



Pêches
et Environnement
Canada

Fisheries
and Environment
Canada

AN OIL SPILL BIBLIOGRAPHY

March, 1975 to December, 1976

Economic and Technical Review
Report EPS-3-EC-77-10

Environmental Impact Control Directorate
February, 1977

ENVIRONMENTAL PROTECTION SERVICE REPORT SERIES

Economic and Technical Review Reports relate to state-of-the-art reviews, library surveys, industrial inventories, and their associated recommendations where no experimental work is involved. These reports are undertaken either by an outside agency or by the staff of the Environmental Protection Service.

Other categories in the EPS series include such groups as Regulations, Codes, and Protocols; Policy and Planning; Technology Development; Surveillance; Briefs and Submissions to Public Inquiries; and Environmental Impact and Assessment.

Inquiries pertaining to Environmental Protection Service Reports should be directed to the Environmental Protection Service, Department of the Environment, Ottawa, K1A 0H3, Ontario, Canada.

©Minister of Supply and Services Canada 1976

Cat. No.: En 46-3/76-10

ISBN 0-662-00663-1

AN OIL SPILL BIBLIOGRAPHY
March, 1975 to December, 1976.

M.F. Fingas
C.W. Ross

Research and Development Division
Environmental Emergency Branch
Environmental Impact Control Directorate
Environmental Protection Service
Department of Fisheries and Environment

EPS-3-EC-77-10

February, 1977.

REVIEW NOTICE

This report has been reviewed by the Environmental Emergency Branch, Environmental Protection Service, and approved for publication. Approval does not necessarily signify that the contents reflect the views and policies of the Environmental Protection Service. Mention of trade names and commercial products does not constitute endorsement for use.

ABSTRACT

Pertaining to the field of oil spills, this bibliography represents a listing of various literature either written or published during the period March, 1975 to December, 1976.

RESUME

En rapport aux opérations des déversements d'huiles, cette bibliographie contient une liste de littératures variées, soit écrites ou publiées, pour la période Mars 1975 à Décembre 1976.

TABLE OF CONTENTS

	<u>PAGE</u>
Abstract	i
Resume	ii
Table of Contents	iii
1.0 Introduction	1
2.0 Note on Acquiring Government Publications	1
2.1 Publications of The United States Government	1
2.2 Canadian Government Publications	2
3.0 Topical Listing of References	3
3.1 Arctic Oil Spills and Their Cleanup	3
3.2 Arctic-Background Information	5
3.3 Biodegradation of Oil in The Environment	10
3.4 Contingency Planning/Response Capability	13
3.5 Detection and Monitoring	14
3.6 Disposal of Recovered Oil	15
3.7 Dispersants	16
3.8 Effects of Oil on Biota	17
3.9 Environmental Levels of Hydrocarbons	23
3.10 General	25
3.11 Land and Underground Spills	29
3.12 Legal/Social Matters	30
3.13 Oil Spill Containment	32
3.14 Oil Spill Incidents	34
3.15 Oil Spill Removal-Equipment and Techniques	35
3.16 Oily Water/Separation	39
3.17 Physical/Chemical Behaviour and Properties	43
3.18 Prevention	46
3.19 Remote Sensing of Oil	48
3.20 Reports of Activities	51
3.21 Risk Analysis	52

3.22	Sampling/Identification/Analysis of Oil	53
3.23	Spill Dynamics/Modelling	56
3.24	Sorbents/Oil Spill Treating Agents	57
4.0	Alphabetical Listing of References	59

1.0 Introduction

Out of recognition of a growing need for information exchange on the various components and new developments in oil spill technology, it was felt that a publication such this would be useful to members of the oil industry, and particularly those embarking on study or involvement within this field. The references contained in this Bibliography were accumulated from a wide variety of sources with direct literature acquisition being the most commonly used means of collection. The sources listed would likely provide additional references, inclusive of other literature published prior to the time frame previously noted. Furthermore, an attempt was made to reference "specialized" bibliographies so as to provide a key for introducing a multitude of other references not possible to list here.

This Bibliography has been divided basically into two parts: the first contains references headed by topic, whereas the second is an alphabetical (bibliographical) listing. In the first section references were categorized under the main topic of concern in each report, with very few being listed under more than one area. As can be seen from the table of contents, sufficient breakdown has been provided to allow for ready reference to most fields of inquiry. In addition to references on oil spills, a sub-section entitled "Arctic Background" has been provided as a means by which general information on this subject could be obtained. It was felt that this was necessary in consideration of Canada's great interest and current research in Arctic oil spill countermeasures.

2.0 Note On Acquiring Government Publications

A good deal of the publications referred to are available, not only through the government sources as indicated, but also through conventional reference centres such as libraries.

2.1 Publications of The United States Government

Most U.S. Government publications identified within this document by a number such as AD-A017 600/WP, PB-259 972/8SL etc., can be obtained from:

The U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia, 22161

Microfiche are available for \$2.25 (U.S.) and \$3.75 (foreign). The prices for paper copy are as shown below (foreign buyers add \$2.50 per paper copy).

Page-Count Price Schedule

Pages	Domestic Price (U.S. only)	Pages	Domestic Price (U.S. only)
1-25	\$3.50	301-325	\$9.75
26-50	4.00	326-350	10.00
51-75	4.50	351-375	10.50
76-100	5.00	376-400	10.75
101-125	5.50	401-425	11.00
126-150	6.00	426-450	11.75
151-175	6.75	451-475	12.00
176-200	7.50	476-500	12.50
201-225	7.75	501-525	12.75
226-250	8.00	526-550	13.00
251-275	9.00	551-575	13.50
276-300	9.25	576-600*	13.75

2.2 Canadian Government Publications

Most Canadian government publications are available from their originators, and in this Bibliography the two primary groups are:

- (1) The Environmental Emergency Branch through which publications (identifiable by numbers such as EPS-4-EC-6-76) can be ordered free of charge from:

Research and Development Division
Environmental Emergency Branch
Environmental Impact Control Directorate
Environmental Protection Service
Department of Fisheries and the Environment
Ottawa, Ontario.
K1A 1C8

- (2) The Beaufort Sea Project Group whose publications are identified as Beaufort Sea Technical Report 22, for example, within this Bibliography and can be obtained at varying prices (\$0.50 to \$3.50) through:

Beaufort Sea Project Office
Arctic Marine Sciences
Department of Fisheries and the Environment
5th Floor
1230 Government Street
Victoria, B.C.
V8W 1Y4

3.0 TOPICAL LISTING OF REFERENCES

3.1 ARCTIC OIL SPILLS AND THEIR CLEANUP

Brown, R.F. "The Interaction of Crude Oil with Arctic Sea Ice",
International Conference on Port and Ocean Engineering, August, 1975.

Bunch, J.N. and R.C. Harland. Biodegradation of Crude Petroleum by The
Indigenous Microbial Flora of The Beaufort Sea. Beaufort Sea Technical
Report No. 10. Department of The Environment, Victoria, British Columbia.
March, 1976. 52 p.

Green, G. et al. "Clean-up After Territorial Oil Spills in Arctic".
Arctic, Vol. 28, No. 2. p. 140-142.

Hoult, D.P. et al. Oil in The Arctic. Massachusetts Institute of
Technology for United States Coast Guard, Washington, D.C. March, 1975.
218 p. USCG-D-96-75 AD-A010 269/9WP.

The Interaction of Crude Oil with Arctic Sea Ice. Beaufort Sea Technical
Report No. 27. Department of The Environment, Victoria, B.C. December,
1975. 201 p.

Isakson, J.S. et al. Comparison of Ecological Impacts of Postulated Oil
Spills at Selected Alaskan Locations. Volume I. Introduction, Summary,
Methodology, Evaluation and Appendices. Mathematical Sciences Northwest,
Inc., Bellevue, Wash. June, 1975. 633 p. USCG-D-155-75, Vol. 1
AD-A017 600/8WP.

Isakson, J.S. et al. Comparison of Ecological Impacts of Postulated Oil
Spills at Selected Alaskan Locations. Volume II. Results. Mathematical
Sciences Northwest Inc., Bellevue, Washington, June, 1975. 865 p.
USCG-D-155-75, Vol. 2 AD-A017 601/6WP.

Leinonen, P.J. et al. "The Behavior of Crude Oil Spilled on Snow".
Arctic, Vol. 28, No. 1, March, 1975, p. 9-20.

Lewis, E.L. "Oil in Sea Ice". Proceedings, Third International Conference
on Port and Ocean Engineering Under Arctic Conditions. University of
Alaska, Fairbanks, 1975.

Logan, W.J. et al. Oil Spill Countermeasures for The Southern Beaufort Sea. Overview Report. Department of The Environment, Victoria, B.C.

Logan, W.J. et al. Oil Spill Countermeasures for The Southern Beaufort Sea. Technical Report No. 31a. Department of The Environment, Victoria, British Columbia.

Logan, W.J. et al. Oil Spill Countermeasures for The Southern Beaufort Sea. Appendices. Technical Report No. 31b. Department of The Environment, Victoria, British Columbia.

Pimlott, D.H. et al. Oil Under The Ice. Canadian Arctic Resources Committee, Ottawa, Ontario. 1976.

Rosenegger, L.W. The Movement of Oil Under Sea Ice. Beaufort Sea Technical Report No. 28. Department of The Environment, Victoria, B.C. December, 1975. 81 p.

"Seventeen Oil Spills in North Alaska Since 1969,." Science News, Vol. 104(6), p. 86-87.

3.2 ARCTIC - BACKGROUND INFORMATION

Adams, W.A. Light Intensity and Primary Productivity Under Sea Ice Containing Oil. Beaufort Sea Technical Report No. 29. Department of The Environment, Victoria, B.C. December, 1975. 156 p.

Berry, M.O. et al. Weather, Waves and Icing in The Beaufort Sea. Beaufort Sea Technical Report No. 21. Department of The Environment, Victoria, B.C. December, 1975.

Bornhold, B.D. Suspended Matter in The Southern Beaufort Sea. Beaufort Sea Technical Report No. 25b. Department of The Environment, Victoria, B.C. December, 1975. 30 p.

Brown, R.J. Permafrost Engineering (Citations From Engineering Index). National Technical Information Service, Springfield, Virginia, February, 1976. 176 p. NTIS/PS-76/0071/1SL.

Clodman, J. and F.B. Muller. Real-Time Environmental Prediction System. Beaufort Sea Technical Report No. 20. Department of The Environment, Victoria, B.C. December, 1975. 138 p.

Cooper, P.F. Movement and Deformation of The Landfast Ice of The Southern Beaufort Sea. Beaufort Sea Technical Report No. 37. Department of The Environment, Victoria, B.C. December, 1975. 16 p.

Davies, K.F. Mackenzie River Input to The Beaufort Sea. Beaufort Sea Technical Report No. 15. Department of The Environment, Victoria, B.C. December, 1975. 72 p.

Environmental Assessment of The Alaskan Continental Shelf. Volume 1. Marine Mammals. National Oceanic and Atmospheric Administration, Washington, D.C. 1975. 97 p. PB-248 932/6WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 2. Marine Birds. National Oceanic and Atmospheric Administration, Washington, D.C. 1975, 152 p. NOAA-75122902 PB-248 933/4WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 3.
Fish, Plankton, Benthos, and Littoral. National Oceanic and Atmospheric
Administration, Washington, D.C. 1975. 186 p. NOAA-75122903 PB-248
934/2WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 4.
Effects of Contaminants. National Oceanic and Atmospheric Administration,
Washington, D.C. 1975, 72 p. NOAA-75122904 PB-248 935/9WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 5.
Chemistry and Microbiology. National Oceanic and Atmospheric Administration,
Washington, D.C. PB-248 936/7SL.

Environmental Assessment of The Alaskan Continental Shelf. Volume 6.
Physical Oceanography and Meteorology. National Oceanic and Atmospheric
Administration. Washington, D.C. 1975. 127 p. NOAA-75122906 PB-248
937/5WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 7.
Geology. National Oceanic and Atmospheric Administration, Washington, D.C.
1975. 121 p. NOAA-75122907 PB-248 938/3WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 8.
Sea Ice. National Oceanic and Atmospheric Administration, Washington, D.C.
112 p. NOAA-75122908 PB-248 939/1WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 9.
Management/Data Management. National Oceanic and Atmospheric Administration,
Washington, D.C. 1975, 20 p. NOAA-75122909 PB-248 940/9WP.

Grainger, E.H. Biological Productivity of The Southern Beaufort Sea:
The Physical-Chemical Environment and The Plankton. Beaufort Sea
Technical Report No. 12a. Department of The Environment, Victoria, B.C.
December, 1975. 82 p.

Henry, R.F. Storm Surges. Beaufort Sea Technical Report No. 19.
Department of The Environment, Victoria, B.C. December, 1975. 41 p.

Herlinveaux, R.H. and B.R. de Lange Boom. The Physical Oceanography of
The South-Eastern Beaufort Sea. Beaufort Sea Technical Report No. 18.
Department of The Environment, Victoria, B.C. December, 1975. 97 p.

Hsiao, S.I.C. Biological Productivity of The Southern Beaufort Sea: Phytoplankton and Seaweed Studies. Beaufort Sea Technical Report No. 12c. Department of The Environment, Victoria, B.C. March, 1976. 99 p.

Huggett, W.S. et al. Near Bottom Currents and Offshore Tides. Beaufort Sea Technical Report No. 16. Department of The Environment, Victoria, B.C. December, 1975. 38 p.

Hunter, J.A.M. et al. The Occurrence of Permafrost and Frozen Sub-Seabottom Materials in The Southern Beaufort Sea. Beaufort Sea Technical Report No. 22. Department of The Environment, Victoria, B.C. April, 1976. 174 p.

Kendel, R.E. et al. Fishes of The Yukon Coast. Beaufort Sea Technical Report No. 6. Department of The Environment, Victoria, B.C. December, 1975. 114 p.

Knowles, R. Nitrogen Fixation in Arctic Marine Sediments. Beaufort Sea Technical Report No. 9. Department of The Environment, Victoria, B.C. December, 1975. 44 p.

Lewis, C.P. and D.L. Forbes. Coastal Sedimentary Processes and Sediments, Southern Beaufort Sea. Beaufort Sea Technical Report No. 24. Department of The Environment, Victoria, B.C. December, 1975. 68 p.

Markham, W.E. Ice Climatology of The Beaufort Sea. Beaufort Sea Technical Report No. 26. Department of The Environment, Victoria, B.C. December, 1975. 87 p.

Marko, J.R. Satellite Observations of The Beaufort Sea Ice Cover. Beaufort Sea Technical Report No. 34. Department of The Environment, Victoria, B.C. December, 1975. 137 p.

Milne, A.R. and B.D. Smiley. Offshore Drilling for Oil in The Beaufort Sea: A Preliminary Environmental Assessment. Beaufort Sea Technical Report No. 39. Department of The Environment, Victoria, B.C. January, 1976.

Onshore Impacts of Oil and Gas Development in Alaska. Volume I. Resource Planning Associates, Cambridge, Mass. 148 p. PB-248 895/5GA.

Onshore Impacts of Oil and Gas Development in Alaska. Volume I.
Methodology Appendices. Resource Planning Associates, Cambridge, Mass.,
and Environmental Protection Agency, Washington, D.C. November, 1975,
148 p. PB-248 895/5SL.

Onshore Impacts of Oil and Gas Development in Alaska. Volume II.
Methodology Appendices. Resource Planning Associates, Cambridge, Mass.
162 p. PB-248 896/3GA.

Panitch, M. "Kachemak Bay - Oil-Spill Leads Alaska to Reverse Drilling
OK", Science, Vol. 193, N. 4248, p. 131.

Pelletier, B.R. Sediment Dispersal in The Southern Beaufort Sea.
Beaufort Sea Technical Report No. 25a. Department of The Environment,
Victoria, B.C. December, 1975. 80 p.

Percy, R. Fishes of The Outer Mackenzie Delta. Beaufort Sea Technical
Report No. 8. Department of The Environment, Victoria, B.C. December,
1975. 114 p.

Ramseier, R.O. et al. Distribution of Sea Ice Thickness in The Beaufort
Sea. Beaufort Sea Technical Report No. 30. Department of The Environment,
Victoria, B.C. December, 1975.

Richardson, J.W. et al. Bird Migration Along The Beaufort Sea Coast:
Radar and Visual Observations in 1975. Beaufort Sea Technical Report
No. 3C. Department of The Environment, Victoria, B.C. December, 1975.
131 p.

Searing, Gary F. Seabirds of The Southeastern Beaufort Sea: Aircraft
and Group Observations in 1972 and 1974. Beaufort Sea Technical Report
No. 36. Department of The Environment, Victoria, B.C. December, 1975.

Smith, T.G. and J.R. Geraci. The Effect of Contact and Ingestion of
Crude Oil on Ringed Seals of The Beaufort Sea. Beaufort Sea Technical
Report No. 5. Department of The Environment, Victoria, B.C.
December, 1975 66 p.

Stirling, I. et al. The Distribution and Abundance of Seals in The
Eastern Beaufort Sea. Beaufort Sea Technical Report No. 1. Department
of The Environment, Victoria, B.C. December, 1975. 58 p.

Stirling, I. et al. The Distribution and Abundance of Polar Bears in The Eastern Beaufort Sea. Beaufort Sea Technical Report No. 2. Department of The Environment, Victoria, B.C. December, 1975. 59 p.

Wacasey, J.W. Biological Productivity of The Southern Beaufort Sea: Zoobenthic Studies. Beaufort Sea Technical Report No. 12b. Department of The Environment, Victoria, B.C. December, 1975. 39 p.

Wadhams, P. Sea Ice Morphology in The Beaufort Sea. Beaufort Sea Technical Report No. 36. Department of The Environment, Victoria, B.C. December, 1975. 66 p.

Walker, E.R. Oil, Ice and Climate in The Beaufort Sea. Beaufort Sea Technical Report No. 35. Department of The Environment, Victoria, B.C. December, 1975. 40 p.

3.3 BIODEGRADATION OF OIL IN THE ENVIRONMENT

Ahern, D.G., et al. Impact of The Use of Microorganisms on The Aquatic Environment. Environmental Protection Agency, Ecology Research Series. EPA 660/3-75-001. January, 1975. 256 p.

Bartha, R. Biodegradation of Oil on Water Surfaces. Department of The Navy, Washington, D.C. March, 1975. 13 p. AD-D000 722/9SL.

Blakebrough, W. et al. "Aerobic Degradation of Hydrocarbons in Soil - Significance of An Initial Rise In Oxygen - Uptake Rate Following Contamination with Oil", Journal of Applied Chemistry & Biotechnology, Vol. 26, No. 10, p. 550-558.

Bunch, J.N. and R.C. Harland. Biodegradation of Crude Petroleum by The Indigenous Microbial Flora of The Beaufort Sea. Beaufort Sea Technical Report No. 10. Department of The Environment, Victoria, B.C. March, 1976. 52 p.

Button, D.K. Arctic Oil Biodegradation. Alaska University College, Alaska. 43 p. USCG-D-114-75 AD-A014 096/2WP.

Dibble, J.T. and R. Bartha. "Effect of Iron on Biodegradation of Petroleum in Seawater", Applied and Environmental Microbiology, 1976, Vol. 31, No. 4, p. 544-550.

An Ecological Approach to The Problem of Biodegradation of Phenolic Wastes. Trinity University, San Antonio, Texas. 38 p. AD-A020 758/9GA.

Gibbs, C.F. "Continuously Recording Polarographic Respirometer and Its Use in Oil Biodegradation Studies", Water Research, Vol. 10, No. 5, p. 443-451.

Harrison, E.A. Biodeterioration of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. January, 1976. 104 p. NTIS/PS-76/0032/3WP.

Lehman, E.J. Biodeterioration of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. 86 p. NTIS/PS-75/152/9SL.

McKenna, E.J. and R.D. Heath. Biodegradation of Polynuclear Aromatic Hydrocarbon Pollutants By Soil and Water Microorganisms. Illinois University, Urbana. April, 1976. 33 p. PB-253 964/1SL.

Pierce, R.H. et al. "Persistence and Biodegradation of Spilled Residual Fuel Oil on An Estuarine Beach", Applied Microbiology, Vol. 29, No. 5, p. 646-652.

Pritchard, P.H. and T.J. Starr. The Microbial Degradation of Oil in Continuous Culture. State University of New York at Brockport. June, 1975. 81 p. AD-A013 322/3WP.

Sagardia, F. et al. "Degradation of Benzotriophene and Related Compounds By a Soil Pseudomonas in an Oil-Aqueous Environment", Applied Microbiology, Vol. 29, No. 6, p. 722-725.

Shelton, T.B. and J.V. Hunter. "Anaerobic Decomposition of Oil in Bottom Sediments", Journal of The Water Pollution Control Federation, Vol. 47, p. 2256.

Stormer, F.C. and A. Vinsjansen. "Microbial-Degradation of Ekofisk Oil in Seawater by *Saccharomycopsis lipolytica*", AMBIO, Vol. 5, No. 3, p. 141-142.

Traxler, R.W. and M. Cundell. Petroleum Degradation in Low Temperature Marine and Estuarine Environments. Rhode Island University, Kingston. January, 1976. 18 p. AD-A020 755/5WP.

Walker, J.D. et al. "Bacterial Degradation of Motor Oil", Journal of The Water Pollution Control Federation, Vol. 47 p. 2058.

Walker, J.D. et al. Petroleum-Degrading Achlorophyllous Alga *Prototheca zopfii*. Maryland University, College Park. 2 p. AD-A016 507/6WP.

Walker, J.D. et al. Petroleum Hydrocarbons: Degradation and Growth Potential of Deep-Sea Sediment Bacteria, Maryland University, College Park, 1976. 12 p. AD-A025 884/8SL.

Walker, J.D. et al. "Petroleum Hydrocarbons: Degradation and Growth Potential of Deep-Sea Sediment Bacteria", Environmental Pollution, Vol. 10, No. 2, February, 1976, p. 89-99.

Walker, J.D. and R.R. Colwell. "Sampling Device for Monitoring Biodegradation of Oil and Other Pollutants in Aquatic Environments", Environmental Science and Technology, Vol. 11, No. 1, p. 93-95.

Walker, J.D. et al. Utilization of Mixed Hydrocarbon Substrate by Petroleum Degrading Microorganisms. Maryland University, College Park. 13 p. AD-A016 324/6WP.

Ward, D.M. and T.D. Brock. Environmental Limitations on The Microbial Degradation of Hydrocarbons in Temperate Lakes. Wisconsin University, Madison. June, 1975. 112 p. PB-244 094/9WP.

Yen, T.F. "Genesis and Degradation of Petroleum Hydrocarbons In Marine Environment", American Chemical Society, Abstracts of Papers, Vol. 1975, No. 169, p. 18.

3.4 CONTINGENCY PLANNING / RESPONSE CAPABILITY

Alberts, D.A. and C. Park. "Organization Necessary for Minimizing the Damaging Effects of A Major Oil Spill", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 27-40.

Antonelli, John. Updating The Navy Environmental Protection Data Base To Incorporate Oil Spill Clean-up Performance. Naval Postgraduate School, Monterey, California. AD-A012 663/TSL, June 1975. 70 p.

