation state and pipe metal in pits applying contact methods of nondestructive testing: visual and measuring, ultrasonic, magnetic and radiographic testing for determination of structure, chemical composition, physical and mechanical properties of pipe metal.

Possessing with vast experience in diagnostics of gas pipelines, NPC “Molniya” has developed unique instrumental complex «M1» for contactless diagnostics of underground gas pipelines.

New instrumental complex for contactless diagnostics of gas pipelines combines electro- and magnetometric methods of nondestructive testing with built-in GPS-receiver for determination of geographical coordinates.

Complex «M1» makes it possible to determine the following gas pipeline parameters in continuous, contactless and automatic manner with 10 cm step during operator movement along the gas pipeline route and within +2 m distance from the pipe axis:

- depth of occurrence;
- magnetic field deviations over gas pipeline evidencing the presence of zones of mechanical stresses concentration in the gas pipeline metal;
- local damages and electric resistance of insulation coating;
- contact points between protective enclosure and gas pipeline in passages across automobile roads and railroads in the real time mode;
- geographical coordinates of gas pipeline axis, its objects, detected damages and defects, points of gas pipeline crossing with artificial and natural objects, etc.

In 2008, at the section of operated gas pipeline of LLC “Gazprom transgaz Chai-kovsky”, instrumental complex “M1” has passed successfully the acceptance tests.