

SAND REPORT

SAND74-0100 UC261

Unlimited Release

Printed March 1975

**PRACTICAL APPROXIMATIONS TO A TROPOSKIEN
BY STRAIGHT-LINE AND CIRCULAR-ARC SEGMENTS**

G. E. Reis, B. F. Blackwell

Sandia National Laboratories; Albuquerque, NM 87185

ABSTRACT

Curves made up of circular arcs and straight lines which approximate troposkiens of interest in the design of crosswind-axis wind turbines have been calculated for a variety of constraints. These curves were fitted to the troposkiens by numerical iteration by using both a least-squares and a least-maximum fit. Curves produced with the least-maximum spacing criteria approximate the troposkiens more closely than curves developed with the least-squares goodness-of-fit criteria.

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550
for the United States Department of Energy
Under Contract DE-AC04-94AL85000