Eisenberg, N.A. et al. Vulnerability Model. A Simulation System for Assessing Damage Resulting From Marine Spills. Enviro Control Inc., Rockville, Md. June, 1975. 354 p. USCG-D-136-75 AD-A015 245/4WP.

Fraser, J.P. and R.A. Cochran. "Computer Simulation Aids Oil-Spill Clean-up Decisions", Oil and Gas Journal, March 8, 1976.

Peterson, P.L. et al. Logistic Requirements and Capabilities For Response to Oil Pollution in Alaska. Battelle Pacific Northwest Labs., Richmond, Washington. March, 1975. 375 p. USCG-D-97-75 AD-A014 044/2WP.

Response to Oil Pollution in Alaska. Report No. CG-D-97-75, United States Coast Guard, Office of Research and Development, Washington, D.C., March, 1975.

3.5 DETECTION AND MONITORING

Bock, Ditmar H., and Elmer H. Eckert. Detection of Oil in Sewers. Environmental Protection Agency, February, 1976. 34 p. EPA/600/2-76/027 PB-249 359/1WP.

Detection of Oil in Sewers. Calspan Corp., Buffalo, N.Y. 34 p. PB-249 359/IGA

Gongaware, W.R. Improvement of an Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. June, 1976. 98 p. AD-A027 237/7SL.

Goodson, L.H. et al. Development of Buoy Mounted Hydrocarbon Vapor Sensors For Use in Local Area Pollution Surveillance System. Midwest Research Institute, Kansas City, Missouri. July, 1975. 112 p. USCG-D-10-76 AD-A022 855/1WP.

Gram, H.R. Petroleum Oil Detection Buoy System. Spectrogram Corporation, North Haven, Conn. March, 1975. 37 p. AD-A016 461/6WP.

Houlihan, T.M. and B.D. Tyler. Development of An Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. July, 1975. 87 p. AD-A014 552/4WP.

"Infrared Oil Film Monitor", The Oil and Gas Journal, Vol. 73, No. 46 p. 90.

McGowan, W.E. Monitoring Dissolved Hydrocarbons as a Function of The Tidal Cycle (New York Harbor). Coast Guard Research and Development Center, Groton, Conn. April, 1975. 39 p. USCG-D-106-75 AD-A015 882/4WP.

Tyler, B.D. Development of An Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. June, 1975. 89 p. AD-A012 460/2WP.

3.6 DISPOSAL OF RECOVERED OIL

Coupal, B. Report on Controlled Combustion Tests Carried Out Near Rimouski. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. March, 1976. 15 p. EPS-4-EC-76-2.

Disposal of Air Force Liquid Wastes. Combustion Power Company Inc., Menlo Park, California and Air Force Weapons Laboratory, Kirtland AFB, New Mexico, April, 1975. 143 p. AD-A010 429/9SL.

Gumtz, G.D. and E.J. Martin. Preliminary Design of a Comprehensive Waste Oil Processing Facility. Maryland Environmental Service, Annapolis, Md. May, 1975. 142 p. EPA/670/2-75-056 PB-242 461/2WP.

Lepara, M.E. and G. Debono. Investigating Waste Oil Disposal by Direct Incineration. Army Mobility Equipment Research and Development Center, Fort Belvoir, Va. 21 p. AD-A011 236/7WP.

Maizus, S. Recycling of Waste Oils. National Oil Recovery Corp., Bayonne, N.J. June, 1975. 283 p. EPA-670/2-75-068 PB-243 222/7WP.

Werner, K.G. Fluidized Bed Combustion (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. February, 1975. 71 p. NTIS/PS-75/256/8SL.

3.7 DISPERSANTS

Antonova, N.M. et al. "Method for Determination of Dispersive Capacity of Preparations Used For Removing Oil From Water Surface", OKEANOLOGIYA, 1975, Vol. 15. p. 333-337.

Batutis, E. et al. A Study of The Effects of Detergents on Typical Bilge Waters and Correlation of Oil Particle Sizes. General Electric Co., Philadelphia, Pa. July, 1975. 222 p. USCG-D-177-75 AD-A020 172/3WP.

Canevari, G.P. "Recent Developments in The Chemical Treatment of Oil Spills", Proceeding of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 5-21.

Fontana, M. "Aspect of Coastal Pollution-Combined Effect of Detergent and Oil at Sea on Sea Spray Composition", Water, Air and Soil Pollution, Vol. 5, No. 3, p. 269-280.

Graham, D.E. et al. "Technique For Measuring Interfacial Concentrations of Surfactants at Oil-Water Interface", Journal of Physics. Part E. Scientific Instruments, 1975, Vol. 8, No. 8, p. 696-699.

Keizer, P.D. and P.G. Wells. The Effectiveness and Toxicity of The Oil Dispersant, Oilsperse 43, In Large Outdoor Tanks. Canada Department of The Environment, Environmental Protection Service, Halifax, Nova Scotia, 1975. 29 p. EPS-5-AR-75-8.

3.8 EFFECTS OF OIL ON BIOTA

Atlas, R.M., et al. "Effects of Petroleum Pollutants on Arctic Microbial Populations", Environmental Pollution, Vol. 10, January, 1976, p. 35-43.

Atlas, R.M. Fate and Effects of Oil Pollutants in Extremely Cold Marine Environment. Louisville University, Kentucky, December, 1975, 42 p. AD-A018 711/2WP.

Biological and Ecological Effects of Oil Pollution in Tropical Waters. An Annotated Bibliography. Smithsonian Institute, Washington, D.C. July 1973. 72 p. PB-248 899/7WP.

Birkeland, C. et al. Survey of Marine Communities in Panama and Experiments with Oil. Smithsonian Tropical Research Inst., Balboa, Canal Zone. May, 1976, 191 p. EPA/600/3-76/028 PB-253 409/7WP.

Boehm, P.D. and J.G. Quinn. "Effect of Dissolved Organic-Matter in Sea-Water on Uptake of Mixed Individual Hydrocarbons and Number 2 Fuel Oil by a Marine Filter Feeding Bivalve (*Mercenaria mercenaria*)", Estuarine and Coastal Marine Science, Vol. 4, No. 1, p. 93-105.

Buell, J.W. and V.W. Kaczynski. Baseline Study Program, North Puget Sound. Biological Oil Impact Literature Review. Volume II. Bibliography. Beak Consultants, Inc., Portland, Oregon. October, 1975. 467 p. PB-254 292/6WP.

Burk, C.J. A Four-Year Analysis of Vegetation Following An Oil Spill In A Fresh Water Marsh. Massachusetts University, Amherst. June, 1976. 46 p. PB-258 766/5SL.

Carpenter, C.P. et al. "Petroleum Hydrocarbon Toxicity Studies. I. Methodology", Toxicology and Applied Pharmacology, 1975, Vol. 32, p. 246-262.

Clarke, A. and P.A. Prince. "Origin of Stomach Oil in Marine Birds - Analysis of Stomach Oil for 6 Species of Sub Antarctic Procellariiform Birds". Journal of Experimental Marine Biology and Ecology, Vol. 23, No. 1, p. 15-30.

Culley, D.D. and L.H. Knieper. "The Effects of Crude Oil on The Palatability of Marine Crustaceans", Progressive Fish Culturist, Vol. 37, No. 1, p. 9-14.

Dunstan, W.M. et al. Simulation and Inhibition of Phytoplankton By Low Molecular Weight Hydrocarbons. Skidaway Institute of Oceanography, Savannah, Georgia. April, 1975. 7 p. PB-248 697/5SL.

Eisler, R. and G.W. Kissil. "Toxicities of Crude Oils and Oil-Dispersant Mixtures to Juvenile Rabbitfish, *Siganus rivulatus*", Transactions of The American Fisheries Society, 1975, Vol. 104, No. 3, p. 571-578.

Elgershuizen, J. and H. Dekruif. "Toxicity of Crude Oils and A Dispersant To Stony Coral *Madracis mirabilis*", Marine Pollution Bulletin, Vol. 7, No. 2, p. 22-25.

Environmental Effects of Oil and Salt Water Spills on Land. Alberta Environment Research Secretariat, Edmonton, Alberta. November, 1975.

Environmental Effects of Schuylkill Oil Spill II. June 1972. Division of Oil and Special Materials Control, Office of Water Program Operations, U.S. Environmental Protection Agency, Washington, D.C., December, 1975. PB-258 412/6SL.

Feder, H.M. et al. The Sediment Environment of Port Valdez, Alaska: The Effect of Oil On This Ecosystem. Alaska University, College. July, 1976. 347 p. PB-259 972/8SL.

Frankenfeld, J.W. et al. Toxic Effects of Oil Discharged From Ships. Exxon Research and Engineering Co., Linden, N.J. December, 1975. 142 p. USCG-D-16-76 AD-A022 902/1WP.

Guard, H.E. et al. Identification and Potential Biological Effects of The Major Components in The Seawater Extract of A Bunker Fuel. California University, Berkeley. 6 p. AD-A018 812/8WP.
(Also published in: Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 4, p. 395-400).

Harrison, E.A. The Biological Effects of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. January, 1976. 147 p. NTIS/PS-76/0033/1WP.

James, W.P. et al. "Effects of An Offshore Crude Oil Unloading Terminal On Marine Environment", Marine Technology Society Journal, Vol. 9, No. 1, p. 27-31.

Karinen, J.F. "Oil Spill Effects", Science, Vol. 190, No. 4211, p. 216-219.

Kittredge, J.S. et al. "Bioassays Indicative of Some Sublethal Effects of Oil Pollution", Marine Technology Society, Annual Conference Proceedings (10th), p. 891-897.

Kittredge, J.S. Effects of Crude Oil On Marine Invertebrates. Galveston Marine Biomedical Institute, Texas. August, 1975. 7 p. AD-A017 921/8WP.

Kuehnhold, W.W. Acute Toxicity of Crude Oil to Fish Fry and The Intake of Sublethal Concentrations of Crude Oil Hydrocarbons By The Fish Organization Branch. Kiel University (West Germany) November, 1975. 33 p. N76-26724/4SL.

Lehman, E.J. The Biological Effects of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. 112 p. NTIS/PS-75/118/OSL.

Linden, O. "Effects of Oil On The Amphipod Gammarus oceanicus", Environmental Pollution, Vol. 10, No. 4, p. 239-250.

Linden, O. "Effects of Oil on The Reproduction of The Amphipod Gammarus oceanicus", AMBIO, Vol. 5, No. 1, p. 36-37.

Linden, O. "Influence of Crude Oil and Mixtures of Crude Oil/Dispersants On The Ontogenic Development of The Baltic Herring, Culpea...", AMBIO, Vol. 5, No. 3, p. 136-140.

Moore, S.F. and B.P. Schrader. "Ecological Analysis of Hypothetical Oil Spills Occurring In The Nearshore Waters of Long Island, New York", Institute of Environmental Sciences: 21st Annual Technical Meeting: Vol. I: Energy and The Environment, Mount Prospect, Illinois, p. 55-63.

Moore, S.F. "Offshore Oil Spills and Marine Environment", Technology Review, Vol. 78, No. 4, p. 61-67.

Morgan, N.L. "Rapid Method To Determine Bunker-C Fuel Oil In Marine Organisms", Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 3, p. 309-312.

Mueller, D. and H. Hellman. "Toxic Effect of Mineral Oils and Gasoline Fuels on Self-Purification Processes in Water Bodies", Gas Wasserfach Wasser Abwasser, Vol. 117, No. 8, p. 369-373.

Nauman, J.W. and D.R. Kernodle. "Effect of a Fuel Oil Spill on Benthic Invertebrates and Water Quality on The Alaskan Arctic Slope, Happy Valley Creek Near Sagwon, Alaska", Journal of Research, U.S. Geological Survey, Vol. 3, No. 4, July-August, 1975, p. 495-500.

Neff, J.M. and J.W. Anderson. "Ultraviolet Spectrophotometric Method For Determination of Naphthalene and Alkynaphthalenes In Tissue of Oil-Contaminated Marine Animals", Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 1, p. 122-128.

Ogata, M. and T. Ogura. "Petroleum Components and Objectionable Malodorous Substances In Fish Flesh Polluted By Boiler Fuel Oil". Water Research, Vol. 10, No. 5, p. 407-412.

Parker, B.L. et al. "Chronic Oil Contamination and Aquatic Organisms with Emphasis on Diptera: Status and Bibliography", Water Resources Bulletin, Vol. 12, No. 2, April, 1976, p. 291-305.

Payne, J.F. "Field Evaluation of Benzopyrene Hydroxylase Induction As A Monitor For Marine Petroleum Pollution", Science, Vol. 191, No. 4230, p. 945-946.

Peltier, et al. "Biological Consequences of An Accidental Oil Pollution For Rocky Shores of Norman Coast-Results One Year After Oil Pollution On November 26th, 1974", Comptes Rendus Des Seances Soc de Biologie, Vol. 170, No. 2, p. 442.

Percy, J.A. and T.C. Mullin. Effects of Crude Oils on Arctic Marine Invertebrates. Beaufort Sea Technical Report No. 11. Department of The Environment, Victoria, B.C. December, 1975. 167 p.

Percy, J.A. "Responses of Arctic Marine Crustaceans To Crude Oil and Oil-Tainted Food", Environmental Pollution, Vol. 10, No. 2, February, 1976, p. 155-162.

"Petroleum in The Marine Environment", Ocean Oil Weekly Report, Vol. 9, No. 16, p. 1.

Prouse, N.J. et al. "Effects of Low Concentrations of Oil Accumulated in Sea-Water on Growth of Uni-Algal Marine Phytoplankton Cultures", Journal of The Fisheries Research Board of Canada, 1976, Vol: 33, p. 810-818.

Pulich, W.M. et al. The Effects of A No. 2 Fuel Oil and Two Crude Oils On The Growth and Photosynthesis of Microalgae. Texas University, Port Arkansas. 9 p. PB-245 696/OWP.

Rossi, S.S. et al. "Toxicity of Water-Soluble Fractions of Four Test Oils For The Polychaetous Annelids, Neanthes arenaceodentata and Capitella capitata", Environmental Pollution, Vol. 10, No. 1, January, 1976, p. 9-18.

Rossi, S.S. and J.W. Anderson. "Toxicity of Water-Soluble Fractions of No. 2 Fuel Oil and South Louisiana Crude-Oil To Selected Stages In Life-History of Polychaete, Neanthes arenaceodentata", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 1, p. 18-24.

Sabo, D.J. et al. "Petroleum Hydrocarbon Pollution and Hepatic Lipogenesis in Marine Fish Fundulus heteroclitus", Proceedings of The Federation of The American Society For Experimental Biology, Vol. 34, No. 3, p. 810.

Scheier, A. and D. Gominger. "Preliminary Study of Toxic Effects of Irradiated vs Non-Irradiated Water-Soluble Fractions of No. 2 Fuel Oil", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 5, p. 595-603.

Townes, B. "English, Gulf Incidents Show Oil/Fish Problems", National Fisherman, Vol. 55, No. 11, p. 20-A.

Tucker, W. "Cleaning Oiled Sea Birds", Veterinary Record, Vol. 97, No. 1, p. 20.

Vermeer K. and R. Vermeer. "Oil Threat To Birds On The Canadian West Coast", Canadian Field Naturalist, Vol. 89, No. 3, p. 278-298.

Vernberg, F.J. and W.B. Vernberg. Pollution and Physiology of Marine Organisms. Academic Press, New York, 1974. 492 p.

Walker, J.D. et al. Effect of South Louisiana Crude Oil and Number 2 Fuel Oil on Growth of Heterotrophic Microorganisms, Including Proteolytic, Lipolytic, Chitinolytic and Cellulolytic Bacteria. Maryland University, College Park. 22 p. AD-A016 327/9WP.

Walker, J.D. and R.R. Colwell. Some Effects of Petroleum on Estuarine and Marine Microorganisms. Maryland University, College Park. 12 p. AD-A016 501/9WP. Also in: Canadian Journal of Microbiology, Vol. 21, No. 3, p. 305-313.

Whelan, T. et al. "Long-Term Chemical Effects of Petroleum In South Louisiana Wet Lands. 1. Organic-Carbon In Sediments and Waters", Marine Pollution Bulletin, Vol. 7, No. 8, p. 150-155.

Wormald, A.P. "Effects of A Spill of Marine Diesel Oil On Meiofauna Of A Sandy Beach At Picnic Bay, Hong Kong", Environmental Pollution, Vol. 11, No. 2, p. 117-130.

3.9 ENVIRONMENTAL LEVELS OF HYDROCARBONS

Benzhitskii, A.G. and G.G. Polikarpov. "Distribution of Oil Aggregates in Surface-Layer of Mediterranean Sea in April-June, 1974". OKEANOLOGIYA. 1976, Vol. 16, No. 1, p. 87-90.

Blasko, D.P. "Occurrences of Oil and Gas Seeps Along The Gulf of Alaska", Proceedings of The Eighth Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 1, p. 211-220.

Blasko, D.P. Oil and Gas Seeps in Alaska. Alaska Peninsula, Western Gulf of Alaska. Bureau of Mines, Anchorage, Alaska. April, 1976. 85 p. PB-253 013/7WP.

Blumer, M. and W.W. Youngblood. "Polycyclic Aromatic Hydrocarbons in Soils and Recent Sediments", Science, Vol. 188, 4 April, 1975, p. 53-55.

Brown, R.A. et al. Measurement of Volatile and Nonvolatile Hydrocarbons in Selected Areas of The Atlantic Ocean. Exxon Research and Engineering Co., Linden, N.J. June, 1975. 45 p. MA-RD-920-75063 COM-75-11112/OWP.

Brown, R.A. and T.D. Searl. "Nonvolatile Hydrocarbons Along Tanker Routes of The Pacific Ocean", Proceedings of The Eighth Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, p. 259-274.

Dastillung, M. and P. Albrecht. "Molecular Test For Oil Pollution In Surface Sediments", Marine Pollution Bulletin, Vol. 7, No. 1, p. 13-15.

DiSalvo, L.H. and H.E. Guard. Hydrocarbons Associated with Suspended Particulate Matter in San Francisco Bay Waters. Naval Biomedical Research Lab., Oakland, California. 5 p. AD-A011 342/3WP.

Hunter, J.V. et al. "Measurement of Urban Runoff Petroleum", Proceedings of The Twentieth Annual Symposium of The American Water Resources Association, New Brunswick, New Jersey, June, 1975.

Morris, B.F. et al. Pelagic Tar In The Mediterranean Sea, 1974-1975. Bermuda Biological Station, St. George's West. 9 p. PB-255 532/4SL.

Owens, E.H. and M.A. Rashid. "Coastal Environments and Oil-Spill Residues In Chedabucto Bay, Nova Scotia", Canadian Journal of Earth Sciences, Vol. 13, No. 7, p. 908-928.

Radding, S.B. et al. The Environmental Fate of Selected Polynuclear Aromatic Hydrocarbons. Stanford Research Institute, Menlo Park, California, February, 1976. 131 p. EPA/560/5-75/009 PB-250 948/7WP.

Sleeter, Thomas D. et al. "Quantitative Sampling of Pelagic Tar in The North Atlantic", Deep-Sea Research, Vol. 21, p. 773-775, 1974.

Walker, J.D. et al. Extraction of Petroleum-Hydrocarbons From Oil-Contaminated Sediments. Maryland University, College Park. 5 p. AD-A009 557/OSL.

Walker, J.D. et al. "Petroleum Hydrocarbons in Baltimore Harbor of Chesapeake Bay - Distribution in Sediment Cores", Environmental Pollution, Vol. 9, No. 3, p. 231-238.

Wong, C.S. et al. Distribution of Tar and Other Particulate Pollutants Along The Beaufort Sea Coast. Beaufort Sea Technical Report No. 13. Department of The Environment, Victoria, B.C. March 1976. 96 p.

Wong, C.S. et al. Hydrocarbon Levels in The Marine Environment of The Southern Beaufort Sea. Beaufort Technical Report No. 38. Department of The Environment, Victoria, B.C. August, 1976. 113 p.

3.10 GENERAL

Analysis of Pollution From Marine Engines and Effects on The Environment. Summary Report. Boating Industry Associations, Chicago, Illinois, and National Environmental Research Centre, Cincinnati, Ohio. June, 1975, 70 p. PB-242 177/4SL.

Arden, R.J. "No Slick Answers - Library Resources to Serve Offshore Oil Industry", ASLIB Proceedings 1975, Vol. 27, p. 173-184.

Barton, H.B. "Environmental Conservation in Offshore Petroleum Operations", World Energy Conference - 9th - Transactions, Papers and Discussions, Detroit, Michigan, 1974, V 4, p. 446-467. (Published by U.S. National Committee of The World Energy Conference, New York, N.Y. - 1975).

Ciccone, V.J. and A.P. Graves. Study to Evaluate Intensity of And Alternative Methods for Neutralization of DOD Aircraft Fuel Spills. DOD Aircraft Ground Fire Suppression and Rescue Office, Wright-Patterson AFB, Ohio. February, 1976. 93 p. AD-A025 937/4SL.

DeWitt, F.A. and P. Melvin. Oil Spill and Oil Pollution Reports, November 1974 - February 1975. California University, Santa Barbara. 271 p. PB-242 542/9WP.

Dewitt, F.A. and P. Melvin. Oil Spill and Oil Pollution Reports. February 1975 - April 1975. California University, Santa Barbara, June, 1975. 248 p. PB-243 724/2ST.

Environmental Consequences of On-Shore Activity in Four New Jersey Coastal Counties Resulting From Off-Shore Oil Development. Environmental Protection Agency, Washington, D.C. 46 p. PB-249 349/2GA.

Field Detection and Damage Assessment for Oil and Hazardous Material Spills. Environmental Protection Agency, Washington, D.C. (Division of Oil and Hazardous Materials), June, 1972, 222 p. PB-245 789/3WP.

Fulleylove, R.J. "Oil Spills and The Offshore Oil Industry", 1975 European Offshore Conference, Aberdeen, Scotland, Sept. 16-19, 1975. Proceedings Published by Spearhead Publishing Ltd., Aberdeen Scotland.

Goedjen, H. "Oil-Pipeline-Spillages - Their Consequences and Measures for Prevention and Removal", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 41-64.

Habercom, G.E. Offshore Drilling (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. July, 1975. 121 p. NTIS/PS-75/540/5WP.

Habercom, G.E. Supertankers and Superports (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. June, 1975. 86 p. NTIS/PS-75/510/8WP.

Heinz, G.H. An Analysis of The Management Information System For U.S. Coast Guard Aircraft Pollution Patrols. Naval Postgraduate School, Monterey, California, December, 1975. 144 p. AD-A021 785/1WP.

Holdsworth, M.P. "Tanker Salvage and Oil Spill Cleanup", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 85-108.

"How Much Oil Is Spilled", Science News, Vol. 107, No. 3, p. 41.

Jensen, P.A. Development of A Procedure To Use Relative Spill Dilution Capacity To Manage Water Pollution Risk From The Transportation of Oil and Hazardous Materials. PH.D. Thesis, Texas A & M University, 1975. 274 p.

Journal of Hazardous Materials. 1 (1975/1976) 3-19. Elsevier Scientific Publishing Company, Amsterdam.

Kinney, P.J., et al. Energy Development: The Environmental Trade Offs. Volume 3. Relative Environmental Ranking of Proposed Offshore Continental Shelf Areas on The Basis of Impacts of Oil Spills. Stanford Research Institute, Menlo Park, California, September, 1975. 71 p. PB-249-999-SET.

