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CPBEM PROGRAM SUITE FOR THE DESIGN OF CATHODIC PROTECTION SYSTEMS FOR SHIPS

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CPBEM Program Suite For The Design Of
Cathodic Protection Systems For Ships

by

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ABSTRACT

A computer program that would assist DND engineers in the design and optimization of suitable cathode protection systems for surface ships has been developed. The resulting program suite CPBEM was built around the existing cathodic system analysis program CPBEM. Included in the suite is the analysis program (CPBEMHS), a model generator (CPBGEN), a graphical plotting program (CPBEMG), and a shell program (CPBSHL). The graphical model generator program was designed to simplify the task of creating CPBEM boundary element models. These models include refined meshes at each anode location, and a cathode that is boundary element mesh of an actual propeller. The thinness of the propeller blades necessitated the use of a hypersingular boundary integral formulation in the analysis program. The ability to plot CPBEM models, as well as contour plots of both hull potentials and current densities, was incorporated into the graphical plotting program. The entire suite was designed to be run under the shell program.