

## PROBLEMS OF SEISMIC MICROZONING IN AREAS OF NUCLEAR POWER PLANTS

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### SUMMARY

Seismic data in the form of time histories and response spectra are used in designing nuclear power plants which are safeguarded against the effects of earthquakes. Standardized data are used because, for most locations for nuclear power plants, there are no strong motion records available. Not considered in the standardized data are generally the filter effects of near—surface geologic layer on earthquake waves. These filter effects can result in a selective amplification or attenuation of the earthquake waves.

Using the method of microzoning, the soil amplification at a particular location can be estimated by means of recordings of explosions, micro—earthquakes, or microseismic noise. The author considers the “noise method” particularly suitable because of the great range of frequencies and the natural occurrence of microseismic noise.

The application of the “noise method” requires exact study of the noise at the location relative to the position of the noise sources and its dominant frequencies. Procedures and examples are given for studying the isotropic and stationary properties of the noise.

The limits of applicability of the method are determined by the location of the area in which the microzoning is to be carried out. The “noise method” is unsuitable in municipal areas where there are difficult-to-identify microseismic sources such as automobile traffic. However, since nuclear power plants are generally located outside of municipal areas, the method can readily be utilized. Nevertheless, the necessary registrations of microseismic noise at the site must be made before construction work begins.