Melvin, P. and R.M. Ross. Oil Spill and Oil Pollution Reports, November, 1975 - January, 1976. California University, Santa Barbara. July, 1976. 365 p. PB-257 886/2SL.

Morris, S.C. Environmental Effect of Fossil Fuel. Brookhaven National Laboratory, Upton, N.Y. 1975. 20 p. BNL-20294.

Mullagalamov, T.S. et al. "Methods For Determining Real Losses of Petroleum During Its Collection, Preparation and Storage", Neftyanoe Khozyaistvo, Vol. 1975, No. 12, p. 46-48.

Offshore Petroleum Transfer Systems For Washington State. A Feasibility Study. Oceanographic Institute of Washington, Seattle. December 16, 1974, 534 p. OIW/OCW-7401 PB-244 945/2WP.

"Oil Pollution at Sea - How Much is too Much", Bioscience, Vol. 25, No. 5, p. 339-340.

"Oil Spills Called Peril to Climate", Polar Times, No. 81, Dec., 1975.

ORD-Publications Summary. Technical Information Division, Office of Monitoring and Technical Support. U.S. Environmental Protection Agency, Washington, D.C. EPA-600-9-75-001d Dec. 1975.

Proceedings of The International Symposium on Transport of Hazardous Cargoes by Sea and Inland Waterway (4th). United States Coast Guard, Office of Research and Development, Washington, D.C. October, 1975. 619 p. USCG-D-24-76 AD-A023 505/1WP.

"Proving Out Pollution Clean-Up", Surveyor, Vol. 9, No. 1, p. 16-19.

Rosenberg, D.H. Proceedings of The Conference Workshop To Review The Draft Study Plan For Environmental Assessment of The Gulf of Alaska, Southeastern Bering and Beaufort Seas. Alaska University. April, 1975. 195 p. PB-246 873/4WP.

Sasseville, J.L. and M. Leclerc. "Problems Associated with The Effect of Transportation of Crude Oil by Oil Ducts on The Aquatic Ecosystem", EAU Quebec, Vol. 8, No. 4, November, 1975. p. 39-41, 44-46.

Stewart, R.J. "Oil Spills and Offshore Petroleum", Technology Review, Vol. 78, No. 4, p. 47-59.

Travers, W.B. and P.R. Luney. "Drilling, Tankers, and Oil Spills On Atlantic Outer Continental Shelf", Science, Vol. 194, No. 4267, p. 791-796.

Vessels Engaged in Offshore Oil and Gas Drilling Operations. Maritime Administration, Washington, D.C. January, 1976, 370 p. PB-248 857/5SL.

Wardley-Smith, J. The Control of Oil Pollution on The Sea and Inland Waters. Graham and Trotter Ltd., London, England. December, 1976.

3.11 LAND AND UNDERGROUND SPILLS

"Calm and Practical Restoration Shows Oil Spills Do Not Impair Soil Permanently", Oilweek, Vol. 27, No. 1, February 16, 1976, p. 100.

Environmental Effects of Oil and Salt Water Spills on Land. Alberta Environment Research Secretariat, Edmonton, Alberta. November, 1975.

Holzer, T.L. "Application of Ground-Water Flow Theory To A Subsurface Oil Spill", Ground Water, Vol. 14, No. 3, May-June, 1976. p. 138-145.

Mackay, D. and M. Mohtadi. "Area Affected by Oil Spills On Land", Canadian Journal of Chemical Engineering, Vol. 53, No. 2, p. 140-143.

Vonhof, J.A. A Hydrogeological Investigation of An Underground Spill - Flin Flon, Manitoba. Environmental Emergency Branch, Environmental Protection Service, Ottawa, Ontario. EPS-5-EC-77-1.

3.12 LEGAL/SOCIAL MATTERS

Anderson, A.W. and W.K. Bissell. International Cooperation For The Prevention of Marine Oil Pollution. Ocean and Coastal Law Program. Miami University, Florida. September, 1975. 154 p. PB-253 970/8SL.

Blumer, M. et al. "Oil Spills", Energy and Human Welfare, - A Critical Analysis: Selection of Papers on Sociology, Technology, and Environmental Problems of Electrical Power Consumption, Vol. 1.

Brown, R.J. Ocean Law (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. September, 1975. 168 p. NTIS/PS-75/712/OWP.

Brown, R.J. Ocean Law (A Bibliography With Abstracts). National Technical Information Service, Springfield, Virginia. October, 1976. 236 p. NTIS/PS-76/0834/2SL.

Cook, R.C. Economic Effects of Enforcement Variables On Commercial Oil Pollution Control Strategy. Naval Postgraduate School, Monterey, California. September, 1975. 91 p. AD-A016 442/6WP.

Irwin, W.A. et al. The Water Pollution Control Act of 1972, Institutional Assessment, Enforcement. Volume I. Environmental Law Institute, Washington, D.C. October, 1975. 496 p. PB-246 321/4WP.

Irwin, W.A. et al. The Water Pollution Control Act of 1972, Institutional Assessment, Enforcement. Volume II. Environmental Law Institute, Washington, D.C. October, 1975. 795 p. PB-246 322/2WP.

Klein, J.A. The Environmental Control Industry. An Analysis of Conditions and Prospects For The Pollution Control Industry. New York, Dec. 1975, 144 p. PB-248 474/9WP.

Mudjiard, J. and H. Susmono. Social Cost of Oil Pollution. Naval Postgraduate School, Monterey, California. March, 1976. 66 p. AD-A027 257/5SL.

Smith, J.L. and R.A. Leone. Water Pollution Control Act of 1972.
Economic Impacts, Petroleum Refining Industry. National Bureau of
Economic Research Inc., New Haven, Connecticut. June, 1975. 251 p.
NCWO-75/16 PB-248 800/5WP.

The Water Pollution Control Act of 1972 Institutional Assessment
Attitudes of Participants. Oregon Research Institute, Eugene.
December, 1975, 326 p. NCWQ-75/15 PB-247 392/4WP.

3.13 OIL SPILL CONTAINMENT

Bitting, K.R. High Seas Oil Containment Barrier Mooring System. Coast Guard Research and Development Centre, Groton, Connecticut, July, 1975. 128 p. CGR/DC-14/75, USCG-D-176-75 AD-A020 980/9WP.

Brunner, D.E. Materials For Oil Spill Containment Boom. Navy Civil Engineering Lab., Port Hueneme, California. June, 1976. 32 p. AD-A026 139/6SL.

Evaluation of A Pneumatic Barrier For Oil Containment. Calspan Corp., Buffalo, N.Y. 77 p. PB-249 361/7GA.

Fallah, M.H. and R.M. Stark. "Probabilistic Model For Dispersive Oil Losses Beneath Oil Booms", Ocean Engineering, Vol. 3, No. 6, p. 383-390.

Grace, J.M. Evaluation of A Pneumatic Barrier For Oil Containment. Calspan Corporation, Buffalo, N.Y. February, 1976. 77 p. EPA/600/2-76/030 PB-249 361/7WP.

"Handling Offshore Oil Boom", Mechanical Handling International, 1975. Vol. 62, No. 1, p. 37.

Kobus, H.E. "On The Use Of Air-Bubble Screens As Oil Barriers", Proceedings of The 16th Congress of The International Association For Hydraulic Research: Fundamental Tools To Be Used In Environmental Problems, Vol. 3.

Larrabee, R.M. and G.A. Brown. An In-Situ Investigation Of Oil Barrier Shape and Drag Coefficients. Rhode Island University, Kingston. 219 p. USCG-D-161-75 AD-A017 099/3WP.

Leibovich, S. "Natural Limit To Containment and Removal of Oil Spills at Sea", Ocean Engineering, Vol. 3, No. 1, p. 29-36.

Leibovich, S. "Oil Slick Instability and The Entrainment Failure of Oil Containment Booms", Journal of Fluids Engineering, Transactions of The ASME, Vol. 98, Ser. 1, No. 1, March, 1976, p. 98-105.

Leibovich, S. "Oil Slick Instability and Entrainment Failure of Oil Containment Booms", Mechanical Engineering, Vol. 97, No. 8, p. 84.

Tedeschi, E.T. "Seaboom, Permanent Oil Containment Barrier", American Chemical Society, Abstracts Papers, Vol. 172, Sept. 3, p. 35.

Tierney, J.M. Research, Design, and Development of The U.S. Coast Guard High Seas Oil Containment System. Battelle Columbus Laboratories, Ohio. September, 1975. 318 p. AD-A025 749/3SL.

Tsang, G. Ice Conditions And The Proposed Containment And Removal of Spilled Oil On St.Clair And Detroit Rivers. Department of The Environment, Inland Waters Directorate, Burlington, Ontario. Report No. 56. 25 p.

Vanderkooy, N. et al. Evaluation Of Oil Spill Barriers And Deployment Techniques For The St.Clair-Detroit River System. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. June, 1976. 97 p. EPS-4-EC-76-4.

3.14 OIL SPILL INCIDENTS

Derailment of Tank Cars With Subsequent Fire and Explosion On Chicago, Rock Island And Pacific Railroad Company Near Des Moines. National Transportation Safety Board, Washington, D.C. June, 1976. 22 p. PB-256 592/7SL.

Duerden, F.C. Spill in Portugal - A Report of The JAKOB MAERSK Incident. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. January, 1976. 32 p. EPS-8-EC-76-1.

Explosion and Fire On Board The Unmanned Tank Barge OCEAN 80 at Carteret, New Jersey on 25 October, 1972 Without Loss of Life. United States Coast Guard, Washington, D.C. May, 1975. 30 p. AD-A011/033.

Frye, J. "Liberian Tanker Spills Bunker C in Bantry Bay", National Fisherman, 55(11) 1975, p. 11-B, 15-B.

Grounding of The SS Hillyer Brown at Cold Bay, Alaska on 7 March 1973 Without Loss of Life. U.S. Coast Guard, Washington, D.C. and National Transportation Safety Board, Washington, D.C. January, 1975. 37 p. AD-A007 432/8SL.

Hann Jr., R.W. Follow-up Field Survey of The Oil Pollution From The Tanker "METULA". Texas A and M Research Foundation, College Station. Jan. 1975 59 p. USCG-D-166-75 AD-A017 100/9WP.

Natural Gas Liquids Explosion And Fire, Near Devers, Texas, May 12, 1975. Dow Chemical, U.S.A. June, 1976. 18 p. PB-255 979/7SL.

Nicol, C.W. The Mizushima Oil Spill - A Tragedy For Japan and A Lesson For Canada. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. May, 1976. 26 p. EPS-8-EC-76-2.

West Texas Gulf Pipe Line Company, Abilene, Texas, December 1, 1974. National Transportation Safety Board, Washington, D.C. June, 1976. 27 p. PB-257 166/9SL.

3.15 OIL SPILL REMOVAL - EQUIPMENT AND TECHNIQUES

Ard, R. et al. "System Model Development of Two Fast Current Oil Removal Systems", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 857-865.

Ayres, R.R., et al. A Zero-Relative-Velocity Belt Skimmer. Shell Development Company, Houston, United States Coast Guard, Texas April, 1975. 250 p. AD-A014 497/2WP.

Beach, R.L. and F.A. March. Development of A Streaming Fiber Oil Spill Control Concept. Seaward Inc., Falls Church, Virginia. March, 1975. 95 p. USCG-D-35-75 AD-A014 494/9WP.

Blockwick, T.N. and R.J. Smith. Redesign, Fabrication and Test Of A 1000-GPM High Seas Oil Recovery System and Design Only Of A 500-GPM High Seas Oil Recovery. Ocean Systems Inc., Reston, Va. June, 1975. 117 p. USCG-D-182-75 AD-A023 534/1WP.

Chang, W.J. Tests of Coast Guard Developed High Seas Oil Recovery Systems at EPA OHMSETT. U.S. Coast Guard, Washington, D.C., June, 1975. 129 p. USCG-D-101-75 AD-A014 495/6WP.

Dallessandro, P.L. and C.B. Cobb. "Oil Spill Control 2. Counter Measures", Hydrocarbon Processing, Vol. 55, No. 3, p. 145-148.

Der, J.J. Improved Dynamic Inclined Plane Endless Belt Laminar Oil Collector. Department of The Navy, Washington, D.C. October, 1975. 13 p. AD-D001 932/3SL.

Development and Preliminary Design of An Experimental Prototype Free Vortex Oil Skimmer. Scientific Associates, Inc., Santa Monica, Cal. 95 p. AD-A020 174/9GA.

Garg, S.C. Evaluation of Utility Equipment For Harbor Oil Spill Removal/Recovery Systems. U.S. Navy Civil Engineering Lab., Port Hueneme, California. June, 1976. 116 p. AD-A026 252/7SL.

Getman, J.H. et al. "Tests of Oil Recovery Devices in Ice Covered Waters". Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions. University of Alaska, Fairbanks.

Graebel, W.P. and V.A. Phelps. Fast Current Oil Response Systems Tests on Phase I Concepts. Michigan University, Ann Arbor and United States Coast Guard. April, 1975. 319 p. AD-A022 928/6SL.

Griffiths, R.A. "Performance Tests of Off-The-Shelf Oil Skimmers", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 917-930.

Laisk, E. "Feasibility of Oil Slick Removal From Seawater Using Power Lasers", Environmental Science and Technology, Vol. 10, No. 8, p. 814-815.

Leibovich, S. "Natural Limit To Containment and Removal of Oil Spills At Sea", Ocean Engineering, Vol. 3, No. 1, p. 29-36.

Lindenmuth, W.T. et al. Fast Current Oil Response System. Stage I, SVROS Development. Hydronautics Inc., Laurel, Maryland. March, 1975. 96 p. USCG-D-36-75 AD-A014 500/3WP.

Marcinowski, H.J. "The Separation of Oil From Water Surfaces", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 109-120.

Mechanical Systems For The Recovery of Oil Spilled on Water. Institute of Petroleum, London. Coordinating Committee For The Prevention of Sea Pollution. Barking: Applied Science Publishers. 1975. 139 p.

Mueller, F.N. Fast Current Oil Response System. Tetradyn Corporation, Richardson, Texas. April, 1975. 86 p. USCG-D-115-75 AD-A020 171/5WP.

Nebeker, E.B. and S.E. Rodriguez. Development and Preliminary Design of An Experimental Prototype Free Vortex Oil Skimmer. Scientific Associates Inc., Santa Monica, California. June, 1975. 95 p. AD-A020 174/9SL.

Norton, D.J. and J.L. Rand. The Hydrodynamics of Porous Barrier Oil Recovery Systems. Texas A and M University, College Station. July, 1975. 76 p. USCG-D-146-75 AD-A014 501/1WP.

"Oil Spills -- Recovery And Re-Use by Vessel". Dock and Harbour Authority, Vol. 55, No. 652, p. 415.

Poock, G.K. Human Factors and Safety Problems on Navy Oil Skimmers. Naval Postgraduate School, Monterey, California, January, 1975. 16 p. AD-6004 002

Scharfenstein, C.F. and W.T. Beran. Prototype High-Seas Disc-Drum Oil Recovery System. Lockheed Missiles and Space Co. Inc., Sunnyvale, California. June, 1975. 247 p. USCG-D-150-75 AD-A017 000/1WP.

Schultz, L.A. Tests of Oil Recovery Devices in Broken Ice Fields. Phase I. Arctec Inc., Columbia, Maryland. July, 1975. 91 p. USCG-D-130-75 AD-A016 465/7WP.

Schultz, L.A. Tests of Oil Recovery Devices in Broken Ice Fields. Phase II. Arctec Inc., Columbia, Md. January, 1976. 179 p. AD-A025 748/5SL.

Sea, R.L. "High Seas Oil Spill Control Program of The Supervisor of Salvage, USN", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 931-943.

Smith, M.F. Oil Spill Removal (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. July, 1975. 207 p. NTIS/PS-75/542/1WP.

Smith, M.F. Oil Spill Removal Techniques and Equipment (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. August, 1976. 252 p. NTIS/PS-76/0637/9SL.

Solsberg, L.B. et al. Field Evaluation of Seven Oil Spill Recovery Devices. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. October, 1976. 81 p. EPS-4-EC-76-3.

Trentacoste, N.P. Development of Fast Current Oil Response System. Science Applications, Inc., McLean, Virginia. March, 1975. 187 p. AD-A014/4WP.

Trentacoste, N.P. Surface Effects Skimmer Developments. Science Applications, Inc., McLean, Virginia. June, 1975. 79 p. EPA/670/2-75/066. PB-242 391/1WP.

Tsang, G. Ice Conditions and The Proposed Containment and Removal of Spilled Oil on St. Clair and Detroit Rivers. Department of The Environment, Inland Waters Directorate, Burlington, Ontario. Report No. 56. 25 p.

Turbeville, J.E. "Ferromagnetic Sorbent System For Oil Spill Recovery", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 883-888.

Wambold, J.C. and C. Reed. "New Twist For Oil Spill Cleanup", Mechanical Engineering, Vol. 98, No. 2, February, 1976 p. 28-31.

Ward, R.S. Towed Planning Sled For Delivery of Oil Pollution Control Equipment. Naval Coastal Systems Laboratory, Panama City, Florida. March, 1976. 115 p. AD-A025 247/8SL.

Widawsky, A. Development of Harbor Oil-Spill Removal/Recovery Systems. Phase I. January, 1975. 252 p. AD-B002 854.

3.16 OILY WATER/SEPARATION

Adamson, W.L. and M.W. Titus. Separation of Oil in Bilge Water by Semipermeable Membrane. Naval Ship Research and Development Laboratory, Annapolis, Md. 27 p. AD-A023 289/2WP.

Ball, J. et al. Management of Tank Washings in Marine and Coastal Commerce. Texas A & M University, College Station, February, 1975. 85 p. TAMU-SG-74-221, NOAA-75072201, COM-75-11087/4WP.

Batutis, E. and F. Calello. Shipboard Oil-in-Water Content Monitor Based on Small Angle Forward Light Scattering. General Electric Co., Philadelphia, Pa. December, 1975. 185 p. USCG-D-35-76 AD-A022 895/7WP.

Berto, F.J. "Oil-in-Water Monitoring Aboard Tankers", American Chemical Society, Abstracts of Papers, Vol. 172, Sep. 3, p. 96.

Bordeaux, J. Shipboard Oil-in-Water Monitor. Beckman Instruments Incorporated, Anaheim, California. July, 1976. 57 p. AD-A028 785/4SL.

Castaldi, G. and W.J. Powell Crude Washing Guidelines. Exxon International Co., New York. April, 1975. 25 p. MA-RD-930-76012. COM-75-11428/OWP.

Cooke, B. "Slick Solutions To Oily Water Separation", Process Engineering, Vol. 1976, October, p. 73-74.

Fasoli, U. et al. "Continuous Radial Filtration in The Purification of Oily Water", Water Research, Vol. 10, No. 7, p. 633-635.

Forester, R.L. et al. Port Collection and Separation Facilities For Oily Wastes. Volume VI. Impact of Offshore Terminals on Contiguous Ports. Harris Inc., New York. March, 1975. 89 p. COM-75-10765/6WP.

Ghosh, M.M. and W.P. Brown. "Oil Removal by Carbon-Metal Granular Beds", Journal of The Water Pollution Control Federation, Vol. 47, p. 2101.

Gillespie, R.J. and C.R. Phillips. "Treatment of Oily Waste From Ships", Marine Technology Society Journal, Vol. 10, No. 5, p. 19-26.

Grutsch, J.F. and R.C. Mallatt. "Optimize The Effluent System - 2". Hydrocarbon Process, Vol. 55, No. 4, April, 1976, p. 213-218.

Guzdar, A.R. et al. Assembly and Testing of The Mark I Shipboard Separator System. Foster-Miller Associates, Inc., Waltham, Mass. December, 1975. 67 p. AD-A025 948/1SL.

Guzdar, A.R. et al. Development of A Centrifugal System for Separation of Oil and Solids From Shipboard Discharge Water. Foster-Miller Associates Inc., Waltham, Mass. July, 1975. 109 p. USCG-D-118-75 AD-A014 045/9WP.

Haderman, A.F. and J.H. Bochinski. Shipboard Oil-in-Water Content Monitor Based on Light-Scattering at 45 deg., 90 deg., and 135 deg. and Turbidity at 0 deg. Enviro Control Inc., Rockville, Md. January, 1976. 169 p. USCG-D-25-76 AD-A023 839/4WP.

Hornig, A.W. et al. A Shipboard Oil-in-Water Content Monitor Based on Oil Fluorescence. Baird-Atomic Inc., Bedford, Massachusetts. February, 1976. 205 pp. AD-A027 262/5WP.

Ivanova, L.G. et al. "Purification of Petroleum-Containing and Phenol-Containing Waters By Electrical Treatment", Journal of Applied Chemistry of The USSR, Vol. 49, No. 2, p. 424-429.

Kaliniichuk, E.M. et al. "Treating Refinery Wastewaters To Remove Emulsified Oils by Electrocoagulation and Electro Flotation", International Chemical Engineering, Vol. 16, No. 3, p. 434-435.

Kaminskii, V.A. and A.N. Stepanenko. "Separation of Water-in-Oil Emulsions In An Ascending Stream In An Electric-Field", Colloid Journal of The USSR, Vol. 37, No. 6, p. 1054-1056.

Kaufman, S. "Surface Chemistry Parameters in Ecological Cleanup of Oily Wastewater", Environmental Science and Technology, Vol. 10, No. 2, p. 168-173.

Lock, J. "High-Efficiency Oil-Water Separation", Processing, Vol: 22, No. 10, p. 41.

Miranda, J.G. "Sump Design For Oil-Water Separators", Chemical Engineering, Vol. 82, No. 25. p. 85.

Mittleman, J. Oil/Water Separator Evaluation. Naval Coastal Systems Laboratory, Panama City, Florida. July, 1975. 55 p. AD-A013 210/OWP.

Montfort, R.W. Oil-in-Water Content Monitor Developmental Program Summary. United States Coast Guard, Office of Research and Development. December, 1975. 42 p. USCG-D-188-75 AD-A022 960/9WP.

Moreau, J.O. Bailey Oil Content Monitor. Exxon Research and Engineering Company, Florham Park, N.J. June, 1975. 60 p. COM-75-10990/OWP.

Nicholson, M. and J. Taylor. The Determination of Hydraulic Oil in The Concast Plant Cooling Water Using I.R. Spectroscopy. British Steel Corporation, Sheffield, England. August, 1975. 10 p. PB-245 060/9WP.

Pal, D. The Coanda Effect Oil/Water Separator: A Development Study. U.S. Navy Civil Engineering Lab., Port Hueneme, California. May, 1975. 45 p. AD-A011 806/7WP.

Panova, V.A. et al. "Chemical Composition of Oil-Containing Waste After Purification in Aerotanks", Neftyande Khozyaistvo, Vol. 1975, No. 10, p. 60-63.

Powell, W.J. Crude Washing. Exxon International Company, New York. June, 1976. 143 p. PB-256 189/2SL.

Schatzberg, P. et al. Oil/Water Separation with Noncellulosic Ultrafiltration System. Naval Ship Research and Development Center, Bethesda, Maryland. April, 1975. 34 p. AD-A008 315/4SL.

