

DECREASE IN PHYSICAL FACTORS IMPACT FROM POWER OBJECTS ON ENVIRONMENT

5.1. Decrease in impact of electric and magnetic fields of the industrial frequency on the person

References to § 5.1

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1. **Abramovich-Poliakov L.N.** Vegetovascular and thermoregulation changes of people, who are affected by electric fields of industrial frequency // Hygiene of populated areas. 1973. Issue 12. C. 109—111.
2. **Asanova T.P., Rakov A.N.** Level workers health in electrical field of open distributive constructions of 400—500 kV // Occupational hygiene and occupational diseases. 1966. № 5. P. 50—51.
3. **Analysis** and methods of electromagnetic situation at work places of power network objects MES Centre / A.I. Barsukov and others. // collected theses of VII symposium «Electrotechnology 2010»; T. I: «Perspectives of electrotechnological equipment for transmission and distribution of electropower». M.: «HEI TPABЭK», 2003. C. 168—169.
4. **Dumanskiy U.D., Popovich V.M., Koziarin I.P.** Influence of electromagnetic field of low frequency (50 Hz) on functional condition of human body // Hygiene and sanitation. 1977. № 12. P. 32—36.
5. **Principles** of electromagnetic safety of electropower objects supplying / N.F. Izmerov, M.Sh. Misrihanov, N.B. Rubcova, A.U. Tokarskiy // Menoires II International scientific-practical conference «Ecology in energetics-2005», 19—21 October 2005 M.: Publishing house of MPEI (TU), 2005. P. 207—209.
6. **Not-ionized** electromagnetic emissions and fields: Physical factors operational and natural environments. Hygienic assessment and monitor / N.F. Izmerov and others. M.: Medicine, 2003. P. 12—65.
7. **Korobkova V.P., Morozov U.A., Stoliarov M.D.** Electrical field effect at substations of 500 and 750 kV on brigades of service and on means of its protection // Report СИПЭ — ИК 23-06, 1972.
8. **Krivova T.I., Lukovkin V.V., Morozov U.A.** Electrical field effect created by electrical installations of high voltage AC on human body // Scientific works job safety institutes ВЦСПС. 1977. Issue 108. P. 33—39.
9. **Misrihanov M.Sh., Rubcova N.B., Tokarskiy A.U.** Screening of electromagnetic fields of industrial frequency APL of 500 kV // Collection of reports of eighth Russian scientific-technical conference for electromagnetic compatibility and electromagnetic safety ЭМС-2004. Sanct-petersburg, 2004. P. 600—605.
10. **Misrihanov M.Sh., Rubcova N.B., Tokarskiy A.U.** Calculated paths of electromagnetic personnel safety supplying in zone three-phase groups of reactors location // Memoirs of II International scientific-practical conference «Ecology in energetics -2005», 19—21 October 2005 г. M.: Publishing house of MPEI (TU), 2005. P. 210—213.
11. **Patent for invention** № 2273934 from 10 April 2006. Cable power line / M.Sh. Misrihanov, N.B. Rubcova, A.U. Tokarskiy.
12. **Misrihanov M.Sh., Rubcova N.B., Tokarskiy A.U.** Decrease of intensity magnetic field levels by approaching of cable phases and neutral wire of cable power lines axes. P. 1, 2 // Collection of reports of III International scientific-practical conference «Ecology in energetics-2006», 14—16 June 2006. M.: Publishing house of MPEI (TU). P. 135—139; 145—150.
13. **Rubcova N.B.** Physiological-hygienic principles of person health conservation in conditions of industrial effects of electromagnetic fields of industrial frequency: dissertation ... doctor of biological sciences. M., 1997.
14. **Tokarskiy A.U., Dikoy V.P., Rubcova N.V.** Assessment of electromagnetic factors, which affects person at exploitation of high-voltage installations // Collection of reports of International conference «Electromagnetic fields. Biological effect and hygienic norms», Moscow, 18—22 May 1998. / Under redaction of M.H. Repacholi, N.B. Rubcova, A.M. Muca. WHO. Geneva, 1999. P. 101—126.
15. **Broadbent D.** Health of workers exposed to electric fields // Br. J. Ind. Med. 1985. Vol. 42. P. 75—84.
16. **Davis J.G., Bennett R.L., Brent R.L. et al.** Oak Ridge Associated Universities. Panel // Health effects of low-frequency electric and magnetic fields. 1992. Prep. for the Committee on Interagency Radiation Research and Policy Coordination.
