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NAVAL ISOTOPE APPLICATIONS: A SELECTED BIBLIOGRAPHY

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NAVAL ISOTOPE APPLICATIONS:
A SELECTED BIBLIOGRAPHY

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Compiled by

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ABSTRACT

Publications on radioisotope applications are listed. Emphasis is placed on possible radioisotope uses for naval civil engineering in construction, facility and equipment maintenance, harbor engineering, engineering surveys, and engineering research.

INTRODUCTION

The objectives of this task are to adapt and develop radioisotope applications for use in the Naval Shore Establishment. In compiling this bibliography, applications were sought which might reduce costs, improve efficiency and quality control, and open new fields for the Naval Shore Establishment with its large industrial complexes and fleet support facilities.

This literature search was conducted to determine current radioisotope applications in industry and to determine which are most applicable for Navy use. Only applications for the areas of responsibility of the Bureau of Yards and Docks are included. Emphasis is placed on possible radioisotope uses for naval civil engineering in construction, facility and equipment maintenance, harbor engineering, engineering surveys, and engineering research. The applications of radioisotopes as heat sources are not included since a separate task (Y-F015-12-405) is being conducted to study those applications.

Of the applications included in the bibliography, the following seem to be the most feasible for use by the Bureau of Yards and Docks.

- improvement, measurement, and control of the mechanical properties of materials
- non-destructive testing of materials
- flaw detection in welds
- measurement of the thickness of materials and the thickness of coatings
- measurement of the moisture in materials
- measurement and control of density
- measurement of the concentration of solutions
- study of sulfate corrosion of concrete
- nuclear batteries
- control of Marine-Borer damage
- leak detection
- tracing the movement of water in a porous media
- tracing ground water movement
- wear studies of machinery parts
- liquid level gauges
- measurement and control of fluid flow
- sewage tracing and treatment
- tracers for lubrication research
- tracers for studying transport of solids in watercourses
- measurement of sand transport
- measurement of canal seepage
- measurement of the humidity of building materials
- well logging

small power source
small light source
measurement of air movement in buildings
saline water conversion
surface area measurements of powdered material
vacuum gauging
dating marine sediments

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