Shewmaker, J.E. Flocculant Use on Tankers. Exxon Research and Engineering Company, Florham Park, N.J. March, 1976. 50 p. PB-251 626/8WP.

Skewes, R.L. USCG Oily Water Separator System Cartridge Usage Data Survey. United States Coast Guard, Office of Research and Development, March, 1976. 73 p. USCG-D-40-76 AD-A023 428/6WP.

Smith, M.F. Oil Water Separators (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. September, 1975. 94 p. NTIS/PS-75/710/4WP.

Suzuki, R. et al. "Automatic Analyzer for Traces of Dispersed Oils in Waste-Water Using Solvent-Extraction and Infrared Spectrophotometry". Bunseki Kagaku, Vol. 25, No. 5, p. 308-313.

Wang, L.K. et al. "Separation of Emulsified Oil From Water", Chemistry and Industry, Vol. 1975, No. 13, p. 562-564.

Yokota, K. "Treatment of Oily Waste-Water and Waste Oil", Journal of Synthetic Organic Chemistry, Japan, Vol. 33, No. 5, p. 323-327.

Ziegler, R.C. et al. Inverted Siphons For Oil Trapping. Calspan Corp., Buffalo, N.Y. February, 1976. 66 p. EPA/600/2-76/028 PB-249 360/9WP.

3.17 PHYSICAL/CHEMICAL BEHAVIOR AND PROPERTIES

Brown, R.F. "The Interaction of Crude Oil with Arctic Sea Ice", International Conference on Port and Ocean Engineering, August, 1975.

Chen, E.C. and B.F. Scott. "Aging Characteristics of Crude Oil on Ice", Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions, University of Alaska, Fairbanks, 1975.

Chen, E.C. et al. Behavior of Oil Spilled in Ice-Covered Rivers. Inland Waters Directorate, Department of The Environment, Ottawa, Ontario. No. 61.

Chen, E.C. et al. "Behavior of Crude Oil Under Fresh-Water Ice", Journal of Canadian Petroleum Technology, Vol. 15, No. 2, p. 79-83.

Chen, E.C. "Influence of Freezing-Thawing on The Stability of Crude Oil-In Water Emulsions", Journal of Canadian Petroleum Technology, Vol. 14, No. 2, p. 38-41.

Chen, E.C. et al. "Spreading of Crude Oil on An Ice Surface", Canadian Journal of Chemical Engineering, Vol. 52, February, 1974.

Collins, D.J. et al. "Analysis of An Emulsified Oil Slick", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 889-899.

Harrison, W. et al. "Disappearance of Aromatic and Aliphatic Components from Small Sea-Surface Slicks", ANL, Environmental Science & Technology, March, 1975, Vol. 9, No. 3, p. 231-234.

The Interaction of Crude Oil with Arctic Sea Ice. Beaufort Sea Technical Report No. 27. Department of The Environment, Victoria, B.C. December, 1975. 201 p.

Kaufman, S. "Surface Chemistry Parameters In Ecological Cleanup of Oily Wastewater", Environmental Science and Technology, Vol. 10, No. 2, p. 168-173.

King, W.S. On The Fluid Mechanics and Heat Transfer of Liquified Natural Gas Spills. Rand Corporation, Santa Monica, California, June, 1975. 18 p. P-5396 AD-A022 226/5WP.

Kolomoitsev, V.S. and V.I. Konstantinov. "Use of Maxwell-Wagner Theory and Cole-Cole Diagram For Measuring Dielectric Properties of Water-Crude Oil Emulsions". Colloid Journal of The USSR, Vol. 38, No. 2, p. 320-324.

Leinonen, P.J. et al. "The Behavior of Crude Oil Spilled on Snow", Arctic, Vol. 28, No. 1, March, 1975, p. 9-20.

Linek, V. and P. Benes. "Study of Mechanism of Gas Absorption Into Oil-Water Emulsions", Chemical Engineering Science, Vol. 31, No. 11, p. 1037-1046.

Lu, C.Y. and J. Polak. A Study of The Solubility of Oil in Water. Environmental Emergency Branch, Department of The Environment, Ottawa, Ontario. February, 1976. 25 p. EPS-4-EC-76-1.

Mackay, D. et al. "The Behavior of Crude Oil Spilled on Snow", Arctic, Vol. 28, No. 1, pp. 9-20.

Miyahara, S. and Y. Nozaki. "Fundamental Studies on Thickness of Crude Oil on Sea-Water Surfaces", Bulletin of The Japanese Society of Scientific Fisheries, Vol. 41, No. 4, p. 377-382.

Regnier, Z.R. and B.F. Scott. "Evaporation Rate of Oil Components", Environmental Science and Technology, Vol. 9, No. 5, p. 469-472.

Scott, B.F. and R.M. Chatterjee. Behavior of Oil Under Canadian Climatic Conditions; Part 1: Oil on Water Under Ice-Forming Conditions Inland Waters Directorate, Water Quality Branch, Ottawa, Ontario.

Straughan, D. Temperature Effects of Crude Oil In The Upper Intertidal Zone. University of Southern California, Los Angeles. July, 1976. 64 p. PB-255 956/5SL.

Topham, D.R. Hydrodynamics of An Oilwell Blowout. Beaufort Sea
Technical Report No. 33. Department of The Environment, Victoria,
B.C. December, 1975. 52 p.

Topham, D.R., "Simulation of an Oil Well Blowout in Shallow Coastal Waters", Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions, University of Alaska, Fairbanks, 1975.

Young, R.N. and A.J. Sethi. "Compositional Changes of A Fuel Oil From An Oil Spill Due To Natural Exposure", Water-Air-Soil Pollution, Vol. 5, No. 2. December, 1975, p. 195-205.

Yu, T. "The Infrared Studies of Santa Barbara Oil Spill", Disertation Abstracts International, Vol. 35, No. 06-B, p. 2601.

Zschaler, R. "Methods For Determination of Water Drops Distribution in Water-Oil Emulsion", Fette Seifen Anstrichmittel Verbunden Mit Der Z...., Vol. 78, No. 11, p. 437.

3.18 PREVENTION

Bass, R.L. et al. Bulk Carrier Operations Safety Enhancement Project. Phase I. Southwest Research Institute, San Antonio, Texas. June, 1976. 237 p. PB-256 188/4SL.

Berezhkovskii, M.I. Storage and Transportation of Chemical Products. Foreign Technology Division, Wright-Patterson AFB, Ohio. 400 p. AD-A006-729.

Blunck, G.J. "Marine Pollution Prevention in The International Oil Industry", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 65-76.

Borodavkin, P.P. and B.I. Kim. "Optimization of Projects in Construction of Main Pipelines and Petroleum-Product Pipes with Consideration of Environmental-Protection", Neftynoe Khozyaistvo, Vol. 1976, No. 10, p. 42-44.

Cavanaugh, E.C. et al. Environmental Problem Definition For Petroleum Refineries, Synthetic Natural Gas Plants, and Liquified Natural Gas Plants. U.S. Environmental Protection Agency, Washington, D.C. March, 1975.

Henderson, C. et al. Survey Study of Techniques To Prevent or Reduce Discharges of Hazardous Chemicals. Batelle Columbus Labs., Ohio. August, 1975. 84 p. USCG-D-184-75 AD-A020 173/1WP.

Hochrein, A.A. et al. Evaluation of Membrane Oil Pollution Prevention System: Research Conducted For The United States Coast Guard and The United States Navy. Daedalean Associates Inc., Woodbine, Md. August, 1975. 70 p. USCG-D-175-75 AD-A018 945/6WP.

Oil Transportation by Tankers: An Analysis of Marine Pollution and Safety Measures. Office of Technology Assessment, Washington, D.C. July, 1975, 305 p. PB-244 457/8WP.

Phillips, R.D. et al. "Minicomputers Used In Metering and Leak Detection System For Liquid Petroleum-Products Pipelines", IEEE Transactions On Industry Applications, Vol. 12, No. 4, p. 341-348.

Program For Preventing And Eliminating Oil Pollution of The Buffalo River. Cornell Aeronautical Lab. Inc., Buffalo, N.Y. 136 p. PB-249 518/2GA.

Review of Spray-On Or Grouting Sealants For Petroleum Product Storage Areas and Dykes in The North. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. October, 1976. 23 p. EPS-3-EC-76-12.

Rohl, G.E. Organic Linings For Concrete Storage Tanks For Petroleum Fuels. Naval Research Lab., Washington, D.C. May, 1975. 19 p. AD-A010 514/8SL.

Stulov, T.T. et al. Erecting Gas Storage Facilities and Oil Centers. Foreign Technology Division, Wright-Patterson AFB, Ohio. January, 1975. 517 p. AD/A-006 559/9SL.

Survey Study of Techniques To Prevent or Reduce Discharge of Hazardous Chemicals. Battelle Columbus Laboratories, Columbus, Ohio. 84 p. AD-A020 172/3GA.

Thornton, D.E. and P. Blackall. Field Evaluation of Plastic Film Liners For Petroleum Storage Areas In The Mackenzie Delta. Environmental Protection Service, Department of Fisheries and The Environment, Ottawa, Ontario. September, 1976. EPS-3-EC-76-13.

Water Pollution Abatement Technology. Capabilities and Costs, Control of Water Pollution From Selected Nonpoint Sources. Midwest Research Institute, Kansas City, Missouri. 331 p. PB-248 806/2GA.

Water Pollution Abatement Technology: Costs and Capabilities Petroleum Refining Industry. Engineering-Science, Inc., Austin, Texas. June, 1975. 650 p. - in 2 volumes, PB-243-830/7WP NCWQ-75/02.

Ziegler, R.C. Program For Preventing and Eliminating Oil Pollution of The Buffalo River. Cornell Aeronautical Laboratory, Inc., Buffalo, New York. February, 1976. 136 p. PB-249 518/2WP.

Zimmerman, M.D. "Minimizing Oil-Spill Hazards", Machine Design, Vol. 47, No. 11, p. 16.

3.19 REMOTE SENSING OF OIL

Bogorodskii, V.V. et al. "Investigation of Influence of Sea Roughness on Remote-Sensing of Oil Pollution by Active Method". OKEANOLOGIYA. Vol. 15, No. 6. p. 1112-1115.

Buznikov, A.A. et al. "Application of Polarization Effect For Purposes of Remote Detection of Oil Films on Sea Surfaces", Doklady Akademii Nauk SSSR, 1975, Vol. 221, No. 5, p. 1082.

Edgerton, A.T. et al. Development of A Prototype Airborne Oil Surveillance System. Aerojet Electrosystems Co., Azusa, Calif. May, 1975. 327 p. AD-A011 275/5WP.

Eldering, H.G. et al. Detection and Identification of Oil Spills by Remote Fluorometric Systems. Baird-Atomic Incorporated, Bedford, Mass. 158 p. USCG-D-73-75 AD-A010/000.

Eldering, H.G. and W.A. Webb. Optimization and Evaluation of A Fluorescence Oil Spill Detector. Volume 2. Prototype Design. Baird-Atomic Inc., Bedford, Mass. May, 1975. 30 p. AD-A016 464/OWP.

Fantasia, J.F. and H.C. Ingrao. Airborne Laser Remote Sensing System For The Detection and Identification of Oil Spills. Department of Transportation, Washington, D.C. 8 p. PB-249 719/6SL.

Fantasia, J.F. and H.C. Ingrao. The Development of An Experimental Airborne Laser Remote Sensor For Oil Detection and Classification in Spills. Transportation Systems Center, Cambridge, Mass. February, 1975. 164 p. USCG-D-86-75 AD-A013 580/6WP.

Goldman, G.C. and R. Horvath. The Feasibility of Oil-Pollution Detection and Monitoring From Space: Examples Using ERTS-1 and SKYLAB Data. Environmental Research Institute of Michigan, Ann Arbor. August, 1975. 59 p. USCG-D-117-75 AD-A017 098/5WP.

Gross, H.G. Los Angeles Harbor Field Investigation of Oil and Background Luminescence Signatures. McDonnell Douglas Astronautics Company, Huntington Beach, California. May, 1975. 121 p. USCG-D-154-75 AD-A016 466/5WP.

Hollinger, J.P. and J.E. Kenney. "Evaluation of A Passive Microwave Technique For Measurement of Oil Film Thickness In A Test Tank Environment", Report of NRL Progress/U.S. Naval Research Laboratory, June, 1976, p. 21-22.

Horvath, R. Interpretation Manual For The Airborne Remote Sensor System. Environmental Research Institute of Michigan, Ann Arbor. 99 p. USCG-250-44 AD-A019 460/5WP.

Klemas, V. et al. Application of Landsat - 2 To The Management of Delaware's Marine and Wetland Resources. Delaware University, Newark. October, 1975. 7 p.

Klemas, V. et al. Estuarine Density Fronts and Their Effect on Oil Slicks. Delaware University, Newark. July, 1976. 3 p. E76-10441.

Klemas, V. et al. The Influence of Coastal Fronts on The Movement and Dispersion of Oil Slicks. Delaware University, Newark and College of Marine Studies Under NASA Earth Resources Survey Program, January, 1976. 3 p. E76-10223.

Klemas, V. et al. Monitoring Estuarine Circulation and Ocean Waste Dispersion Using An Integrated Satellite-Aircraft-Drogue Approach. Delaware University, Newark. June, 1975. 2 p.

Klemas, V. and D.F. Polis. Remote Sensing of Estuarine Fronts and Their Effects on Pollutants. Delaware University, Newark. 55 p. E76-10475.

Klemas, V. et al. Verification By Remote Sensing of An Oil Slick Movement Prediction Model. Delaware University, College of Marine Studies, Newark and NASA Earth Resources Survey Program, Washington. January, 1976. 3 p. E76-10225.

Mauer, A.T. and A.T. Edgerton. "Flight Evaluation of U.S. Coast Guard Airborne Oil Surveillance System", Journal of The Marine Technology Society, Vol. 10, No. 4, p. 38-52.

Millard, J.P. et al. Development and Test of Video Systems For Airborne Surveillance of Oil Spills. National Aeronautics and Space Administration, Moffett Field, California. March, 1975. 27 p. USCG-D-95-75 AD-A014 499/8WP.

Munday, J.C. Applications of Remote Sensing To Estuarine Problems. Virginia Institute of Marine Science, Gloucester Point, December, 1975. 178 p. NASA-CR-146075, AR-3 N76-15526/6WP.

Rayzer, V.Y. et al. The Thermal Radio Emission of A Contaminated Sea Surface. Kanner Associates, Redwood City, California. May, 1976. 32 p. N76-26716/0SL.

Remote Sensing Applied to Crop Disease Control, Urban Planning, And Monitoring Aquatic Plants, Oil Spills, etc. Texas A & M University, College Station, Remote Sensing Center. February, 1975. 70 p. N75-20799/3SL.

Smith, M.F. Oil Pollution Detection and Sensing (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. July, 1975. 181 p. NTIS/PS-75/595/9WP.

Smith, M.F. Oil Pollution Detection and Sensing (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. September, 1976. 239 p. NTIS/PS-76/0701/3SL.

Webb, W.A. and H.G. Eldering. Optimization and Evaluation of A Fluorescence Oil Spill Detector. Volume 1. Laboratory Measurements and Field Evaluation. Baird-Atomic Inc., Bedford, Massachusetts. May, 1975. 108 p. AD-A016 460/8WP, USCG-D-108-75.

3.20 REPORTS OF ACTIVITIES

Ard, R.W. "Coast Guard's Response To Spilled Oil", Environmental Science and Technology, Vol. 10, No. 3, p. 239-242, March, 1976.

Brugger, J.E. and I. Wilder. A Review of The Environmental Protection Agency's Research Program on The Prevention And Control of Hazardous Material Spills. U.S. Environmental Protection Agency, Edison, N.J. 1975.

Chambers, B. "The United States National Strike Force", Proceedings Of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 77-84.

Hall, P.L. and H. Quam. "Countermeasures To Control Oil Spills in Western Canada", Ground Water, Vol. 14, No. 3, May-June, 1976, p. 163-169.

Landner, L. and A. Hagstroem. "Oil Spill Protection In The Baltic Sea", Journal of The Water Pollution Control Federation, Vol. 47, p. 796-809.

Marine Environmental Protection Program: An Analysis of Mission Performance. United States Coast Guard, Washington, D.C. August, 1975. 27 p. AD-A025 325/2SL.

Menzel, H. "Efforts of The Federal Republic of Germany in Protecting The Marine Environment From Oil Spills", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 21-27.

Report To The Congress On Ocean Pollution, Overfishing, and Offshore Development; July 1973 Through June 1974. National Oceanic and Atmospheric Administration, Washington, D.C. January, 1975. 84 p. COM-75-10509/8SL.

Summary Tabulation of Selected EPA Activities Concerning Toxic Chemicals. Environmental Protection Agency, Washington, D.C. April, 1976. 19 p. PB-253 172/1SL.

3.21 RISK ANALYSIS

Analysis of Risk in Water Transportation of Hazardous Materials.
National Academy of Sciences, Washington, D.C. January, 1976. 119 p.
AD-A025 298/1SL.

An Environmental Risk Index For The Siting of Deep Water Oil Ports.
The Department of Fisheries and The Environment Working Group on East
Coast Deep Water Oil Ports, Department of Fisheries and The Environment,
Ottawa, Ontario. December, 1976. 67 p.

Frenkel, L. and W.T. Hathaway. Risk Analysis Methods For Deepwater
Port Oil Transfer Systems. Transportation Systems Centre, Cambridge,
Massachusetts. June, 1976. 146 p. AD-A029 329/OSL.

Moser, W.A. et al. "Risk Analysis and Oil Spill Expectation For
Deepwater Ports", Proceedings of The Eight Annual Offshore Technology
Conference, Houston, Texas, May 3-6, 1976, Vol. 1, p. 285-291.

Owen, J.J. et al. "Analysis of Relative Pollution Risk and Economics
of Ship Versus Pipeline Transport of OCS Oil To Onshore Terminals",
Proceedings of The Eighth Annual Offshore Technology Conference,
Houston, Texas, May 3-6, 1976, Vol. 3, p. 1091-1104.

A Risk and Cost Analysis of Transporting Southern California Outer
Continental Shelf Oil. Booz-Allen and Hamilton, Inc., Bethesda,
Maryland. July, 1975. 113 p. PB-248 738/7WP.

A Risk and Cost Analysis of Transporting and Storing Gulf of Alaska
Outer Continental Shelf Oil. Booz-Allen and Hamilton, Inc., Bethesda,
Md. January, 1975. 105 p. PB-248 739/5WP.

3.22 SAMPLING/IDENTIFICATION/ANALYSIS OF OIL

Allen, A.A. and L.E. Fausak. Development of Boat and Helicopter Deployable Oil Slick Sampler. United States Coast Guard, Washington, D.C. Office of Research and Development. AD-A010 199/8SL, May, 1975. 54 p.

Baier, R.E. et al. Sampling and Identification of Pollutant Oils In Industrial Watercourses. Calspan Corporation, Buffalo, N.Y. February, 1976: 255 p. EPA/600/2-76/031 PB-249 362/5WP.

Bentz, A.P. Oil Spill Identification Bibliography. Coast Guard Research and Development Center, Groton, Connecticut. March, 1976. 9 p. AD-A029 126/OSL.

Berg, O.W. et al. "Source Identification of Fuel Oil Spills". Proceedings of The 17th Conference on Great Lakes Research, McMaster University, Hamilton, Ontario, August 12-14, 1974. p. 483-492.

Brown, C.W., et al. "Applications of Infrared Spectroscopy in Petroleum Analysis and Oil Spill Identification", Applied Spectroscopy Reviews, Vol. 9, No. 2, p. 223-248.

Chesler, S.N. Trace Hydrocarbon Analysis: The National Bureau of Standards. Prince William Sound/Northeastern Gulf of Alaska Baseline Study. National Bureau of Standards, Washington, D.C. January, 1976. 76 p. NBS-TN-889 PB-249 538/OWP.

Coleman, H.J. et al. Crude Oil Spills Research: An Investigation and Evaluation of Analytical Techniques. U.S. Bureau of Mines, Bartlesville, Oklahoma. Report of Investigations 8024, 1975. 32 p.

Duewer, D.L. et al. "Source Identification of Oil Spills By Pattern-Recognition Analysis of Natural Elemental Composition", Analytical Chemistry, Vol. 47, p. 1573-1583.

Duewer, D.L. et al. Source Identification of Oil Spills By Pattern-Recognition Analysis of Natural Elemental Composition. Washington University, Seattle. February, 1975. 42 p. AD/A-006 471/7SL.

Frankenfeld, J.W. and W. Schulz. Identification of Weathered Oil Films Found in The Marine Environment. Exxon Research and Engineering Co., Linden, N.J. 206 p. USCG-D-107-75 AD-A015 883/2WP.

"GC Helps Trace Oil Spills", Industrial Research, Vol. 18, No. 3, March, 1976, p. C1-C2,C4,C6.

Gedmer, T.J. and R.M. Frey. "Determination of Water In Oil By Fisher, K. Method 3. Study of Bottle Pretreatment, American Laboratory, Vol. 8, No. 7, p. 41.

Green, D.M. "Development of Methods For Identification of Oil Spills", Chemistry and Industry, Vol. 1975, No. 12, p. 499.

Greinke, R.A. and I.C. Lewis. "Development of a Gas Chromatographic-Ultraviolet Absorption Spectrometric Method For Monitoring Petroleum Pitch Volatiles In The Environment", Analytical Chemistry, Vol. 47, No. 13, p. 2151-2155.

Hargrave, B.T. and G.A. Phillips. "Estimates of Oil in Aquatic Sediments by Fluorescence Spectroscopy", Environmental Pollution, Vol. 8, No. 3, (April, 1975), p. 193-215.

Hertz, H.S. et al. Analysis of Microgram/Kg (PPB) Level Hydrocarbons In Intertidal Zone Sediments and Water By Gas Chromatography-Mass Spectrometry. National Bureau of Standards, Washington, D.C. 5 p. PB-257/922/5SL.

Kawahara, F.K. and Y.Y. Yang. "Systems Chemical Analysis of Petroleum Pollutants", Analytical Chemistry, Vol. 48, No. 4, April, 1976, p. 651-655.

Larson, R.A. and J.C. Weston. "Analysis of Water Extracts of Crude Petroleum by Gel Permeation Chromatography", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 1, p. 44-52.

Lehman, E.J. Water Pollution Analysis and Detection. Volume 2.
July 1974 - January 1976 (A Bibliography with Abstracts). National
Technical Information Service, Springfield, Va. January, 1976. 106 p.
NTIS/PS-76 0038/OWP.

May, W.E. et al. "Chromatographic Analysis of Hydrocarbons in Marine
Sediments and Seawater", Journal of Chromatography, Vol. 13,
Nov. 1975, p. 535-540.

Mazmanidi, N.D. et al. "Determination of Sea Water-Soluble Oil
Products and Naphthenic Acids", Okernologiya, Vol. 15, No. 3,
p. 453-457.

"New Lab Methods Identify Oil Spill Origins", World Oil, Vol. 180,
No. 1, p. 111-112, 114.

Peters, A.W. and J.G. Bendoraitis. "High Resolution Mass Spectrographic
Method For Analysis of Nitrogen-Containing and Oxygen-Containing
Material Derived From Petroleum", Analytical Chemistry, 1976,
Vol. 48, p. 968-973.

