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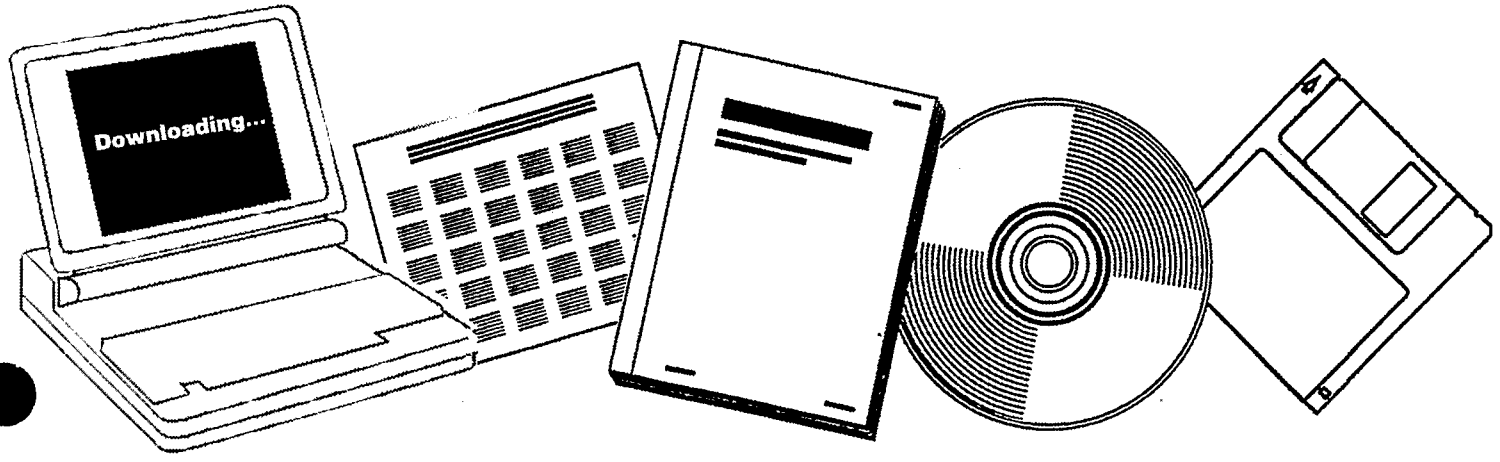

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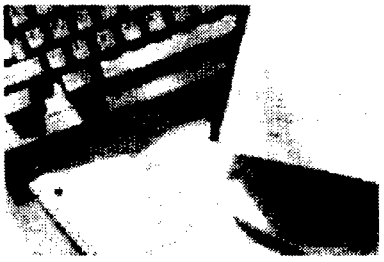

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FE-1775-15
Distribution Category UC-89

COAL CONVERSION APPLICATIONS

COLLECTED WORKS
1972 THROUGH 1977

Prepared by
THE RALPH M. PARSONS COMPANY
100 West Walnut Street
Pasadena, CA 91124

February 1978

Prepared for
DEPARTMENT OF ENERGY
OFFICE OF ASSISTANT SECRETARY FOR ENERGY TECHNOLOGY
DIVISION OF COAL CONVERSION
Washington, D.C.

Contract No. EX-76-C-01-1775

CONTENTS

INTRODUCTION

From 1972 to the present, The Ralph M. Parsons Company has been assisting the Government in defining and developing commercially attractive coal conversion technology. Originally, Parsons worked with the Office of Coal Research (OCR), then with the Energy Research and Development Administration (ERDA), and, eventually, with the Department of Energy (DOE). In the course of this association, Parsons has produced some 53 reports, presentations, and publications supporting the OCR-ERDA-DOE programs. This publication presents in one volume the key published material.

DESCRIPTION OF THE CONTENTS

Five of the documents (Collected Works No. 12, 16, 20, 21, and 23) are major design/economic evaluation reports that were completed to fulfill contractual obligations, but because of their physical size, only the cover page, Introduction and Summary, and material balances are included in this book. Complete copies of these reports may be ordered from the National Technical Information Service (NTIS).

The remaining articles were prepared in response to invitations to submit the results of Parsons research. They include presentations at conferences and reprints from technical journals and books. All were intended to place pertinent information into the published literature at the earliest possible date.

The present volume is an interim document, for work continues on coal conversion technology and attendant economical and environmental assessments.

GUIDE TO THE COLLECTED WORKS

This guide is presented as an aid to the reader to understand the organization of the publication.

Each reprint contained in this book has been placed into one of six major subject categories. These categories are shown in Sections 1 to 6 in the Table of Contents and in the list of Collected Works, which follows this introduction. The Supplementary References are also categorized by these subjects.

The Collected Works Section is a list of the reprinted articles contained in Sections 1 to 6. The number of the articles in the Collected Works list correspond to the numbers shown on the cover pages of the reprinted articles in Section 1 to 6.

The Supplementary References Section is a listing of articles not reprinted herein. They represent documents that are closely related to the reprinted matter, that have been duplicated in multiple publications, or for which permission to reprint was not granted.

COLLECTED WORKS[1]

SECTION 1 OVERVIEW OF STATUS AND POTENTIAL

1. O'Hara, J. B. "Coal Conversion." Presentation to the United States Senate Committee on Interior and Insular Affairs, Subcommittee on Energy Research and Water Resources, Washington, D.C., March 3, 1975.

2. O'Hara, J. B. "Coal Conversion: An Overview of Status and Potential." Published Proceedings of the Energy Symposium of the Los Angeles Council of Engineers & Scientists (LACES), Los Angeles, Calif., Vol. I, pages 47-57, 1975.

