# Appendix E Tables of Contents for OTA Contractor Reports

## Manned Submersibles and Remotely Operated Vehicles: Their Use for Exploring the EEZ

Frank Busby Busby Associates, Inc. 576 S. 23rd Street Arlington, VA 22202

#### **Table of Contents**

Applications Manned Submersibles Remotely Operated Vehicles Hybrid Vehicles Advantages and Limitations Capabilities Vehicle Applications in the EEZ Regional Surveys/Reconnaissance Local Surveys Sampling In Situ Mineral Analyses Examples Needed Technical Developments

## Technologies for Dredge Mining Minerals of the Exclusive Economic Zone (EEZ)

M.J. Richardson Consolidated Placer Dredging, inc. 17961A Cowan Irvine, CA 92714 Edward E. Horton

Deep Oil Technology, Inc. P.O. Box 16189 Irvine, California 92713 Arlington, VA 22202

#### **Table of Contents**

introduction Placer Mining Technology Precious Minerals Heavy Minerals Industrial Minerals Definitions Bibliography Dredge Mining Systems Bucket Ladder Dredge Bucket Dredges for Mining Suction dredges for Mining Beneficiation Systems Tailings Disposal Mining Control Economics and Efficiency of Dredge Mining Operations Capital Costs **Operating** Costs Placer Sampling Methods Initial Survey Scout Sampling Indicated Reserves **Proven Reserves** Drilling Systems **Bulk Sampling** Placer Sampling Equipment Comparison **Evaluation** Procedures Precious Minerals Heavy Minerals Industrial Minerals Applications to Offshore Deposits Future Technologies for Offshore Dredge Mining

## Offshore Titanium Heavy Mineral Placers: Processing and Related Considerations

Arlington Technical Services 4 Colony Lane Arlington, MA 02174 W.W. Harvey and F.C. Brown

#### Table of Contents

Titanium and Associated Minerals Salient Features of the Industry Recent History of Titanium Sands Mining in the **US.** General Extrapolations to Offshore Deposits Typical Flow Sheets for Processing Ti/associated Heavy Mineral Sands Modifications for Processing an Offshore Deposit

A Dune Sands Analog of the Postulated Offshore Deposit Offshore Titanium Heavy Minerals Production Scenario Approach to a Framework for Evaluation Component Costs for Heavy Mineral Sands Mining and Processing Ore Grades for Break-Even Production from Offshore Ore Grade Requirements: Revised Basis and Approach References Tables Figures Appendix

### Processing Considerations for Chromite Heavy Mineral Placers

Arlington Technical Services 4 Old Colony Lane Arlington, MA 02174 W.W. Harvey and F.C Brown

Table of Contents

Preliminary Notes Synopsis' of U.S. Chromium Industry Mining and Processing of the Black Sands Production Potential of Offshore Chromite Placers Costs for a Southwest Oregon Beach Sands Placer Costs for an Offshore Chromite Heavy Mineral Placer Effect of New Technologies References Tables Figures

## Offshore Phosphorite Deposits: Processing and Related Considerations

Arlington Technical Services 4 Old Colony Lane Arlington, MA 02174 W.W. Harvey and F.C. Brown

Table of Contents

Background and Perspectives Initial Perspectives Onshore/Offshore Comparisons Development Incentives Past Commercial Activities Qualitative Economic Considerations Broad Cost Comparison Cost Offset Via Higher Ore Values

Phosphorite Placer Development

Prior Engineering/Economic Studies References Tables Figures

# Polymetallic Sulfides and Oxides of the U.S. EEZ: Metallurgical Extraction and Related Aspects of Possible Future Development

Arlington Technical Services 4 Old Colony Lane Arlington, MA 02174 W.W. Harvey

Table of Contents

Foreword Recent Literature Polymetallic Sulfides Subsea Occurrences Terrestrial Deposits Processing Technologies Tables and Figures, Section II Oxide Nodules and Crusts Broad Intercomparisons Major Processing and Marketing Issues Recent Process-Related Studies Figures, Section III References Appendix

## Data Management in a National Program of Exploration and Development of the U.S. EEZ

Richard C. Vetter 4779 North 33rd Street Arlington, VA 22207

#### **Table of Contents**

Introduction Conclusions, Problem Areas, and Recommendations Examination of Limiting Factors Is Technology Limiting? Is Understanding of Wise Data Management Concepts Limiting? Is Infrastructure Lacking? Is Funding Limiting? The Present-Situation-and the Near Future Federal Agencies Department of Commerce/National Oceanic and Atmospheric Administration National Environmental Satellite, Data, and Information Service National Geophysical Data Center National Oceanographic Data Center National Ocean Service National Marine Fisheries Service Department of the Interior Minerals Management Service U.S. Geological Survey National Aeronautics and Space Administration U.S. Navy State and Local Governments Academic and Private Laboratories Industry Other Data Management Studies Study Procedures References Appendices Questionnaire Contacts