Pym, J.G. et al. "Petroleum Triterpane Fingerprinting of Crude Oils",
Analytical Chemistry, Vol. 47, No. 9, p. 1617-1622.

Wilson, C.A. et al. Crude Oil Spills Research. An Investigation
And Evaluation of Analytical Techniques. Bureau of Mines, Bartlesville,
Oklahoma. April, 1975. 34 p. PB-242 128/7SL.

Wilson, H.W. "Infrared Evidence of Water Dispersed in Petroleum-
Products", Fuel, Vol. 54, No. 4, p. 296.

3.23 SPILL DYNAMICS/MODELLING

Conomos, T.J. "Movement of Spilled Oil As Predicted By Estuarine Nontidal Drift", Limnology And Oceanography, 1975, Vol. 20, No. 2, p. 159-173.

Fallah, M. et al. "Movement of Spilled Oil At Sea", Marine Technology Society Journal, Vol. 10, No. 1, January, 1976. p. 3-18.

Fallah, M.H. and R.M. Stark. "Probabilistic Approach For Dispersion of Oil at Sea", Ocean Engineering, 1976, Vol. 3, No. 3, p. 145-156.

Fallah, M.H. and R.M. Stark. "Random Drift of An Idealized Oil Patch", Ocean Engineering, Vol. 3, No. 2, March, 1976, p. 83-07.

Hess, K.W. and F.M. White. Modeling The Dispersal of A Marked Fluid in Narragansett Bay. Rhode Island University, Kingston. 37 p. NOAA-75090405 COM-75-11363/9WP.

Klemas, V. et al. Verification By Remote Sensing of An Oil Slick Movement Prediction Model. Delaware University, College of Marine Studies, Newark and Nasa Earth Resources Survey Program, Washington. January, 1976. 3 p. E76-10225.

Lehman, E.J. Water Quality Modelling -- Hydrological and Limnological Systems (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. May, 1975. 218 p. NTIS/PS-75/441/6WP.

Lissauer, I.M. and J.C. Bacon. Predicted Oil Slick Movement From Various Locations Off The New Jersey - Delaware Coastline. Coast Guard Research and Development Center, Groton, Conn. June, 1975. 132 p. USCG-D-137-75 AD-A019 019/9WP.

Lissauer, I.M. and J.P. Welsh. Preliminary Projections of Oil Spill Movement For Three Potential Deepwater Port Sites in The Gulf of Mexico. Coast Guard Research and Development Center, Groton, Conn. December, 1975. 34 p. USCG-D-19-76 AD-A024 331/1WP.

3.24 SORBENTS/OIL SPILL TREATING AGENTS

Baier, R.E. et al. Universal Gelling Agent For The Control of Hazardous Liquid Spills. Environmental Systems Department, Calspan Corporation, Buffalo, N.Y. 14221.

Baier, R.E. et al. "Universal Gelling Agent For The Control of Hazardous Liquid Spills", Journal of Hazardous Materials, Vol. 1, No. 1, p. 21-33.

Bauer, W.H. et al. Agents, Methods and Devices For Amelioration of Discharges of Hazardous Chemicals on Water. Rensselaer Polytechnic Institute, Troy, N.Y. August, 1975. 284 p. USCG-D-38-76 AD-A024 221/4WP.

Dawson, G.W. Treatment of Hazardous Materials Spills in Flowing Streams with Floating Mass Transfer Agents. Batelle-Northwest Laboratories, Richland, Washington. April, 1975.

Dick, J.G. and A. Feldman. Efficiency and Retentivity Testing And Performance of Sinking Agents in The Removal of Oil Spills. Environmental Emergency Branch, Ottawa, Ontario. 59 p. EPS-3-EC-75-1.

Meenaghan, G.F. et al. "Cotton - The Natural Sorbent For Combating Oil Pollution", Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 945-958.

"New System Absorbs Oil Spills", Naval Research Reviews, Vol. 29, No. 1, p. 26-27.

Selection Criteria and Laboratory Evaluation of Oil Spill Sorbents. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. April, 1976. 53 p. EPS-4-EC-76-5.

Miller, M.C. et al. A Computer Simulation Technique For Oil Spills
Off The New Jersey-Delaware Coastline. Coast Guard Research and
Development Center, Groton, Conn. September, 1975. 50 p.
USCG-D-171-75 AD-A018 947/2WP.

Murray, S.P. Wind and Current Effects on Large-Scale Oil Slicks.
Louisiana State University, Baton Rouge. September, 1975. 14 p.
AD-A012 582/3WP.

4.0 ALPHABETICAL LISTING OF REFERENCES

Adams, W.A. Light Intensity and Primary Productivity Under Sea Ice Containing Oil. Beaufort Sea Technical Report #29. Department of The Environment, Victoria, B.C. December, 1975. 156 p.

Adamson, W.L. and M.W. Titus. Separation of Oil in Bilge Water by Semipermeable Membrane. Naval Ship Research and Development Laboratory, Annapolis, Md. 27 p. AD-A023 289/2WP.

Ahern, D.G., et al. Impact of The Use of Microorganisms on the Aquatic Environment. Environmental Protection Agency, Ecology Research Series. January 1975. 256 p. EPA 66013 75-001.

Alberts, D.A. and C. Park. "Organization Necessary for Minimizing the Damaging Effects of a Major Oil Spill", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976. p. 27-40.

Allen, A.A., and L.E. Fausak. Development of Boat and Helicopter Deployable Oil Slick Sampler. United States Coast Guard, Washington, D.C. Office of Research and Development. May 1975. 54 p. AD-A010 199/8SL.

Analysis of Pollution From Marine Engines and Effects on The Environment. Summary Report. Boating Industry Associations, Chicago, Illinois, and National Environmental Research Centre, Cincinnati, Ohio. June 1975. 70 p. PB-242 177/4SL.

Analysis of Risk in Water Transportation of Hazardous Materials. National Academy of Sciences, Washington, D.C. January, 1976. 119 p. AD-A025 298/1SL.

Anderson, A.W. and W.K. Bissell. International Cooperation for The Prevention of Marine Oil Pollution. Ocean and Coastal Law Program. Miami University, Florida. September, 1975. 154 p. PB-253 970/8SL.

Antonelli, J. Updating The Navy Environmental Protection Data Base to Incorporate Oil Spill Clean-up Performance. Naval Postgraduate School, Monterey, California. June 1975. 70 p. AD-A012 663/1SL.

Antonova, N.M. et al. "Method for Determination of Dispersive Capacity of Preparations Used for Removing Oil from Water Surface", OKEANOLOGIYA, 1975, Vol. 15, p. 333-337.

Ard, R.W. "Coast Guard's Response To Spilled Oil", Environmental Science and Technology, March, 1976. Vol. 10, No. 3, p. 239-242.

Ard, R. et al. "System Model Development of Two Fast Current Oil Removal Systems", proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 857-865.

Ardern, R.J. "No Slick Answers - Library Resources to Serve Offshore Oil Industry", ASLIB PROCEEDINGS 1975, Vol. 27, p. 173-184.

Atlas, R.M., et al. "Effects of Petroleum Pollutants on Arctic Microbial Populations", ENVIRONMENTAL POLLUTION, Vol. 10, Jan. 1976. p. 35-43.

Atlas, R. M. Fate and Effects of Oil Pollutants in Extremely Cold Marine Environment. Louisville University, Kentucky. December 1975. 42 p. AD-A018 711/2WP.

Ayres, R.R., et al. A Zero - Relative - Velocity Belt Skimmer. Shell Development Co., Houston, Texas. United States Coast Guard, USCG-D-116-75. April 1975. 250 p. AD-A014 497/2WP.

Baier, R.E. et al. "Universal Gelling Agent for the Control of Hazardous Liquid Spills", Journal of Hazardous Materials, Vol. 1, No. 1, p. 21-33.

Baier, R.E. et al. Universal Gelling Agent for The Control of Hazardous Liquid Spills. Environmental Systems Department, Calspan Corporation, Buffalo, N.Y. 14221.

Baier, R.E. et al. Sampling and Identification of Pollutant Oils in Industrial Watercourses. Calspan Corporation, Buffalo, N.Y. February 1976. 255 p. EPA/600/2-76/031 PB-249 362/5WP.

Ball, J. et al. Management of Tank Washings in Marine and Coastal Commerce. Texas A & M University, College Station. February 1975. 85 p. TAMU-SG-74-221, NOAA-75072201, COM-75-11087/4WP.

Barton, H.B. "Environmental Conservation in Offshore Petroleum Operations", World Energy Conference - 9th - Transactions, Papers and Discussions, Detroit, Michigan, 1974, V4, p. 446-467. (Published by U.S. National Committee of The World Energy Conference, New York, N.Y. - 1975).

Bartha, R. Biodegradation of Oil on Water Surfaces. Department of The Navy, Washington, D.C. March 1975. 13 p. AD-D000 722/9SL.

Bass, R.L. et al. Bulk Carrier Operations Safety Enhancement Project Phase I. Southwest Research Institute, San Antonio, Texas. June, 1976. 237 p. PB-256 188/4SL.

Batutis, E. and F. Calello. Shipboard Oil-in-Water Content Monitor Based on Small Angle Forward Light Scattering. General Electric Co., Philadelphia, Pa. December 1975. 185 p. USCG-D-35-76 AD-A022 895/7WP.

Batutis, E. et al. A Study of the Effects of Detergents on Typical Bilge Waters and Correlation of Oil Particle Sizes. General Electric Co., Philadelphia, Pa. July 1975. 222 p. USCG-D-177-75 AD-A020 172/3WP.

Bauer, W.H. et al. Agents, Methods and Devices for Amelioration of Discharges of Hazardous Chemicals on Water. Rensselaer Polytechnic Institute, Troy, N.Y. August 1975. 284 p. USCG-D-38-76 AD-A024 221/4WP.

Beach, R.L. and F.A. March. Development of a Streaming Fiber Oil Spill Control Concept. Seaward Inc., Falls Church, Virginia. March 1975. 95 p. USCG-D-35-75 AD-A014 494/9WP.

Benzhitskii, A.G. and G.G. Polikarpov. "Distribution of Oil Aggregates in Surface-Layer of Mediterranean Sea in April - June, 1974". OKEANOLOGIYA. 1976, Vol. 16, No. 1. p. 87-90.

Bentz, A.P. Oil Spill Identification Bibliography. Coast Guard Research and Development Center, Groton, Connecticut. March 1976. 9 p. AD-A029 126/OSL.

Berezhkovskii, M.I. Storage and Transportation of Chemical Products. Foreign Technology Division, Wright-Patterson AFB, Ohio. 400 p. AD-A006 729.

Berg, O.W. et al. "Source Identification of Fuel Oil Spills". Proceedings of the 17th Conference on Great Lakes Research, McMaster University, Hamilton, Ontario, August 12-14, 1974, p. 483-492.

Berry, M.O. et al. Weather, Waves and Icing in The Beaufort Sea. Beaufort Sea Technical Report No. 21. Department of The Environment, Victoria, B.C. December 1975.

Berto, F.J. "Oil-in-Water Monitoring Aboard Tankers", American Chemical Society, Abstracts of Papers, Vol. 172, sep 3, p. 96.

Biological and Ecological Effects of Oil Pollution in Tropical Waters. An Annotated Bibliography. Smithsonian Institute, Washington, D.C. July 1973. 72 p. PB-248 899/7WP.

Birkeland, C. et al. Survey of Marine Communities in Panama and Experiments with Oil. Smithsonian Tropical Research Inst., Balboa, Canal Zone. May 1976. 191 p. EPA/600/3-76/028 PB-253 409/7WP.

Bitting, K.R. High Seas Oil Containment Barrier Mooring System. Coast Guard Research and Development Centre, Groton, Connecticut. July 1975. 128 p. CGR/DC-14/75 USCG-D-176-75 AD-A020 980/9WP

Blakebrough, W. et al. "Aerobic Degradation of Hydrocarbons in Soil - Significance of an Initial Rise in Oxygen - uptake Rate Following Contamination with Oil", Journal of Applied Chemistry & Biotechnology, Vol. 26, No. 10, p. 550-558.

Blasko, D.P. "Occurrences of Oil and Gas Seeps Along The Gulf of Alaska", Proceedings of The Eighth Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 1, p. 211-220.

Blasko, D.P. Oil and Gas Seeps in Alaska. Alaska Peninsula Western Gulf of Alaska. Bureau of Mines, Anchorage, Alaska. April 1976. 85 p. PB-253 013/7WP.

Blockwick, T.N. and R.J. Smith. Redesign, Fabrication and Test of A 1000 - GPM High Seas Oil Recovery System and Design only of a 500 - GPM High Seas Oil Recovery. Ocean Systems Inc., Reston, Va. June 1975. 117 p. USCG-D-182-75 AD-A023 534/1WP.

Blumer, M. et al. "Oil Spills", Energy and Human Welfare, - A Critical Analysis: Selection of Papers on Sociology, Technology, and Environmental Problems of Electrical Power Consumption, Vol. 1.

Blumer, M. and W.W. Youngblood. "Polycyclic Aromatic Hydrocarbons in Soils and Recent Sediments", Science, Vol. 188, 4 April 1975, p. 53-55.

Blunck, G.J. "Marine Pollution Prevention in the International Oil Industry", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 65-76.

Bock, Ditmar H., and Elmer H. Eckert. Detection of Oil in Sewers. Environmental Protection Agency, February 1976. 34 p. EPA/600/2-76/027 PB-249 359/1WP.

Boehm, P.D. and J.G. Quinn. "Effect of Dissolved Organic - Matter in Sea-Water on Uptake of Mixed Individual Hydrocarbons and Number 2 Fuel Oil by a Marine Filter - Feeding Bivalve (*Mercenaria mercenaria*)", Estuarine and Coastal Marine Science, Vol. 4, No. 1, p. 93-105.

Bogorodskii, V.V. et al. "Investigation of Influence of Sea Roughness on Remote - Sensing of Oil Pollution by Active Method", OKEANOLOGIYA. Vol. 15, No.6, p. 1112-1115.

Bordeaux, J. Shipboard Oil-In-Water Monitor. Beckman Instruments Incorporated, Anaheim, California. July 1976. 57 p. AD-A028 785/4SL.

Bornhold, B.D. Suspended Matter in The Southern Beaufort Sea. Beaufort Sea Technical Report #25b. Department of The Environment, Victoria, B.C. December 1975. 30 p.

Borodavkin, P.P. and B.I. Kim. "Optimization of Projects in Construction of Main Pipelines and Petroleum - Product Pipes with Consideration of Environmental - Protection", NEFTYNOE KHOZYAISTVO, Vol. 1976, No. 10, p. 42-44

Brown, C.W., et al. "Applications of Infrared Spectroscopy in Petroleum Analysis and Oil Spill Identification", Applied Spectroscopy Reviews, Vol. 9, No. 2, p. 223-248.

Brown, R.A. et al. Measurement of Volatile and Nonvolatile Hydrocarbons in Selected Areas of The Atlantic Ocean. Exxon Research and Engineering Co., Linden, N.J. June 1975. 45 p. MA-RD-920-75063 COM-75-11112/OWP.

Brown, R.A. and T.D. Searl. "Nonvolatile Hydrocarbons Along Tanker Routes of The Pacific Ocean", Proceedings of The Eighth Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, p. 259-274.

Brown, R.F. "The Interaction of Crude Oil with Arctic Sea Ice", International Conference on Port and Ocean Engineering, August 1975.

Brown, R.J. Ocean Law (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. October, 1976. 236 p. NTIS/PS-76/0834/2SL.

Brown, R.J. Ocean Law (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. September 1975. 168 p. NTIS/PS-75/712/OWP.

Brown, R.J. Permafrost Engineering (Citations From Engineering Index). National Technical Information Service, Springfield, Virginia. February 1976. 176 p. NTIS/PS-76/0071/1SL.

Brugger, J.E. and I. Wilder. A Review of The Environmental Protection Agency's Research Program on The Prevention and Control of Hazardous Material Spills. U.S. Environmental Protection Agency, Edison, N.J. 1975.

Brunner, D.E. Materials for Oil Spill Containment Boom. Navy Civil Engineering Lab, Port Hueneme, California. June 1976. 32 p. AD-A026 139/6SL.

Buell, J.W. and V.W. Kaczynski. Baseline Study Program, North Puget Sound. Biological Oil Impact Literature Review. Volume 11. Bibliography. Beak Consultants, Inc., Portland, Oregon. October 1975. 467 p. PB-254 292/6WP.

Bunch, J.N. and R.C. Harland. Biodegradation of Crude Petroleum by The Indigenous Microbial Flora of The Beaufort Sea. Beaufort Sea Technical Report No. 10. Department of the Environment, Victoria, B.C. March 1976. 52 p.

Burk, C.J. A Four-Year Analysis of Vegetation Following an Oil Spill In A Fresh Water Marsh. Massachusetts University, Amherst. June, 1976. 46 p. PB-258 766/5SL.

Button, D.K. Arctic Oil Biodegradation. Alaska University College, Alaska. 43 p. USCG-D-114-75 AD-A014 096/2WP.

Buznikov, A.A. et al. "Application of Polarization Effect for Purposes of Remote Detection of Oil Films on Sea Surfaces", Doklady Akademii Nauk SSSR, 1975, Vol. 221, No. 5, p. 1082.

"Calm and Practical Restoration Shows Oil Spills Do Not Impair Soil Permanently", Oilweek, Vol. 27, No. 1, February 16, 1976, p. 100

Canevari, G.P. "Recent Developments in the Chemical Treatment of Oil Spills", Proceeding of The International Oil Pollution Conference, Hamburg, Germany, 1976. p. 5-21.

Carpenter, C.P. et al. "Petroleum Hydrocarbon Toxicity Studies. I. Methodology", Toxicology and Applied Pharmacology, 1975, Vol. 32, p. 246-262.

Castaldi, G. and W.J. Powl. Crude Washing Guidelines. Exxon International Co., New York. April 1975. 25 p. MA-RD-930-76012 COM-75-11428/OWP.

Cavanaugh, E.C. et al. Environmental Problem Definition for Petroleum Refineries, Synthetic Natural Gas Plants, and Liquefied Natural Gas Plants. U.S. Environmental Protection Agency, Washington, D.C. March 1975.

Chambers, B. "The United States National Strike Force", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 77-84.

Chang, W.J. Tests of Coast Guard Developed High Seas Oil Recovery Systems at EPA OHMSETT. U.S. Coast Guard, Washington, D.C. June 1975. 129 p. USCG-D-101-75 AD-A014 495/6WP

Chen, E.C. and B.F. Scott. "Aging Characteristics of Crude Oil on Ice", Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions, University of Alaska, Fairbanks, 1975.

Chen, E.C. et al. "Behavior of Crude Oil Under Fresh-Water Ice", Journal of Canadian Petroleum Technology. Vol. 15, No. 2, p. 79-83

Chen, E.C. et al. Behavior of Oil Spilled in Ice-Covered Rivers. Inland Waters Directorate, Department of The Environment, Ottawa, Ontario. No. 61.

Chen, E.C. "Influence of Freezing-Thawing on The Stability of Crude Oil - In Water Emulsions", Journal of Canadian Petroleum Technology, Vol. 14, No. 2, p. 38-41.

Chen, E.C. et al. "Spreading of Crude Oil on An Ice Surface", Canadian Journal of Chemical Engineering, Vol. 52, February 1974.

Chesler, S.N. Trace Hydrocarbon Analysis: The National Bureau of Standards. Prince William Sound/Northeastern Gulf of Alaska Baseline Study. National Bureau of Standards, Washington, D.C. January 1976. 76 p. NBS-TN-889 PB-249 538/OWP.

Ciccone, V.J. and A.P. Graves. Study to Evaluate Intensity of and Alternative Methods for Neutralization of DOD Aircraft Fuel Spills. DOD Aircraft Ground Fire Suppression and Rescue Office, Wright-Patterson AFB, Ohio. February 1976. 93 p. AD-A025 937/4SL.

Clarke, A. and P.A. Prince. "Origin of Stomach Oil in Marine Birds - Analyses of Stomach Oil from 6 Species of Sub Antarctic Procellariiform Birds", Journal of Experimental Marine Biology and Ecology, Vol. 23, No. 1, p. 15-30.

Clodman, J. and F.B. Muller. Real-Time Environmental Prediction System. Beaufort Sea Technical Report No. 20. Department of The Environment, Victoria, B.C. December 1975. 138 p.

Coleman, H.J. et al. Crude Oil Spills Research: An Investigation and Evaluation of Analytical Techniques. U.S. Bureau of Mines, Bartlesville, Oklahoma. Report of Investigations 8024, 1975. 32 p.

Collins, D.J. et al. "Analysis of An Emulsified Oil Slick", proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 889-899.

Conomos, T.J. "Movement of Spilled Oil As Predicted by Estuarine Nontidal Drift", Limnology and Oceanography, 1975, Vol. 20, No. 2, p. 159-173.

Cook, R.C. Economic Effects of Enforcement Variables on Commercial Oil Pollution Control Strategy. Naval Postgraduate School, Monterey, California. September 1975. 91 p. AD-A016 442/6WP.

Cooke, B. "Slick Solutions to Oily Water Separation", Process Engineering, Vol. 1976, October, p. 73-74.

Cooper, P.F. Movement and Deformation of The Landfast Ice of The Southern Beaufort Sea. Beaufort Sea Technical Report No. 37.
Department of the Environment, Victoria, B.C. December 1975. 16 p.

Coupal, B. Report on Controlled Combustion Tests Carried Out Near Rimouski. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. March, 1976. 15 p. EPS-4-EC-76-2.

Culley, D.D. and L.H. Knieper. "The Effects of Crude Oil on the Palatability of Marine Crustaceans", Progressive Fish Culturist, Vol. 37, No. 1, p.p. 9-14.

Dalessandro, P.L. and C.B. Cobb. "Oil Spill Control 2. Counter Measures", Hydrocarbon Processing, Vol. 55, No. 3, p. 145-148.

Dastillung, M. and P. Albrecht. "Molecular Test for Oil Pollution in Surface Sediments", Marine Pollution Bulletin, Vol. 7, No. 1, p. 13-15.

Davies, K.F. Mackenzie River Input to The Beaufort Sea. Beaufort Sea Technical Report No. 15. Department of The Environment, Victoria, B.C. December 1975. 72 p.

Dawson, G.W. Treatment of Hazardous Materials Spills in Flowing Streams with Floating Mass Transfer Agents. Batelle-Northwest Laboratories, Richland, Washington. April 1975.

Der, J.J. Improved Dynamic Inclined Plane Endless Belt Laminar Oil Collector. Department of The Navy, Washington, D.C. October 1975. 13 p. AD-D001 932/3SL.

Derailment of Tank Cars with Subsequent Fire and Explosion on Chicago, Rock Island and Pacific Railroad Company Near Des Moines. National Transportation Safety Board, Washington, D.C. June 1976. 22 p. PB-256 592/7SL.

Detection of Oil in Sewers. Calspan Corp., Buffalo, N.Y. 34 p. PB-249 359/IGA.

Development and Preliminary Design of an Experimental Prototype Free Vortex Oil Skimmer. Scientific Associates, Inc., Santa Monica, California. 95 p. AD-A020 174/9GA.