17. **Goldsmith J.R.** Epidemiologic evidence of radio-frequency radiation (microwave effects on military, broadcasting and occupational studies) // Int. J. of Occupational and Environmental Health. 1995. Vol. 1. № 1. P. 47—57.
18. **Guenel P. et al.** Cancer incidence in persons with occupational exposure to electromagnetic fields in Denmark // Brit. J. Of Intern. Medicine. 1994. Vol. 50. P. 758—764.
19. **Hakansson N., Gustavson P., Johansen C., Floderus B.** Neurodegenerative diseases in welders and other workers exposed to high levels of magnetic fields // Epidemiology. 2003. Vol. 14 (4). P. 420—426.
20. **National Radiological Protection Board.** Electromagnetic fields and the risk of cancer // Rep. of an Advisory Group on Non-ionizing radiation. 1992. Vol. 3(1). P. 138; Also supplementary report in 1994. Vol. 5(2). P. 77—81.
21. **Savitz D.A., Chechoway H., Loomis D.P.** Magnetic field exposure and neurodegenerative disease among electric utility workers // Epidemiology. 1998. Vol. 9. P. 398—404.
22. **Savitz D., Wachtel H., Bames F.A. et al.** Case-control study of childhood cancer and exposure to 60-Hz magnetic fields // American Journal of Epidemiology. 1998. Vol. 128. P. 21—38.
23. **Wertheimer N. & Leeper E.** Electrical wiring configuration and childhood cancer // Amer. J. of Epidemiology. 1979. Vol. 3. P. 273—284.
24. **WHO Fact Sheet № 263** (October 2001) «Electromagnetic fields and public health. Extremely low frequency fields and cancer».
25. **Bernhardt J.H. et al.** Limits for electric and magnetic fields in DIN VDE standards considerations for the range 0 to 10 kHz // SIGRE Session. 1986. P. 36—10.
26. **Baraton P., Cahounet J., Hutzler B.** Three dimensional computation of the electric fields induced in a human body by magnetic fields // 8th Intern Symp. of High Voltage Engineering. Jokohame, Japan. 1993. № 90.02. P. 517—520.
27. **Vialov A.M.** Clinical-hygienic and experimental data of magnetic fields effect in production conditions: Influence of magnetic fields on to biological objects. M.: Nauka, 1971. P. 165—177.
28. **Davidov B.I., Tihonchuk V.S., Antipov V.V.** Biological effect, rate setting and protection from electromagnetic radiations. M.: Energoatomizdat, 1984.
29. **Hauf R.** Electric and magnetic field at power frequencies, with particular reference to 50 and 60 Hz // Nonionizing Radiation Protection. WHO, Copenhagen, 1982. P. 167.
30. **Bridges G.E., Prych M.** Biological effect of electrical field of industrial frequency. Review of physical and methodological aspects // ТИИЭР. 1982. Т. 65. № 9. P. 5—35.
31. **Certificate** of official registration of program for PC № 2004612173 from 24 September 2004. Program of electromagnetic fields intensities APL detection (lines of EMT) / U.A. Iostson., M.Sh. Misrihanov, N.B. Rubcova, A.U. Tokarskiy.
32. **Reference** safety levels of alternative magnetic fields of 50 Hz effect at works implementation under voltage at APL 220—1150 kV № 5060-89.
33. **ICNIRP.** Guidelines for limiting exposure to time-varying electric magnetic, and electromagnetic fields (up to 300 GHz)

- // Health Phys. 1998. Vol. 74. P. 494—522.
34. **International** Radiation Protection Association/International Non-Ionizing Radiation Committee. Interim guidelines on limits of exposure to 50/60 Hz electric and magnetic fields // Health Physics. 1990. Vol. 58. № 1. P. 113—122.
 35. **Bernhardt J.H.** Assessment of experimentally observed bioeffects in view of their electrical relevance and the exposure at work place // BGA-Schriften. 1986. № 3. P. 157—168.
 36. **Kac R.A., Perelman L.S.** Calculation of three phase power line electrical field // Electricity. 1978. № 1. P. 16—19.
 37. **Certificate** of official registration of program for PC № 2006613743 from 27 October 2006. Magnetic fields of three-phase reactors without ferromagnetic core (MF reactor) / M.Sh. Misrihanov, U.A Iostson, N.B. Rubcova, A.U. Tokarskiy.
 38. **Certificate** of official registration of program for PC № 2006613744 from 27 October 2006. Electromagnetic parameters of air power lines (EMF APL) / M.Sh. Misrihanov, U.A Iostson, N.B. Rubcova, A.U. Tokarskiy.