3. O'Hara, J. B. "Coal Liquefaction, State-of-the-Art." Based on an article in Hydrocarbon Processing, November 1976.

SECTION 2 PLANT DESIGN/ECONOMIC ANALYSIS

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4. O'Hara, J. B. "Projected Characteristics of Large Coal Liquefaction Complexes." Presentation to Project Independence Blueprint Public Hearings, Chicago, Ill., September 11, 1974.

SCALE-UP

5. O'Hara, J. B., N. E. Jentz and G. H. Hervey. "Commercial Coal Conversion Plant Design: Translation from Pilot to Commercial Scale Plants." Published Proceedings in the Clean Fuels from Coal Symposium II Papers, pages 817-836, Institute of Gas Technology (IGT) Symposium, Chicago, Ill., June 23-27, 1975.

CLEAN BOILER FUELS

6. O'Hara, J. B., N. E. Jentz, S. N. Rippee and E. A. Mills. "Demonstration Plant, Clean Boiler Fuels from Coal, Preliminary Design/Capital Cost Estimate," Vol. I, R&D Report No. 82 - Interim Report No. 1, pages 1-9. Prepared for the United States Department of the Interior, Office of Coal Research, Washington D.C., December 1973.

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[1]Permission has been granted by the relevant publishers to reprint the works listed in these Collected Works.

7. O'Hara, J. B., N. E. Jentz, S. N. Rippee and E. A. Mills. "Demonstration Plant Clean Boiler Fuels from Coal, Preliminary Design/Capital Cost Estimate," Vol. II, R&D Report No. 82 - Interim Report No. 1, pages 1-10. Prepared for the United States Department of the Interior, Office of Coal Research, Washington, D.C., July 1974.

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9. O'Hara, J. B., N. E. Jentz, S. N. Rippee and E. A. Mills. "Design of a Demonstration Plant to Produce Clean Oils from Coal." Published in Proceedings of the Synthetic Hydrocarbons Conference, Annual Meeting of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), Dallas, Tex., February 25, 1974.

10. O'Hara, J. B., N. E. Jentz, S. N. Rippee and E. A. Mills. "Clean Boiler Fuels from Coal," Coal Processing Technology: A CEP Technical Manual. Prepared by the Editors of Chemical Engineering Progress, Vol. I, pages 43-52, June 1974.

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12. O'Hara, J. B., C. L. Crawford, H. F. Hincks and E. A. Mills. "Commercial Complex, Conceptual Design/Economic Analysis, Oil and Power by COED Based Coal Conversion," R&D Report No. 114 - Interim Report No. 1, FE-1775-1, pages 1-1, 1-2, 2-1 through 2-4, 7-2. Prepared for the Energy Research and Development Administration, Washington, D.C., September 1975.

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15. O'Hara, J. B., A. Bela, N. E. Jentz and S. K. Khaderi. "Fischer-Tropsch Plant Design Criteria." A CEP Capsule, Chemical Engineering Progress, Vol. 72, No. 8, pages 65-67, August 1976.

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26. O'Hara, J. B., T. Harding, R. D. Howell and J. E. Papso. "Industrial Energy Usage Patterns." Presented at the American Institute of Plant Engineers (AIPE) Symposium, Seattle, Wash., February 26, 1976.

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34. Lochmann, W. J. "The Materials Problems in Coal Gasification and Liquefaction." Presented at the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) Symposium on Materials Requirements for Unconventional Energy Systems, Niagara Falls, N.Y., September 22, 1976.

35. Raisbeck, W. C. "Materials, Needs, Opportunities and Problems." Presented at an ERDA/EPRI/AGA-sponsored conference on Materials for Coal Conversion and Utilization, Washington, D.C., September 30, 1976.

36. O'Hara, J. B., W. J. Lochmann and N. E. Jentz. "Material Considerations in Coal Liquefaction." Metal Progress, pages 33-38, November 1976.

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38. O'Hara, J. B., W. J. Lochmann, and N. E. Jentz. "Material Challenges of Coal Liquefaction." Chemical Engineering, Vol. 84, No. 8, pages 147-154, April 11, 1977.

39. Lochman, W. J. and R. D. Howell. "An Overview of . . . Equipment for Coal Conversion." Published in Hydrocarbon Processing, Vol. 56, No. 5, pages 197-199, May 1977.

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O'Hara, J. B., E. D. Becker, N. E. Jentz and T. Harding. "Potential for Petrochemical Feedstocks and Chemicals from Coal." Presented at the 82nd National Meeting of the American Institute of Chemical Engineers (AIChE), Atlantic City, N.J., August 31, 1976.

SECTION 4 EMERGING ENERGY TECHNOLOGY COMPARISONS

O'Hara, J. B., J. G. Vlahakis, E. C. Drucke and N. E. Jentz. "Potential Markets for Emerging Energy Technologies" ("Mercados Potenciales Parales Tecnologias Energetical Emergentes"). Energia, Madrid, Spain, Vol. 3, No. 5, September-October 1977.

SECTION 5 ENVIRONMENTAL ASSESSMENT

O'Hara, J. B., S. N. Rippee, B. I. Loran and W. J. Mindheim. "Environmental Factors in Coal Liquefaction Plant Design." Presented at Environmental Protection Agency (EPA) Symposium on Environmental Aspects of Fuel Conversion Technology, St. Louis, Mo., May 14, 1974.

O'Hara, J. B., B. I. Loran, A. Bela and N. E. Jentz. "Environmental Factors for Fischer-Tropsch Coal Conversion Technology." Accepted for publication in a future Chemical Engineering Progress technical manual.

SECTION 6 MATERIAL CONSIDERATIONS

Lochmann, W. J. and R. D. Howell. "Corrosion Design Problems in Coal Conversion Plants." Material Performance, Vol. 16, No. 7, pages 43-47, July 1977.

SECTION 1
OVERVIEW OF STATUS AND POTENTIAL

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