DeWitt, F.A. and P. Melvin. Oil Spill and Oil Pollution Reports, February 1975 - April 1975. California University, Santa Barbara, June 1975. 248 p. PB-243 724/2ST.

DeWitt, F.A. and P. Melvin. Oil Spill and Oil Pollution Reports, November 1974 - February 1975. California University, Santa Barbara. 271 p. PB-242 542/9WP.

Dibble, J.T. and R. Bartha. "Effect of Iron on Biodegradation of Petroleum in Seawater", Applied and Environmental Microbiology, 1976. Vol. 31, No. 4, p. 544-550.

Dick, J.G. and A. Feldman. Efficiency and Retentivity Testing and Performance of Sinking Agents in The Removal of Oil Spills. Environmental Emergency Branch, Ottawa, Ontario. 59 p. EPS-3-EC-75-1.

DiSalvo, L.H. and H.E. Guard. Hydrocarbons Associated with Suspended Particulate Matter in San Francisco Bay Waters. Naval Biomedical Research Lab., Oakland, California. 5 p. AD-A011 342/3WP.

Disposal of Air Force Liquid Wastes. Combustion Power Company Inc., Menlo Park, California and Air Force Weapons Laboratory, Kirtland AFB, New Mexico. April 1975. 143 p. AD-A010 429/9SL.

Duerden, F.C. Spill in Portugal - A Report of The JAKOB MAERSK Incident Environmental Protection Service, Department of The Environment, Ottawa, Ontario. January, 1976. 32 p. EPS-8-EC-76-1.

Duewer, D.L. et al. "Source Identification of Oil Spills By Pattern - Recognition Analysis of Natural Elemental Composition", Analytical Chemistry, Vol. 47, p. 1573-1583.

Duewer, D.L. et al. Source Identification of Oil Spills By Pattern - Recognition Analysis of Natural Elemental Composition. Washington University, Seattle. February 1975. 42 p. AD/A-006 471/7SL.

Dunstan, W.M. et al. Simulation and Inhibition of Phytoplankton By Low Molecular Weight Hydrocarbons. Skidaway Institute of Oceanography, Savannah, Georgia. April 1975. 7 p. PB-248 697/5SL.

An Ecological Approach to The Problem of Biodegradation of Phenolic Wastes. Trinity University, San Antonio, Texas. 38 p. AD-A020 758/9GA.

Edgerton, A.T. et al. Development of a Prototype Airborne Oil Surveillance System. Aerojet Electrosystems Co., Azusa, California. May 1975. 327 p. AD-A011 275/5WP.

Eisenberg, N.A. et al. Vulnerability Model. A Simulation System for Assessing Damage Resulting From Marine Spills. Enviro Control Inc., Rockville, Md. June 1975. 354 p. USCG-D-136-75 AD-A015 245/4WP.

Eisler, R. and G.W. Kissil. "Toxicities of Crude Oils and Oil - Dispersant Mixtures to Juvenile Rabbitfish, Siganus rivulatus", Transactions of The American Fisheries Society, 1975, Vol. 104, No. 3, p. 571-578.

Eldering, H.G. and W.A. Webb. Optimization and Evaluation of A Fluorescence Oil Spill Detector. Volume 2. Prototype Design. Baird-Atomic Inc., Bedford, Mass. May 1975. 30 p. AD-A016 464/OWP.

Eldering, Herman G., et al. Detection and Identification of Oil Spills by Remote Fluorometric Systems. Baird-Atomic Incorporated, Bedford, Mass. 158 p. USCG-D-73-75 AD-A010/000.

Elgershuizen, J. and H. Dekruijf. "Toxicity of Crude Oils and A Dispersant to Stony Coral Madracis mirabilis", Marine Pollution Bulletin, Vol. 7, No. 2, p. 22-25.

Environmental Assessment of The Alaskan Continental Shelf. Volume 1. Marine Mammals. National Oceanic and Atmospheric Administration, Washington, D.C. 1975. 97 p. PB-248 932/6WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 2. Marine Birds. National Oceanic and Atmospheric Administration, Washington, D.C. 1975. 152 p. NOAA-75122902 PB-248 933/4WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 3. Fish, Plankton, Benthos, and Littoral. National Oceanic and Atmospheric Administration, Washington, D.C. 1975. 186 p. NOAA-75122903 PB-248 934/2WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 4.
Effects of Contaminants. National Oceanic and Atmospheric Administration,
Washington, D.C. 1975. 72 p. NOAA-75122904 PB-248 935/9WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 5.
Chemistry and Microbiology. National Oceanic and Atmospheric
Administration, Washington, D.C. PB 248 936/7SL.

Environmental Assessment of The Alaskan Continental Shelf. Volume 6.
Physical Oceanography and Meteorology. National Oceanic and Atmospheric
Administration. Washington, D.C. 1975. 127 p. NOAA-75122906
PB-248 937/5WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 7.
Geology. National Oceanic and Atmospheric Administration, Washington,
D.C. 1975. 121 p. NOAA-75122907 PB-248 938/3WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 8.
Sea Ice. National Oceanic and Atmospheric Administration. Washington,
D.C. 112 p. NOAA-75122908 PB-248 939/1WP.

Environmental Assessment of The Alaskan Continental Shelf. Volume 9.
Management/Data Management. National Oceanic and Atmospheric
Administration, Washington, D.C. 1975. 20 p. NOAA-75122909
PB-248 940/9WP.

Environmental Consequences of On-Shore Activity in Four New Jersey
Coastal Counties Resulting From Off-Shore Oil Development.
Environmental Protection Agency, Washington, D.C. 46 p. PB-249
349/2GA.

Environmental Effects of Oil and Salt Water Spills on Land. Alberta
Environment Research Secretariat, Edmonton, Alberta. November, 1975.

Environmental Effects of Schuylkill Oil Spill II. June 1972.
Division of Oil and Special Materials Control, Office of Water Program
Operations, U.S. Environmental Protection Agency, Washington, D.C.,
December 1975. PB-258 412/6SL.

An Environmental Risk Index For The Siting of Deep Water Oil Ports. The
Department of Fisheries and the Environment Working Group on East Coast
Deep Water Oil Ports, Department of Fisheries and the Environment, Ottawa,
Ontario. December, 1976. 67 p.

Evaluation of A Pneumatic Barrier for Oil Containment. Calspan Corp., Buffalo, N.Y. 77 p. PB-249 361/7GA.

Explosion and Fire on Board the Unmanned Tank Barge OCEAN 80 at Carteret, New Jersey on 25 October, 1972 without Loss of Life. United States Coast Guard, Washington, D.C. May 1975. 30 p. AD - A011/033.

Fallah, M. et al. "Movement of Spilled Oil at Sea", Marine Technology Society Journal, Vol. 10, No. 1, January 1976, p. 3-18.

Fallah, M.H. and R.M. Stark. "Probabilistic Approach for Dispersion of Oil at Sea", Ocean Engineering, 1976, Vol. 3, No. 3, p. 145-156.

Fallah, M.H. and R.M. Stark. "Probabilistic Model for Dispersive Oil Looses Beneath Oil Booms", Ocean Engineering, Vol. 3, No. 6, p. 383-390.

Fallah, M.H. and R.M. Stark. "Random Drift of an Idealized Oil Patch", Ocean Engineering, Vol. 3, No. 2, March 1976, p. 83-97.

Fantasia, J.F. and H.C. Ingrao. Airborne Laser Remote Sensing System for The Detection and Identification of Oil Spills. Department of Transportation, Washington, D.C. 8 p. PB-249 719/6SL.

Fantasia, J.F. and H.C. Ingrao. The Development of an Experimental Airborne Laser Remote Sensor for Oil Detection and Classification in Spills. Transportation Systems Center, Cambridge, Mass. February 1975. 164 p. USCG-D-86-75 AD-A013 580/6WP.

Fasoli, U. et al. "Continuous Radial Filtration in the Purification of Oily Water", Water Research, Vol. 10, No. 7, p. 633-635.

Feder, H.M. et al. The Sediment Environment of Port Valdez, Alaska: The Effect of Oil on This Ecosystem. Alaska University, College. July 1976. 347 p. PB-259 972/8SL.

Field Detection and Damage Assessment for Oil and Hazardous Material Spills. Environmental Protection Agency, Washington, D.C. (Division of Oil and Hazardous Materials), June 1972. 222 p. PB-245 789/3WP.

Fontana, M. "Aspect of Coastal Pollution - Combined Effect of Detergent and Oil at Sea on Sea Spray Composition", Water, Air and Soil Pollution, Vol. 5, No. 3, p. 269-280.

Forester, R.L. et al. Port Collection and Separation Facilities for Oily Wastes. Volume VI. Impact of Offshore Terminals on Contiguous Ports. Harris Inc., New York. March 1975. 89 p. COM-75-10765/6WP.

Frankenfeld, J.W. and W. Schulz. Identification of Weathered Oil Films Found in the Marine Environment. Exxon Research and Engineering Co., Linden, N.J. 206 p. USCG-D-107-75 AD-A015 883/2WP.

Frankenfeld, J.W. et al. Toxic Effects of Oil Discharged from Ships. Exxon Research and Engineering Co., Linden, N.J. December 1975. 142 p. USCG-D-16-76 AD-A022 902/1WP.

Fraser, J.P. and R.A. Cochran. "Computer Simulation Aids Oil-Spill Clean-Up Decisions", Oil and Gas Journal, March 8, 1976.

Frenkel, L. and W.T. Hathaway. Risk Analysis Methods for Deepwater Port Oil Transfer Systems. Transportation Systems Centre, Cambridge, Massachusetts. June, 1976. 146 p. AD-A029 329/OSL.

Frye, J. "Liberian Tanker Spills Bunker C in Bantry Bay", National Fisherman, 55(11), 1975, p. 11-B, 15-B.

Fulleylove, R.J. "Oil Spills and The Offshore Oil Industry", 1975 European Offshore Conference, Aberdeen, Scotland, September 16-19, 1975. Proceedings Published by Spearhead Publishing Ltd., Aberdeen, Scotland.

Garg, S.C. Evaluation of Utility Equipment For Harbor Oil Spill Removal/Recovery Systems. U.S. Navy Civil Engineering Lab., Port Hueneme, California. June 1976. 116 p. AD-A026 252/7SL.

"GC Helps Trace Oil Spills", Industrial Research, Vol. 18, No. 3, March 1976, p. C1-C2, C4, C6.

Gedemer, T.J. and R.M. Frey. "Determination of Water in Oil by Fisher, K Method 3. Study of Bottle Pretreatment", American Laboratory, Vol. 8, No. 7, p. 41.

Getman, J.H. et al. "Tests of Oil Recovery Devices in Ice Covered Waters". Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions. University of Alaska, Fairbanks.

Ghosh, M.M. and W.P. Brown. "Oil Removal by Carbon-Metal Granular Beds", Journal of The Water Pollution Control Federation, Vol. 47, p. 2101.

Gibbs, C.F. "Continuously Recording Polarographic Respirometer and Its Use in Oil Biodegradation Studies", Water Research, Vol. 10, No. 5, p. 443-451.

Gillespie, R.J. and C.R. Phillips. "Treatment of Oily Wastes from Ships", Marine Technology Society Journal, Vol. 10, No. 5, p. 19-26.

Goedjen, H. "Oil-Pipeline-Spillages - Their Consequences and Measures for Prevention and Removal", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 41-64.

Goldman, G.C. and R. Horvath. The Feasibility of Oil-Pollution Detection and Monitoring from Space: Examples Using ERTS-1 and SKYLAB DATA. Environmental Research Institute of Michigan, Ann Arbor. August 1975. 59 p. USCG-D-117-75 AD-A017 098/5WP.

Gongaware, W.R. Improvement of an Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. June 1976. 98 p. AD-A027 237/7SL.

Goodson, L.H. et al. Development of Buoy Mounted Hydrocarbon Vapor Sensors for Use in Local Area Pollution Surveillance System. Midwest Research Institute, Kansas City, Missouri. July 1975. 112 p.
USCG-D-10-76 AD-A022 855/1WP.

Grace, John M. Evaluation of A Pneumatic Barrier For Oil Containment. Calspan Corporation, Buffalo, N.Y. February 1976. 77 p.
EPA/600/2-76/030 PB-249 361/7WP.

Graebel, W.P. and V.A. Phelps. Fast Current Oil Response Systems Tests on Phase I Concepts. Michigan University, Ann Arbor and United States Coast Guard. April 1975. 319 p. AD-A022 928/6SL.

Graham, D.E. et al. "Technique For Measuring Interfacial Concentrations of Surfactants at Oil-Water Interface", Journal of Physics. Part E. Scientific Instruments, Vol. 8, No. 8, p. 696-699.

Grainger, E.H. Biological Productivity of The Southern Beaufort Sea: The Physical-Chemical Environment and The Plankton. Department of The Environment, Victoria, B.C. December 1975. 82 p.

Gram, H.R. Petroleum Oil Detection Buoy System. Spectrogram Corporation, North Haven, Conn. March 1975. 37 p. AD-A016 461/6WP.

Green, D.M. "Development of Methods for Identification of Oil Spills", Chemistry and Industry, Vol. 1975, No. 12, p. 499.

Green, G. et al. "Clean-Up After Territorial Oil Spills in Arctic", Arctic, Vol. 28, No. 2, p. 140-142.

Greinke, R.A. and I.C. Lewis. "Development of a Gas Chromatographic-Ultraviolet Absorption Spectrometric Method For Monitoring Petroleum Pitch Volatiles In The Environment", Analytical Chemistry, Vol. 47, No. 13, p. 2151-2155.

Griffiths, R.A. "Performance Tests of Off-The-Shelf Oil Skimmers", proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 917-930.

Grounding of The SS Hillyer Brown at Cold Bay, Alaska on 7 March 1973 without Loss Of Life. U.S. Coast Guard, Washington, D.C. and National Transportation Safety Board, Washington, D.C. January 1975. 37 p. AD-A007 432/8SL.

Gross, H.G. Los Angeles Harbor Field Investigation of Oil and Background Luminescence Signatures. McDonnell Douglas Astronautics Company, Huntington Beach, California. May 1975. 121 p. USCG-D-154-75 AD-A016 466/5WP.

Grutsch, J.F. and R.C. Mallatt. "Optimize The Effluent System - 2." Hydrocarbon Process, Vol. 55, No. 4, April 1976, p. 213-218.

Guard, H.E. et al. Identification and Potential Biological Effects of The Major Components in The Seawater Extract of a Bunker Fuel. California University, Berkeley. 6 p. AD-A018 812/8WP. (also published in: Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 4, p. 395-400).

Gumtz, G.D. and E.J. Martin. Preliminary Design of A Comprehensive Waste Oil Processing Facility. Maryland Environmental Service, Annapolis, Md. May 1975. 142 p. EPA/670/2-75-056 PB-242 461/2WP.

Guzdar, A.R. et al. Development of A Centrifugal System for Separation of Oil and Solids From Shipboard Discharge Water. Foster-Miller Associates Inc., Waltham, Mass. July 1975. 109 p. USCG-D-118-75 AD-A014 045/9WP.

Guzdar, A.R. et al. Assembly and Testing of The Mark I Shipboard Separator System. Foster-Miller Associates Inc., Waltham, Mass. December 1975. 67 p. AD-A025 948/1SL.

Habercom, G.E. Supertankers and Superports (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. June 1975. 86 p. NTIS/PS-75/510/8WP.

Habercom, G.E. Offshore Drilling (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. July 1975. 121 p. NTIS/PS-75/540/5WP.

Haderman, A.F. and J.H. Bochinski. Shipboard Oil-in-Water Content Monitor Based on Light-Scattering at 45 deg., 90 deg., and 135 deg. and Turbidity at 0 deg. Enviro Control Inc., Rockville, Md. January 1976. 169 p. USCG-D-25-76 AD-A023 839/4WP.

Hall, P.L. and H. Quam. "Countermeasures to Control Oil Spills in Western Canada", Ground Water, Vol. 14, No. 3, May - June 1976, p. 163-169.

"Handling Offshore Oil Boom", Mechanical Handling International, 1975 Vol. 62, No. 1, p. 37.

Hann, Jr. R.W. Follow-Up Field Survey of the Oil Pollution from the Tanker "METULA". Texas A and M Research Foundation College Station January 1975. 59 p. USCG-D-166-75 AD-A017 100/9WP

Hargrave, B.T. and G.A. Phillips. "Estimates of Oil In Aquatic Sediments by Fluorescence Spectroscopy", Environmental Pollution, Vol. 8, No. 3 (April 1975), p. 193-215.

Harrison, E.A. Biodeterioration of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. January 1976. 104 p. NTIS/PS-76/0032/3WP.

Harrison, E.A. The Biological Effects of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. January 1976. 147 p. NTIS/PS-76/0033/1WP.

Harrison, W. et al. "Disappearance of Aromatic and Aliphatic Components from Small Sea - Surface Slicks", ANL, Environmental Science & Technology, March 1975, Vol. 9, No. 3, p. 231-234.

Heinz, G. H. An Analysis of The Management Information System For U.S. Coast Guard Aircraft Pollution Patrols. Naval Postgraduate School Monterey, California. December 1975. 144 p. AD-A021 785/1WP.

Henderson, C. et al. Survey Study of Techniques to Prevent or Reduce Discharges of Hazardous Chemicals. Batelle Columbus Labs., Ohio. August 1975. 84 p. USCG-D-184-75 AD-A020 173/1WP.

Henry, R.F. Storm Surges. Beaufort Sea Technical Report No. 19. Department of The Environment, Victoria, B.C. December 1975. 41 p.

Herlinveaux, R.H. and B.R. de Lange Boom. The Physical Oceanography of The South-Eastern Beaufort Sea. Beaufort Sea Technical Report No. 18. Department of The Environment, Victoria, B.C. December 1975. 97 p.

Hertz, H.S. et al. Analysis of Microgram/kg (PPB) Level Hydrocarbons in Intertidal Zone Sediments and Water by Gas Chromatography-Mass Spectrometry. National Bureau of Standards, Washington, D.C. 5 p. PB-257/922/5SL.

Hess, K.W. and F.M. White. Modeling The Dispersal of a Marked Fluid in Narragansett Bay. Rhode Island University, Kingston. 37 p. NOAA-75090405 COM-75-11363/9WP.

Hochrein, A.A. et al. Evaluation of Membrane Oil Pollution Prevention System: Research Conducted for The United States Coast Guard and The United States Navy. Daedalean Associates Inc., Woodbine, Md. August 1975. 70 p. USCG-D-175-75 AD-A018 945/6WP.

Holdsworth, M.P. "Tanker Salvage and Oil Spill Clean-Up", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 85-108.

Hollinger, J.P. and J.E. Kenney. "Evaluation of A Passive Microwave Technique For Measurement of Oil Film Thickness In A Test Tank Environment", Report of NRL Progress/U.S. Naval Research Laboratory, June 1976, p. 21-22.

Holzer, T.L. "Application of Ground-Water Flow Theory to a Subsurface Oil Spill", Ground Water, Vol. 14, No. 3, May-June 1976, p. 138-145.

Hornig, A.W. et al. A Shipboard Oil-in-Water Content Monitor Based on Oil Fluorescence. Baird-Atomic Inc., Bedford, Massachusetts. February 1976. 205 pp. AD-A027 262/5WP.

Horvath, R. Interpretation Manual for The Airborne Remote Sensor System. Environmental Research Institute of Michigan, Ann Arbor. 99 p. USCG-250-44 AD-A019 460/5WP.

Houlihan, T.M. and B.D. Tyler. Development of An Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. July 1975. 87 p. AD-A014 552/4WP.

Hoult, D.P. et al. Oil in The Arctic. Massachusetts Institute of Technology for United States Coast Guard, Washington, D.C. March 1975. 218 p. USCG-D-96-75 AD-A010 269/9WP.

"How Much Oil Is Spilled", Science News, Vol. 107, No. 3, p. 41.

Hsiao, S.I.C. Biological Productivity of The Southern Beaufort Sea: Phytoplankton and Seaweed Studies. Beaufort Sea Technical Report No. 12C. Department of The Environment, Victoria, B.C. March 1976. 99 p.

Huggett, W.S. et al. Near Bottom Currents and Offshore Tides. Beaufort Sea Technical Report No. 16. Department of The Environment, Victoria, B.C. December 1975. 38 p.

Hunter, J.V. et al. "Measurement of Urban Runoff Petroleum", Proceedings of The Twentieth Annual Symposium of The American Water Resources Association, New Brunswick, New Jersey, June, 1975.

Hunter, J.A.M. et al. The Occurrence of Permafrost and Frozen Sub-Seabottom Materials in The Southern Beaufort Sea. Beaufort Sea Technical Report No. 22. Department of The Environment, Victoria, B.C. April 1976. 174 p.

"Infrared Oil Film Monitor", The Oil and Gas Journal, Vol. 73, No. 46, p. 90.

The Interaction of Crude Oil with Arctic Sea Ice. Beaufort Sea Technical Report No. 27. Department of The Environment, Victoria, B.C. December 1975. 201 p.

Irwin, W.A. et al. The Water Pollution Control Act of 1972, Institutional Assessment, Enforcement. Volume I. Environmental Law Institute, Washington, D.C. October 1975. 496 p. PB-246 321/4WP.

Irwin, W.A. et al. The Water Pollution Control Act of 1972, Institutional Assessment, Enforcement. Volume II. Environmental Law Institute, Washington, D.C. October 1975. 795 p. PB-246 322/2WP.

Isakson, J.S. et al. Comparison of Ecological Impacts of Postulated Oil Spills at Selected Alaskan Locations. Volume I. Introduction, Summary, Methodology, Evaluation and Appendices. Mathematical Sciences Northwest, Inc., Bellevue, Wash. June 1975. 633 p. USCG-D-155-75-Vol.1 AD-A017 600/8WP.

Isakson, J.S. et al. Comparison of Ecological Impacts of Postulated Oil Spills at Selected Alaskan Locations. Volume II. Results. Mathematical Sciences Northwest Inc., Bellevue, Washington. June 1975. 865 p. USCG-D-155-75-Vol. 2 AD-A017 601/6WP.

Ivanova, L.G. et al. "Purification of Petroleum - Containing and Phenol - Containing Waters by Electrical Treatment", Journal of Applied Chemistry of The USSR, Vol. 49, No. 2, p. 424-429.

James, W.P. et al. "Effects of an Offshore Crude Oil Unloading Terminal On Marine Environment", Marine Technology Society Journal, Vol. 9, No. 1, p. 27-31.

Jensen, P.A. Development of A Procedure to Use Relative Spill Dilution Capacity to Manage Water Pollution Risk From The Transportation of Oil and Hazardous Materials. Ph.D. Thesis, Texas A & M University, 1975. 274 p.

Journal of Hazardous Materials. 1 (1975/1976) 3-19. Elsevier Scientific Publishing Company, Amsterdam.

Kaliniichuk, E.M. et al. "Treating Refinery Wastewaters to Remove Emulsified Oils by Electrocoagulation and Electroflotation", International Chemical Engineering, Vol. 16, No. 3, p. 434-435.

Kaminskii, V.A. and A.N. Stepanenko. "Separation of Water-In-Oil Emulsions In An Ascending Stream In An Electric-Field", Colloid Journal of The USSR, Vol. 37, No. 6, p. 1054-1056.

