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CONFERENCE ON PROTECTING UNDERGROUND CONDUITS AND CABLES FROM ELECTRICAL CORROSION

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The damage done by electrical corrosion to underground installations in large municipalities and on main conduits and cables makes corrosion protection a most important and pressing problem. Electrical protection methods are the most effective, in conjunction with measures to increase the contact resistance between the installations and the soil.

These problems were discussed at a Scientific and Technical Conference held on 21 - 24 November 1949 in Baku on the initiative of the Azerbaydzhan Division of the All-Union Scientific and Technical Society of Power Engineering (VNITOE) and Azerbaydzhan Industrial Institute (Az II) imeni Azizbekov.

The conference aroused great interest among engineers and technicians. Among the participants were representatives of scientific research institutes, higher technical educational institutions, and production enterprises of Moscow, Leningrad, Kiev, Tbilisi, Yerivan, Tashkent, Riga, Ivanovo, Saratov and other Soviet cities.

S. B. Godzhayev, Candidate in Technical Sciences, Director of the Azerbaydzhan Industrial Institute, who opened the conference, stressed the significance to the national economy of the problem of protecting underground conduits and cables from electrical corrosion, and expressed his assurance that the conference would serve to strengthen further the ties between representatives of science and production and assist in the successful solution of the complex series of questions relating to electrical corrosion in underground metallic installations.

The conference heard the reports of Docent V. S. Kal'man, Az II, "Basic Principles of the Theory and Design of Grounded DC Networks"; Prof I. N. Frantsevich, Corresponding Member, Academy of Sciences Ukrainian SSR, "Physico-Chemical Parameters of Cathodic Protection"; Engineer V. A. Pritul, "Stal'montazh" Trust, "Investigation of the Corrosion State of Conduits and Corrosion Location Maps," etc.

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The report of Docent A. A. Spirin Candidate in Technical Sciences, Az II, "The Work of the Earth Currents Laboratory," gave an account of the activities of this laboratory of the Azerbaydzhan Industrial Institute during the 14 years of its existence. Instruments and apparatus designed by the laboratory are widely used in corrosion protection of conduits and cables and many underground metallic installations have been successfully protected. It has issued a series of instructions on corrosion examination of underground installations. Much research work has been done in this field.

Reports and communications were also read by L. M. Logov, Candidate in Technical Sciences, Power Engineering Institute imeni Yes'man, Academy of Sciences Azerbaydzhan SSR; Docent V. F. Gegreyev, Candidate in Technical Sciences, Azerbaydzhan Scientific Research Institute of Petroleum; B. G. Lordkipanidze, Candidate in Technical Sciences, Power Engineering Institute, Academy of Sciences Georgian SSR; N. K. Tsekun, Candidate in Technical Sciences, Az II; Engineer M. S. Trifel', Bakgaz Trust; Engineer M. D. Dzhafarov, Administration, Saratov-Moscow Gas Pipeline; and Engineer D. S. Gadzhiyev.

The following took part in the discussion of the reports: M. I. Mikhaylov, Doctor Technical Sciences, Central Scientific Research Institute of Communications, Ministry of Communications; Professor F. A. Chirakhov, Leningrad Institute of Signalling and Communications; B. S. Dikovskiy, Candidate in Technical Sciences, Ivanovo Power Engineering Institute; A. F. Lunev, Candidate in Chemical Sciences, Institute of Physical Chemistry, Academy of Sciences USSR; Engineer I. N. Strel'tsov, "Mosgazstroy" Trust; Engineer V. I. Zhukov "Stroyneft'" Scientific Research Institute; Engineer V. V. Lyan, Saratov Streetcar Administration, etc.

Exhibits organized for conference delegates, included apparatus and instruments manufactured by the Earth Currents Laboratory of Az II, and the latest corrosion literature.

The conference passed a number of resolutions. In particular, it recognized the necessity for organizing a special anticorrosion body, in municipal committees and ministries, which would have jurisdiction over underground installations. The following urgent measures are needed to prevent stray currents from electric rail transport: enlarge the return current network by sufficiently increasing the number and cross-sections of return feeders to ensure compliance with the specifications on voltage drop in rail systems; improve the electric conductivity of lines by timely removal of broken joints on streetcar lines; and bring the number of interrail and interline connectors up to the specified quantity.

To provide the national economy with specialists for the struggle against electrical corrosion of underground installations, the conference decided to request the Ministry of Higher Education USSR to provide for study of methods for combating electrical corrosion of underground metallic installations in the programs of the appropriate higher technical institutions and also to include the subject "Protection of Underground Metallic Installations against Electrical Corrosion" in the syllabus of courses, improve the qualifications of engineers and technicians.

In the interests of further successful study of corrosion phenomena in underground metallic installations and scientific research into methods of protection, the conference recognized the necessity for organizing research on the following themes: improving the compositions of protective coatings for conduits; investigating the problem of the structure of various insulating coatings in soils with different corrosion properties; improving anticorrosion coverings of cables; investigating protective schemes for underground metallic installations; developing methods for determining the corrosion properties of soil; developing methods of designing electrical anticorrosion protection; reviewing regulations for protecting underground metal installations from soil corrosion and stray currents; improving the method of locating damaged insulation on conduits without digging them

up; developing the theory of stray current fields and methods of modeling the field of complex systems; improving errosion maps and a more thorough investigation of the distribution of stray currents in large cities and industrial centers with extensive underground installations.

The conference recognized the need for including a mandatory section on corrosion protection in all conduit and cable plans, and also the establishment of a hard and fast rule to the effect that plans for underground metallic structures in which no provision is made for protection against corrosion cannot be approved.

The delegates expressed a desire for publication of literature and information on problems of protecting underground metallic installations from electrical corrosion.

They recognized the necessity of organizing a VNITOE Committee on "Protecting Underground and Metallic Installations from Electrical Corrosion."

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