Karinen, J.F. "Oil Spill Effects", Science, Vol. 190, No. 4211, p. 216-219.

Kaufman, S. "Surface Chemistry Parameters in Ecological Cleanup of Oily Wastewater", Environmental Science and Technology, Vol. 10, No. 2, p. 168-173.

Kawahara, F.K. and Y.Y. Yang. "Systems Chemical Analysis of Petroleum Pollutants", Analytical Chemistry, Vol. 48, No. 4, April, 1976. p. 651-655.

Keizer, P.D. and P.G. Wells. The Effectiveness and Toxicity of The Oil Dispersant, Oilsperser 43, In Large Outdoor Tanks. Canada Department of The Environment, Environmental Protection Service, Halifax, Nova Scotia. 1975. 29 p. EPS-5-AR-75-8.

Kendel, R.E. et al. Fishes of The Yukon Coast. Beaufort Sea Technical Report No. 6. Department of The Environment, Victoria, B.C. December, 1975. 114 p.

King, W.S. On The Fluid Mechanics and Heat Transfer of Liquified Natural Gas Spills. Rand Corporation, Santa Monica, California. June, 1975. 18 p. P-5396 AD-A-22/5WP.

Kinney, Patrick J. et al. Energy Development: The Environmental Trade Offs. Volume 3. Relative Environmental Ranking of Proposed Offshore Continental Shelf Areas on The Basis of Impacts of Oil Spills. Stanford Research Institute, Menlo Park, California. September, 1975. 71 p. PB-249-999-SET.

Kittredge, J.S. et al. "Bioassays Indicative of Some Sublethal Effects of Oil Pollution", Marine Technology Society, Annual Conference Proceedings (10th), p. 891-897.

Kittredge, J.S. Effects of Crude Oil on Marine Invertebrates.
Galveston Marine Biomedical Institute, Texas. August 1975. 7 p.
AD-A017 921/8WP.

Klein, J.A. The Environmental Control Industry. An Analysis of
Conditions and Prospects for The Pollution Control Industry.
New York. December 1975. 144 p. PB-248 474/9WP.

Klemas, V. et al. Application of Landsat - 2 To The Management
of Delaware's Marine and Wetland Resources. Delaware University,
Newark. October 1975. 7 p.

Klemas, V. et al. Estuarine Density Fronts and Their Effect on
Oil Slicks. Delaware University, Newark. July 1976. 3 p. E76-10441.

Klemas, V. et al. The Influence of Coastal Fronts on The Movement
and Dispersion of Oil Slicks. Delaware University, Newark and College
of Marine Studies under NASA Earth Resources Survey Program.
January 1976. 3 p. E76-10223.

Klemas, V. et al. Monitoring Estuarine Circulation and Ocean Waste
Dispersion Using an Integrated Satellite - Aircraft - Drogue Approach.
Delaware University, Newark. June 1975. 2 p.

Klemas, V. and D.F. Polis. Remote Sensing of Estuarine Fronts and
Their Effects on Pollutants. Delaware University, Newark. 55 p.
E76-10475.

Klemas, V. et al. Verification By Remote Sensing of An Oil Slick
Movement Prediction Model. Delaware University, College of Marine
Studies, Newark and NASA Earth Resources Survey Program, Washington.
January 1976. 3 p. E76-10225.

Knowles, R. Nitrogen Fixation in Arctic Marine Sediments. Beaufort
Sea Technical Report No. 9. Department of The Environment, Victoria,
B.C. December 1975. 44 p.

Kobus, H.E. "On The Use Of Air-Bubble Screens As Oil Barriers",
Proceedings of The 16th Congress of The International Association
For Hydraulic Research: Fundamental Tools to be Used In Environmental
Problems, Vol. 3.

Kolomoitsev, V.S. and V.I. Konstantinov. "Use of Maxwell-Wagner Theory and Cole-Cole Diagram for Measuring Dielectric Properties of Water-Crude Oil Emulsions". Colloid Journal of The USSR, Vol: 38, No. 2, p. 320-324.

Kuehnhold, W.W. Acute Toxicity of Crude Oil To Fish Fry and The Intake of Sublethal Concentrations of Crude Oil Hydrocarbons By The Fish Organization Branch. Kiel University (West Germany) November 1975. 33 p. N76-26724/4SL.

Laisk, E. "Feasibility of Oil Slick Removal From Seawater Using Power Lasers", Environmental Science and Technology, Vol. 10, No. 8, p. 814-815.

Landner, L. and A. Hagstroem. "Oil Spill Protection in The Baltic Sea" Journal of The Water Pollution Control Federation, Vol. 47, p. 796-809.

Larrabee, R.M. and G.A. Brown. An In-Situ Investigation of Oil Barrier Shape and Drag Coefficients. Rhode Island University, Kingston. 219 p. USCG-D-161-75 AD-A017 099/3WP.

Larson, R.A. and J.C. Weston. "Analysis of Water Extracts of Crude Petroleum by Gel Permeation Chromatography", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 1, p. 44-52.

Lehman, E.J. Water Pollution Analysis and Detection. Volume 2. July 1974 - January 1976 (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. January 1976. 106 p. NTIS/PS-76 0038/OWP.

Lehman, E.J. Water Quality Modeling -- Hydrological and Limnological Systems (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. May 1975. 218 p. NTIS/PS-75/441/6WP.

Lehman, E.J. The Biological Effects of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. 112 p. NTIS/PS-75/118/OSL.

Lehman, E.J. Biodeterioration of Oil Spills (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va. 86 p. NTIS/PS-75/152/9SL.

Leibovich, S. "Natural Limit to Containment and Removal of Oil Spills at Sea", Ocean Engineering, Vol. 3, No. 1, p. 29-36.

Leibovich, S. "Oil Slick Instability and Entrainment Failure of Oil Containment Booms", Mechanical Engineering, Vol. 97, No. 8, p. 84.

Leibovich, S. "Oil Slick Instability and The Entrainment Failure of Oil Containment Booms", Journal of Fluids Engineering, Transactions of The ASME, Vol. 98, Ser. 1, No. 1, March 1976, p. 98-105.

Leinonen, P.J. et al. "The Behavior of Crude Oil Spilled on Snow", Arctic, Vol. 28, No. 1, March 1975, p. 9-20.

Lepara, M.E. and G. Debono. Investigating Waste Oil Disposal by Direct Incineration. Army Mobility Equipment Research and Development Center, Fort Belvoir, Virginia. 21 p. AD-A011 236/7WP.

Lewis, E.L. "Oil in Sea Ice". Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions. University of Alaska, Fairbanks. 1975.

Lewis, C.P. and D.L. Forbes. Coastal Sedimentary Processes and Sediments, Southern Beaufort Sea. Beaufort Sea Technical Report No. 24. Department of The Environment, Victoria, B.C. December 1975. 68 p.

Lind, C.D. "Explosion Hazards Associated with Spills of Large Quantities of Hazardous Materials. Phase 1". Government Reports Announcements, 75(2), January 24, 1975, p. 128.

Linden, O. "Effects of Oil on The Reproduction of The Amphipod Gammarus oceanicus", AMBIO, Vol. 5, No. 1, p. 36-37.

Linden, O. "Influence of Crude Oil and Mixtures of Crude Oil/Dispersants on The Ontogenic Development of The Baltic Herring, Culpea...". AMBIO, Vol. 5, No. 3, p. 136-140.

Linden, O. "Effects of Oil on The Amphipod Gammarus oceanicus". Environmental Pollution, Vol. 10, No. 4, p. 239-250.

Lindenmuth, W.T. et al. Fast Current Oil Response System. Stage I, SVROS Development. Hydronautics Inc., Laurel, Maryland. March 1975. 96 p. USCG-D-36-75 AD-A014 500/3WP.

Linek, V. and P. Benes. "Study of Mechanism of Gas Absorption Into Oil-Water Emulsions", Chemical Engineering Science, Vol. 31, No. 11, p. 1037-1046.

Lissauer, I.M. and J.C. Bacon. Predicted Oil Slick Movement From Various Locations Off The New Jersey - Delaware Coastline. Coast Guard Research and Development Center, Groton, Conn. June 1975. 132 p. USCG-D-137-75 AD-A019 019/9WP.

Lissauer, I.M. and J.P. Welsh. Preliminary Projections of Oil Spill Movement for Three Potential Deepwater Port Sites in The Gulf of Mexico. Coast Guard Research and Development Center, Groton, Conn. December 1975. 34 p. USCG-D-19-76 AD-A024 331/1WP.

Lock, J. "High-Efficiency Oil-Water Separation", Processing, Vol. 22, No. 10, p. 41.

Logan, W.J. et al. Oil Spill Countermeasures For The Southern Beaufort Sea. Appendices. Technical Report No. 31b. Department of The Environment, Victoria, British Columbia.

Logan, W.J. et al. "Oil Spill Countermeasures For The Southern Beaufort Sea. Technical Report No. 31a. Department of The Environment, Victoria, British Columbia.

Logan, W.J. et al. Oil Spill Countermeasures For The Southern Beaufort Sea. Overview Report. Department of The Environment, Victoria, British Columbia.

Lu, C.Y. and J. Polak. A Study of The Solubility of Oil in Water. Environmental Emergency Branch, Department of The Environment, Ottawa, Ontario. February 1976. 25 p. EPS-4-EC-76-1.

Mackay, D. et al. "The Behavior of Crude Oil Spilled on Snow", Arctic, Vol. 28, No. 1, pp. 9-20.

Mackay, D. and M. Mohtadi. "Area Affected by Oil Spills on Land", Canadian Journal of Chemical Engineering, Vol. 53, No. 2, p. 140-143.

Maizus, S. Recycling of Waste Oils. National Oil Recovery Corp., Bayonne, N.J. June 1975. 283 p. EPA-670/2-75-068 PB-243 222/7WP.

Marcinowski, H.J. "The Separation of Oil From Water Surfaces", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 109-120.

Marine Environmental Protection Program: An Analysis of Mission Performance. United States Coast Guard, Washington, D.C. August 1975. 27 p. AD-A025 325/2SL.

Markham, W.E. Ice Climatology of The Beaufort Sea. Beaufort Sea Technical Report No. 26. Department of The Environment, Victoria, B.C. December 1975. 87 p.

Marko, J.R. Satellite Observations of The Beaufort Sea Ice Cover. Beaufort Sea Technical Report No. 34. Department of The Environment, Victoria, B.C. December 1975. p. 137.

Mauer, A.T. and A.T. Edgerton. "Flight Evaluation of U.S. Coast Guard Airborne Oil Surveillance System", Journal of The Marine Technology Society, Vol. 10, No. 4, p. 38-52.

May, W.E. et al. "Chromatographic Analysis of Hydrocarbons in Marine Sediments and Seawater", Journal of Chromatography, Vol. 13, November 1975, p. 535-540.

Mazmanidi, N.D. et al. "Determination of Sea Water-Soluble Oil Products and Naphthenic Acids", Okeanologiya, Vol. 15, No. 3, p. 453-457.

McGowan, W.E. Monitoring Dissolved Hydrocarbons as a Function of The Tidal Cycle (New York Harbor). Coast Guard Research and Development Center, Groton, Conn. April 1975. 39 p. USCG-D-106-75 AD-A015 882/4WP.

McKenna, E.J. and R.D. Heath. Biodegradation of Polynuclear Aromatic Hydrocarbon Pollutants By Soil and Water Microorganisms. Illinois University, Urbana. April 1976. 33 p. PB-253 964/TSL.

Mechanical Systems for The Recovery of Oil Spilled on Water. Institute of Petroleum, London. Coordinating Committee for The Prevention of Sea Pollution. Barking: Applied Science Publishers. 1975. 139 p.

Meenaghan, G.F. et al. "Cotton - The Natural Sorbent for Combating Oil Pollution". Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 945-958.

Melvin, P. and R.M. Ross. Oil Spill and Oil Pollution Reports, November 1975 - January 1976. California University, Santa Barbara. July, 1976. 365 p. PB-257 886/2SL.

Menzel, H. "Efforts of The Federal Republic of Germany in Protecting The Marine Environment From Oil Spills", Proceedings of The International Oil Pollution Prevention Conference, Hamburg, Germany, 1976, p. 21-27.

Millard, J.P. et al. Development and Test of Video Systems for Airborne Surveillance of Oil Spills. National Aeronautics and Space Administration, Moffett Field, California. March 1975. 27 p. USCG-D-95-75 AD-A014 499/8WP.

Miller, M.C. et al. A Computer Simulation Technique for Oil Spills Off The New Jersey - Delaware Coastline. Coast Guard Research and Development Center, Groton, Conn. September 1975. 50 p. USCG-D-171-75 AD-A018 947/2WP.

Milne, A.R. and B.D. Smiley. Offshore Drilling for Oil in The Beaufort Sea: A Preliminary Environmental Assessment. Beaufort Sea Technical Report No. 39. Department of The Environment, Victoria, B.C. January 1976.

Miranda, J.G. "Sump Design For Oil-Water Separators". Chemical Engineering. Vol. 82, No. 25. p. 85.

Mittleman, J. Oil/Water Separator Evaluation. Naval Coastal Systems Laboratory, Panama City, Florida. July 1975. 55 p. AD-A013 210/OWP.

Miyahara, S. and Y. Nozaki. "Fundamental Studies on Thickness of Crude Oil on Sea-Water Surfaces", Bulletin of The Japanese Society of Scientific Fisheries, Vol. 41, No. 4, p. 377-382.

Montfort, R.W. Oil-in-Water Content Monitor Developmental Program Summary. United States Coast Guard, Office of Research and Development. December 1975. 42 p. USCG-D-188-75 AD-A022 960/9WP.

Moore, S.F. and B.P. Schrader. "Ecological Analysis of Hypothetical Oil Spills Occurring In The Nearshore Waters of Long Island, New York", Institute of Environmental Sciences: 21st Annual Technical Meeting: Vol. I: Energy and The Environment, Mount Prospect, Illinois, pp. 55-63.

Moore, S.F. "Offshore Oil Spills and Marine Environment", Technology Review, Vol. 78, No. 4, p. 61-67.

Moreau, J.O. Bailey Oil Content Monitor. Exxon Research and Engineering Company, Florham Park, N.J. June 1975. 60 p. COM-75-10990/OWP.

Morgan, N.L. "Rapid Method to Determine Bunker-C Fuel Oil in Marine Organisms", Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 3, p. 309-312.

Morris, B.F. et al. Pelagic Tar In The Mediterranean Sea, 1974-1975. Bermuda Biological Station, St. George's West. 9 p. PB-255 532/4SL.

Morris, S.C. Environmental Effect of Fossil Fuel. Brookhaven National Laboratory, Upton, N.Y. 1975. 20 p. BNL-20294.

Moser, W.A. et al. "Risk Analysis and Oil Spill Expectation For Deepwater Ports", Proceedings of The Eighth Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 1. p. 285-291.

Mudjiard, J. and H. Susmono. Social Cost of Oil Pollution. Naval Postgraduate School, Monterey, California. March 1976. 66 p. AD-A027 257/5SL.

Mueller, F.N. Fast Current Oil Response System. Tetradyne Corporation, Richardson, Texas. April 1975. 86 p. USCG-D-115-75
AD-A020 171/5WP.

Mueller, D. and H. Hellman. "Toxic Effect of Mineral Oils and Gasoline Fuels on Self-Purification Processes in Water Bodies", Gas Wasserfach Wasser Abwasser, Vol. 117, No. 8, p. 369-373.

Mullagalyamov, T.S. et al. "Methods For Determining Real Losses of Petroleum During Its Collection, Preparation and Storage", NEFTYANOE KHOZYAISTVO, Vol. 1975, No. 12, p. 46-48

Munday, J.C. Applications of Remote Sensing To Estuarine Problems. Virginia Institute of Marine Science, Gloucester Point. December 1975. 178 p. NASA-CR-146075, AR-3 N76-15526/6WP.

Murray, S.P. Wind and Current Effects on Large - Scale Oil Slicks. Louisiana State University, Baton Rouge. September 1975. 14 p.
AD-A012 582/3WP.

Natural Gas Liquids Explosion and Fire, Near Devers, Texas. May 12, 1975. Dow Chemical, U.S.A. June 1976. 18 p. PB-255 979/7SL.

Nauman, J.W. and D.R. Kernodle. "Effects of a Fuel Oil Spill on Benthic Invertebrates and Water Quality on The Alaskan Arctic Slope, Happy Valley Creek Near Sagwon, Alaska", Journal of Research, U.S. Geological Survey, Vol. 3, No. 4, July - August 1975, p. 495-500.

Nebeker, E.B. and S.E. Rodriguez. Development and Preliminary Design of an Experimental Prototype Free Vortex Oil Skimmer. Scientific Associates Inc., Santa Monica, California. June 1975. 95 p. AD-A020 174/9SL.

Neff, J.M. and J.W. Anderson. "Ultraviolet Spectrophotometric Method For Determination Of Naphthalene and Alkynaphthalenes In Tissues Of Oil - Contaminated Marine Animals", Bulletin of Environmental Contamination and Toxicology, Vol. 14, No. 1, p. 122-128.

"New Lab Methods Identify Oil Spills Origins", World Oil, Vol. 180, No. 1, p. 111-112, 114.

"New System Absorbs Oil Spills", Naval Research Reviews, Vol. 29, No. 1, p. 26-27.

Nicholson, M. and J. Taylor. The Determination of Hydraulic Oil In The Concast Plant Cooling Water Using I.R. Spectroscopy. British Steel Corporation, Sheffield, England. August 1975. 10 p. PB-245 060/9WP.

Nicol, C.W. The Mizushima Oil Spill - A Tragedy for Japan and a Lesson for Canada. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. May, 1976. 26 p. EPS-8-EC-76-2.

"No Alarming Environmental Impact Shown by Two Year Study on Oil Spills", Oilweek, Vol. 27, No. 1, February 16, 1976, p. 106.

Norton, D.J. and J.L. Rand. The Hydrodynamics of Porous Barrier Oil Recovery Systems. Texas A and M University, College Station. July 1975. 76 p. USCG-D-146-75 AD-A014 501/1WP.

"Offshore Drilling in Beaufort Sea Area Draws Dire Warnings at Berger Inquiry", Oilweek, Vol. 27, No. 1, February 16, 1976, p. 22.

Offshore Petroleum Transfer Systems For Washington State. A Feasibility Study. Oceanographic Institute of Washington, Seattle. December 16, 1974. 534 p. OIW/OCW-7401 PB-244 945/2WP.

Ogata, M. and T. Ogura. "Petroleum Components and Objectionable Malodorous Substances In Fish Flesh Polluted By Boiler Fuel Oil", Water Research, Vol. 10, No. 5, p. 407-412.

"Oil Pollution at Sea - How Much is too Much", Bioscience, Vol. 25, No. 5, p. 339-340.

"Oil Spills Called Peril to Climate", Polar Times, No. 81, December 1975.

"Oil Spills -- Recovery and Re-Use by Vessel", Dock and Harbour Authority, Vol. 55, (No. 652), p. 415.

Oil Transportation by Tankers: An Analysis of Marine Pollution and Safety Measures. Office of Technology Assessment, Washington, D.C. July 1975. 305 p. PB-244 457/8WP.

Onshore Impacts of Oil and Gas Development in Alaska. Volume I. Resources Planning Associates, Cambridge, Mass. 148 p. PB-248 895/5GA.

Onshore Impacts of Oil and Gas Development in Alaska. Volume I. Methodology Appendices. Resource Planning Associates, Cambridge, Mass. and Environmental Protection Agency, Washington, D.C. November 1975. 148 p. PB-248 895/5SL.

Onshore Impacts of Oil and Gas Development in Alaska. Volume II. Methodology Appendices. Resource Planning Associates, Cambridge, Mass. 162 p. PB-248 896/3GA.

ORD - Publications Summary. Technical Information Division, Office of Monitoring and Technical Support. U.S. Environmental Protection Agency, Washington, D.C. EPA-600/9-75-001d Dec. 1975.

Owen, J.J. et al. "Analysis of Relative Pollution Risk and Economics of Ship Versus Pipeline Transport of OCS Oil to Onshore Terminals," Proceedings of The Eight Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 1091-1104.

Owens, E.H. and M.A. Rashid. "Coastal Environments and Oil - Spill Residues in Chedabucto Bay, Nova Scotia", Canadian Journal of Earth Sciences, Vol. 13, No. 7, p. 908-928.

Pal, D. The Coanda Effect Oil/Water Separator: A Development Study. U.S. Navy Civil Engineering Lab., Port Hueneme, California. May 1975. 45 p. AD-A011 806/7WP.

Panitch, M. "Kachemak Bay - Oil-Spill Leads Alaska To Reverse Drilling OK", Science, Vol. 193, No. 4248, p. 131.

Panova, V.A. et al. "Chemical Composition of Oil - Containing Waste After Purification in Aerotanks", Neftyande Khozyaistvo, Vol. 1975, No. 10, p. 60-63.

Parker, B.L. et al. "Chronic Oil Contamination and Aquatic Organisms with Emphasis on Diptera: Status and Bibliography", Water Resources Bulletin, Vol. 12, No. 2, April 1976, p. 291-305.

Payne, J.F. "Field Evaluation of Benzopyrene Hydroxylase Induction As A Monitor For Marine Petroleum Pollution", Science, Vol. 191, No. 4230, p. 945-946.

Pelletier, B.R. Sediment Dispersal in The Southern Beaufort Sea. Beaufort Sea Technical Report No. 25a. Department of The Environment, Victoria, B.C. December 1975. 80 p.

Peltier, et al. "Biological Consequences of An Accidental Oil Pollution For Rocky Shores of Norman Coast - Results One Year After Oil Pollution on November 26th 1974", Comptes Rendus Des Seances Soc De Biologie. Vol. 170, No. 2, p. 442.

Percy, R. Fishes of The Outer Mackenzie Delta. Beaufort Sea Technical Report No. 8. Department of The Environment, Victoria, B.C. December 1975. 114 p.

Percy, J.A. "Responses of Arctic Marine Crustaceans to Crude Oil and Oil - Tainted Food", Environmental Pollution, Vol. 10, No. 2, February, 1976, p. 155-162.

Percy, J.A. and T.C. Mullin. Effects of Crude Oils on Arctic Marine Invertebrates. Beaufort Sea Technical Report No. 11. Department of The Environment, Victoria, B.C. December 1975. 167 p.

Peters, A.W. and J.G. Bendoraitis. "High Resolution Mass Spectrographic Method For Analysis of Nitrogen-Containing and Oxygen - Containing Material Derived From Petroleum", Analytical Chemistry, 1976, Vol. 48, p. 968-973.

Peterson, P.L. et al. Logistic Requirements and Capabilities For Response To Oil Pollution in Alaska. Battelle Pacific Northwest Labs., Richmond, Washington. March 1975. 375 p. USCG-D-97-75 AD-A014 044/2WP.

"Petroleum in The Marine Environment", Ocean Oil Weekly Report, Vol. 9, No. 16, p. 1.

Phillips, R.D. et al. "Minicomputers Used In Metering and Leak Detection Systems For Liquid Petroleum - Products Pipelines", IEEE Transactions on Industry Applications, Vol. 12, No. 4, p. 341-348.

Pierce, R.H. et al. "Persistence and Biodegradation of Spilled Residual Fuel Oil On An Estuarine Beach", Applied Microbiology, Vol. 29, No. 5, p. 646-652.

Pimlott, D.H. et al. Oil Under the Ice. Canadian Arctic Resources Committee, Ottawa, Ontario. 1976.

Poock, G.K. Human Factors and Safety Problems on Navy Oil Skimmers. Naval Postgraduate School, Monterey, California. January 1975. 16 p. AD-6004 002.

Powell, W.J. Crude Washing. Exxon International Company, New York. June 1976. 143 p. PB-256 189/2SL.

Pritchard, P.H. and T.J. Starr. The Microbial Degradation of Oil In Continuous Culture. State University of New York at Brockport. June 1975. 81 p. AD-A013 322/3WP.

Proceedings of The International Symposium on Transport of Hazardous Cargoes by Sea and Inland Waterway (4th). United States Coast Guard, Office of Research and Development, Washington, D.C. October 1975. 619 p. USCG-D-24-76 AD-A023 505/1WP.

Program for Preventing and Eliminating Oil Pollution of The Buffalo River. Cornell Aeronautical Lab. Inc., Buffalo, N.Y. 136 p. PB-249 518/2GA.

Prouse, N.J. et al. "Effects of Low Concentrations of Oil Accumulated in Sea-Water on Growth of Uni-Algal Marine Phytoplankton Cultures", Journal of The Fisheries Research Board of Canada, 1976, Vol. 33, p. 810-818.

"Proving Out Pollution Clean-Up", Surveyor, Vol. 9, No. 1, p. 16-19.

Pulich, W.M. et al The Effects of A No. 2 Fuel Oil and The Crude Oils on The Growth and Photosynthesis of Microalgae. Texas University, Port Arkansas. 9 p. PB-245 696/OWP.

Pym, J.G. et al. "Petroleum Triterpane Fingerprinting of Crude Oils", Analytical Chemistry, Vol. 47, No. 9, p. 1617-1622.

Radding, S.B. et al. The Environmental Fate of Selected Polynuclear Aromatic Hydrocarbons. Stanford Research Institute, Menlo Park, California. February 1976. 131 p. EPA/560/5-75/009 PB-250 948/7WP.

Ramseier, R.O. et al. Distribution of Sea Ice Thickness in The Beaufort Sea. Beaufort Sea Technical Report No.30. Department of The Environment, Victoria, B.C. December 1975.

Rayzer, V.Y. et al. The Thermal Radio Emission of A Contaminated Sea Surface. Kanner Associates, Redwood City, California. May 1976. 32 p. N76-26716/OSL.

Regnier, Z.R. and B.F. Scott. "Evaporation Rate of Oil Components". Environmental Science and Technology, Vol. 9, No. 5, p. 469-472.

Remote Sensing Applied to Crop Disease Control, Urban Planning and Monitoring Aquatic Plants, Oil Spills, etc. Texas A & M University, College Station, Remote Sensing Center. February 1975. 70 p. N75-20799/3SL.

Report to The Congress on Ocean Pollution, Overfishing, and Offshore Development; July 1973 through June 1974. National Oceanic and Atmospheric Administration, Washington, D.C. January 1975. 84 p. COM-75-10509/8SL.

Response to Oil Pollution in Alaska. Report No. CG-D-97-75, United States Coast Guard, Office of Research and Development, Washington, D.C. March 1975.

Review of Spray-On or Grouting Sealants for Petroleum Product Storage Areas and Dykes in The North. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. October, 1976. 23 p. EPS-3-EC-76-12.

A Risk and Cost Analysis of Transporting Southern California Outer Continental Shelf Oil. Booz-Allen and Hamilton, Inc., Bethesda, Maryland. July 1975. 113 p. PB-248 738/7WP.

A Risk and Cost Analysis of Transporting and Storing Gulf of Alaska Outer Continental Shelf Oil. Booz-Allen and Hamilton, Inc., Bethesda, Md. January 1975. 105 p. PB-248 739/5WP.

Richardson, J.W. et al. Bird Migration Along The Beaufort Sea Coast Radar and Visual Observations in 1975. Beaufort Sea Technical Report No. 3C. Department of The Environment, Victoria, B.C. December 1975. 131 p.

Rohl, G.E. Organic Linings For Concrete Storage Tanks For Petroleum Fuels. Naval Research Lab., Washington, D.C. May 1975. 19 p. AD-A010 514/8SL.

Rosenberg, D.H. Proceedings of The Conference Workshop To Review The Draft Study Plan for Environmental Assessment of the Gulf of Alaska, Southeastern Bering and Beaufort Seas. Alaska University. April 1975. 195 p. PB-246 873/4WP.

Rosenegger, L.W. The Movement of Oil Under Sea Ice. Beaufort Sea Technical Report No. 28. Department of The Environment, Victoria, B.C. December 1975. 81 p.

Rossi, S.S. and J.W. Anderson. "Toxicity of Water-Soluble Fractions of No. 2 Fuel Oil and South Louisiana Crude-Oil To Selected Stages In Life-History of Polychaete, *Neanthes arenaceodentata*", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 1, p. 18-24.

Rossi, S.S. et al. "Toxicity of Water-Soluble Fractions of Four Test Oils for The Polychaetous Annelids, *Neanthes arenaceodentata* and *Capitella capita*", Environmental Pollution, Vol. 10, No. 1, January 1976, p. 9-18.

Sabo, D.J. et al. "Petroleum Hydrocarbon Pollution and Hepatic Lipogenesis in Marine Fish *Fundulus heteroclitus*", Proceedings of The Federation of The American Society for Experimental Biology, Vol. 34, No. 3, p. 810.

Sagardia, F. et al "Degradation of Benzotriophene and Related Compounds By A Soil *Pseudomonas* in an Oil - Aqueous Environment", Applied Microbiology, Vol. 29, No. 6, p. 722-725.

Sasseville, J.L. and M. Leclerc. "Problems Associated with The Effect of Transportation of Crude Oil by Oil Ducts on The Aquatic Ecosystem", EAU Quebec, Vol. 8, No. 4, November 1975, p. 39 - 41, 44 - 46.

Scharfenstein, C.F. and W.T. Beran. Prototype High - Seas Disc - Drum Oil Recovery System. Lockheed Missiles and Space Co. Inc., Sunnyvale, California. June 1975. 247 p. USCG-D-150-75 AD-A017 000/1WP.

Schatzberg, P. et al. Oil/Water Separation with Noncellulosic Ultra Filtration System. Naval Ship Research and Development Center, Bethesda, Maryland. April 1975. 34 p. AD-A008 315/4SL.

Scheier, A. and D. Gominger. "Preliminary Study of Toxic Effects of Irradiated vs Non-Irradiated Water-Soluble Fractions of No. 2 Fuel Oil", Bulletin of Environmental Contamination and Toxicology, Vol. 16, No. 5, p. 595-603.

Scott, B.F. and R.M. Chatterjee. Behavior of Oil Under Canadian Climatic Conditions; Part 1: Oil on Water Under Ice-Forming Conditions. Inland Waters Directorate, Water Quality Branch, Ottawa, Ontario.

Schultz, L.A. Tests of Oil Recovery Devices in Broken Ice Fields. Phase I. Arctec Inc., Columbia, Maryland. July 1975. 91 p. USCG-D-130-75 AD-A016 465/7WP.

Schultz, L.A.. Tests of Oil Recovery Devices in Broken Ice Fields, Phase II. Arctec Inc., Columbia, Md. January 1976. 179 p. AD-A025 748/5SL.

Sea, R.L. "High Seas Oil Spill Control, Program of The Supervisor of Salvage, USN, Proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 931-943.

Searing, Gary F. Seabirds of The Southeastern Beaufort Sea: Aircraft and Group Observations in 1972 and 1974. Beaufort Sea Technical Report No. 36. Department of The Environment, Victoria, B.C. December 1975.

Selection Criteria and Laboratory Evaluation of Oil Spill Sorbents. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. April, 1976. 53 p. EPS-4-EC-76-5.

"Seventeen Oil Spills in North Alaska Since 1969", Science News, Vol. 104(6), p. 86-87.

Shelton, T.B. and J.V. Hunter. "Anaerobic Decomposition of Oil in Bottom Sediments", Journal of The Water Pollution Control Federation, Vol. 47, p. 2256.

Shewmaker, J.E. Flocculant Use on Tankers. Exxon Research and Engineering Company, Florham Park, N.J. March 1976. 50 p. PB-251 626/8WP.

Skewes, R.L. USCG Oily Water Separator System Cartridge Usage Data Survey. United States Coast Guard, Office of Research and Development. March 1976. 73 p. USCG-D-40-76 AD-A023 428/6WP.

Sleeter, Thomas D. et al. "Quantitative Sampling of Pelagic Tar in The North Atlantic", Deep-Sea Research, Vol. 21, p. 773-775, 1974.

Smith, J.L. and R.A. Leone. Water Pollution Control Act of 1972. Economic Impacts, Petroleum Refining Industry. National Bureau of Economic Research Inc., New Haven, Conn. June 1975. 251 p. NCWQ-75/16 PB-248 800/5WP.

Smith, M.F. Oil Water Separators (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. September 1975. 94 p. NTIS/PS-75/710/4WP.

Smith, M.F. Oil Pollution Detection and Sensing (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. July 1975. 181 p. NTIS/PS-75/595/9WP.

Smith, M.F. Oil Spill Removal (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. July 1975. 207 p. NTIS/PS-75/542/1WP.

Smith, M.F. Oil Pollution Detection and Sensing (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. September 1976. 239 p. NTIS/PS-76/0701/3SL.

Smith, M.F. Oil Spill Removal Techniques and Equipment (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. August 1976. 252 p. NTIS/PS-76/0637/9SL.

Smith, T.G. and J.R. Geraci. The Effect of Contact and Ingestion of Crude Oil on Ringed Seals of The Beaufort Sea. Beaufort Sea Technical Report No. 5. Department of The Environment, Victoria, B.C. December 1975. 66 p.

Solsberg, L.B. et al. Field Evaluation of Seven Oil Spill Recovery Devices. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. October, 1976. 81 p. EPS-4-EC-76-3.

Stewart, R.J. "Oil Spills and Offshore Petroleum", Technology Review, Vol. 78, No. 4, p. 47-59.

Stirling, I. et al. The Distribution and Abundance of Seals in The Eastern Beaufort Sea. Beaufort Sea Technical Report No. 1. Department of The Environment, Victoria, B.C. December 1975. 58 p.

Stirling, I. et al. The Distribution and Abundance of Polar Bears in The Eastern Beaufort Sea. Beaufort Sea Technical Report No. 2. Department of The Environment, Victoria, B.C. December 1975. 59 p.

Stormer, F.C. and A. Vinsjansen. "Microbial-Degradation of Ekofisk Oil in Seawater By *Saccharomycopsis lipolytica*", AMBIO, Vol. 5, No. 3, p. 141-142.

Straughan, D. Temperature Effects of Crude Oil In The Upper Intertidal Zone. University of Southern California, Los Angeles. July, 1976.
64 p. PB-255 956/5SL.

Stulov, T.T. et al. Erecting Gas Storage Facilities and Oil Centers. Foreign Technology Division, Wright-Patterson AFB, Ohio. January, 1975.
517 p. AD/A-006 559/9SL.

Summary Tabulation of Selected EPA Activities Concerning Toxic Chemicals. Environmental Protection Agency, Washington, D.C. April, 1976.
19 p. PB-253 172/1SL.

Survey Study of Techniques to Prevent or Reduce Discharge of Hazardous Chemicals. Battelle Columbus Laboratories, Columbus, Ohio.
84 p. AD-A020 172/3GA.

Suzuki, R. et al. "Automatic Analyzer For Traces of Dispersed Oils in Waste-Water Using Solvent-Extraction and Infrared Spectrophotometry", Bunseki Kagaku. Vol. 25, No. 5, p. 308-313.

Tedeschi, E.T. "Seaboom, Permanent Oil Containment Barrier", American Chemical Society, Abstracts Papers, Vol. 172, Sept. 3, p. 35.

Thornton, D.E. and P. Blackall. Field Evaluation of Plastic Film Liners for Petroleum Storage Areas in The Mackenzie Delta. Environmental Protection Service, Department of Fisheries and The Environment, Ottawa, Ontario. September, 1976. EPS-3-EC-76-13.

Tierney, J.M. Research, Design, and Development of The U.S. Coast Guard High Seas Oil Containment System. Battelle Columbus Laboratories, Ohio. September 1975. 318 p. AD-A025 749/3SL.

Topham, D.R. Hydrodynamics of An Oilwell Blowout. Beaufort Sea Technical Report No. 33. Department of The Environment, Victoria, B.C. December 1975. 52 p.

Topham, D.R., "Simulation of An Oil Well Blowout in Shallow Coastal Waters", Proceedings, Third International Conference on Port and Ocean Engineering Under Arctic Conditions, University of Alaska, Fairbanks. 1975.

Townes, B. "English, Gulf Incidents Show Oil/Fish Problems", National Fisherman, Vol. 55, No. 11, p. 20-A.

Travers, W.B. and P.R. Luney. "Drilling, Tankers, and Oil Spills on Atlantic Outer Continental Shelf", Science, Vol. 194, No. 4267, p. 791-796.

Traxler, R.W. and M. Cundell. Petroleum Degradation in Low Temperature Marine and Estuarine Environments. Rhode Island University, Kingston. January 1976. 18 p. AD-A020 755/5WP.

Trentacoste, N.P. Surface Effects Skimmer Developments. Science Applications, Inc., McLean, Virginia. June 1975. 79 p. EPA/670/2-75/0666 PB-242 391/1WP.

Trentacoste, N.P. Development of Fast Current Oil Response System. Science Applications Inc., McLean, Virginia. March, 1975. 187 p. AD-A014 496/4WP.

Tsang, G. Ice Conditions and The Proposed Containment and Removal of Spilled Oil On St.Clair and Detroit Rivers. Department of The Environment, Inland Waters Directorate, Burlington, Ontario. Report No. 56. 25 p.

Tucker, W. "Cleaning Oiled Sea Birds", Veterinary Record, Vol. 97, No. 1, p. 20.

Turbeville, J.E. "Ferromagnetic Sorbent System for Oil Spill Recovery", proceedings of The 8th Annual Offshore Technology Conference, Houston, Texas, May 3-6, 1976, Vol. 3, p. 883-888.

Tyler, B.D. Development of An Oil-Water Pollution Monitoring System. Naval Postgraduate School, Monterey, California. June 1975. 89 p. AD-A012 460/2WP.

Vanderkooy, N. et al. Evaluation of Oil Spill Barriers and Deployment Techniques for the St.Clair-Detroit River System. Environmental Protection Service, Department of The Environment, Ottawa, Ontario. June, 1976. 97 p. EPS-4-EC-76-4.

Vermeer, K. and R. Vermeer. "Oil Threat To Birds on The Canadian West Coast", Canadian Field Naturalist, Vol. 89, No. 3, p. 278-298.

Vernberg, F.J. and W.B. Vernberg. Pollution and Physiology of Marine Organisms. Academic Press, New York, 1974. 492 p.

Vessels Engaged in Offshore Oil and Gas Drilling Operations. Maritime Administration, Washington, D.C. January 1976. 370 p. PB-248 857/5SL.

Wacasey, J.W. Biological Productivity of The Southern Beaufort Sea: Zoobenthic Studies. Beaufort Sea Technical Report No. 12b. Department of The Environment, Victoria, B.C. December 1975. 39 p.

Wadhams, P. Sea Ice Morphology in The Beaufort Sea. Beaufort Sea Technical Report No. 36. Department of The Environment, Victoria, B.C. December 1975. 66 p.

Walker, E.R. Oil, Ice and Climate in The Beaufort Sea. Beaufort Sea Technical Report No. 35. Department of The Environment, Victoria, B.C. December 1975. 40 p.

Walker, J.D. et al. Extraction of Petroleum-Hydrocarbons From Oil-Contaminated Sediments. Maryland University, College Park. 5 p. AD-A009 557/OSL.

Walker, J.D. et al. "Petroleum Hydrocarbons in Baltimore Harbor of Chesapeake Bay - Distribution in Sediment Cores", Environmental Pollution, Vol. 9, No. 3, p. 231-238.

Walker, J.D. and R.R. Colwell. Some Effects of Petroleum on Estuarine and Marine Microorganisms. Maryland University, College Park. 12 p. AD-A016 501/9WP. Also in: Canadian Journal of Microbiology, Vol. 21, No. 3, p. 305-313.

Walker, J.D. et al. Petroleum-Degrading Achlorophyllous Alga Prototheca zopfii. Maryland University, College Park. 2 p. AD-A016 507/6WP

Walker, J.D. and R.R. Colwell. "Sampling Device for Monitoring Biodegradation of Oil and Other Pollutants in Aquatic Environments", Environmental Science and Technology, Vol. 11, No. 1, p. 93-95.

Walker, J.D. et al. Utilization of Mixed Hydrocarbon Substrate by Petroleum - Degrading Microorganisms. Maryland University, College Park. 13 p. AD-A016 324/6WP.

Walker, J.D. et al. "Bacterial Degradation of Motor Oil", Journal of The Water Pollution Control Federation, Vol. 47, p. 2058.

Walker, J.D. et al. Effect of South Louisiana Crude Oil and Number 2 Fuel Oil on Growth of Heterotrophic Microorganisms, Including Proteolytic, Lipolytic, Chitinolytic and Cellulolytic Bacteria. Maryland University, College Park. 22 p. AD-A016 327/9WP.

Walker, J.D. et al. "Petroleum Hydrocarbons: Degradation and Growth Potential of Deep-Sea Sediment Bacteria", Environmental Pollution, Vol. 10, No. 2, February 1976. p. 89-99.

Walker, J.D. et al. Petroleum Hydrocarbons: Degradation and Growth Potential of Deep-Sea Sediment Bacteria. Maryland University, College Park. 1976. 12 p. AD-A025 884/8SL.

Wambold, J.C. and C. Reed. "New Twist For Oil Spill Cleanup", Mechanical Engineering, Vol. 98, No. 2, p. 28-31.

Wang, L.K. et al. "Separation of Emulsified Oil From Water", Chemistry and Industry, Vol: 1975, No. 13, p. 562-564.

Ward, R.S. Towed Planing Sled For Delivery of Oil Pollution Control Equipment. Naval Coastal Systems Laboratory, Panama City, Florida. March 1976. 115 p. AD-A025 247/8SL.

Ward, D.M. and T.D. Brock. Environmental Limitations on The Microbial Degradation of Hydrocarbons in Temperate Lakes. Wisconsin University, Madison. June 1975. 112 p. PB-244 094/9WP.

Wardley-Smith, J. The Control of Oil Pollution on The Sea and Inland Waters. Graham and Trotter Ltd., London, England. December, 1976.

Water Pollution Abatement Technology: Costs and Capabilities Petroleum Refining Industry. Engineering-Science, Inc., Austin, Texas. June, 1975. 650 p. - in 2 volumes. PB-243-830/7WP. NCWQ-75/02.

Water Pollution Abatement Technology. Capabilities and Costs, Control of Water Pollution From Selected Nonpoint Sources. Midwest Research Institute, Kansas City, Missouri. 331 p. PB-248 806/2GA.

The Water Pollution Control Act of 1972 Institutional Assessment Attitudes of Participants. Oregon Research Institute, Eugene. December, 1975. 326 p. NCWQ-75/15 PB-247 392/4WP.

Webb, W.A. and H.G. Elderling. Optimization and Evaluation of A Fluorescence Oil Spill Detector. Volume 1. Laboratory Measurements and Field Evaluation. Baird-Atomic Inc., Bedford, Massachusetts. May 1975. 108 p. AD-A016 460/8WP. USCG-D-108-75.

Wells, P.G. and P.D. Keizer. The Effectiveness and Toxicity of The Oil Dispersant Oilsperse 43, In Large Outdoor Tanks. Environmental Protection Service, Atlantic Region, Halifax, N.S. April 1975. 29 p. EPS-5-AR-75-8.

Werner, K.G. Fluidized Bed Combustion (A Bibliography with Abstracts). National Technical Information Service, Springfield, Virginia. February 1975. 71 p. NTIS/PS-75/256/8SL.

West Texas Gulf Pipeline Company, Abilene, Texas, December 1, 1974. National Transportation Safety Board, Washington, D.C. June, 1976. 27 p. PB-257 166/9SL.

Whelan, T. et al. "Long-Term Chemical Effects of Petroleum In South Louisiana Wet Lands. 1. Organic-Carbon In Sediments and Waters", Marine Pollution Bulletin, Vol. 7, No. 8, p. 150-155.

Widawsky, A. Development of Harbor Oil Spill Removal/Recovery Systems. Phase I. January 1975. 252 p. AD-B002 854

Wilson, C.A. et al. Crude Oil Spills Research. An Investigation and Evaluation of Analytical Techniques. Bureau of Mines, Bartlesville, Oklahoma. April 1975. 34 p. PB-242 128/7SL.

Wilson, H.W. "Infrared Evidence of Water Dispersed in Petroleum-Products. Fuel, Vol. 54, No. 4, p. 296.

Wong, C.S. et al. Distribution of Tar and Other Particulate Pollutants Along The Beaufort Sea Coast. Beaufort Sea Technical Report No. 13. Department of The Environment, Victoria, B.C. March 1976. 96 p.

Wong, C.S. et al. Hydrocarbon Levels in The Marine Environment of The Southern Beaufort Sea. Beaufort Sea Technical Report No. 38. Department of The Environment, Victoria, B.C. August 1976. 113 p.

Wormald, A.P. "Effects of a Spill of Marine Diesel Oil on Meiofauna of a Sandy Beach at Picnic Bay, Hong Kong", Environmental Pollution, Vol. 11, No. 2, p. 117-130.

Yen, T.F. "Genesis and Degradation of Petroleum Hydrocarbons in Marine Environment", American Chemical Society, Abstracts of Papers, Vol. 1975, No. 169, p. 18.

Yokota, K. "Treatment of Oily Waste-Water and Waste Oil", Journal of Synthetic Organic Chemistry, Japan, Vol. 33, No. 5, p. 323-327.

Young, R.N. and A.J. Sethi. "Compositional Changes of A Fuel Oil From an Oil Spill Due to Natural Exposure", Water - Air - Soil Pollution, Vol. 5, No. 2, December 1975, p. 195-205.

Yu, T. "The Infrared Studies of Santa Barbara Oil Spill", Disertation Abstracts International, Vol. 35, No. 06-B, p. 2601.

Ziegler, R.C. Program for Preventing and Eliminating Oil Pullution of the Buffalo River. Cornell Aeronautical Laboratory, Inc., Buffalo, New York. February 1976. 136 p. PB-249 518/2WP.

Ziegler, R.C. et al. Inverted Siphons for Oil Trapping. Calspan Corp., Buffalo, N.Y. February 1976. 66 p. EPA/600/2-76/028 PB-249 360/9WP.

Zimmerman, M.D. "Minimizing Oil - Spill Hazards", Machine Design, Vol. 47, No. 11, p. 16.

Zschaler, R. "Methods For Determination of Water Drops Distribution in Water-Oil Emulsion", Fette Seifen Anstrichmittel Verbunden Mit Der Z.... Vol. 78, No. 11, p. 437.