

A COMPLETE LISTING OF

- BOOMS
- SKIMMERS
- SORBENTS
- PUMPS
- OIL/WATER SEPARATORS
- BEACH CLEANERS
- DISPERSANT APPLICATION EQUIPMENT
- TEMPORARY STORAGE DEVICES



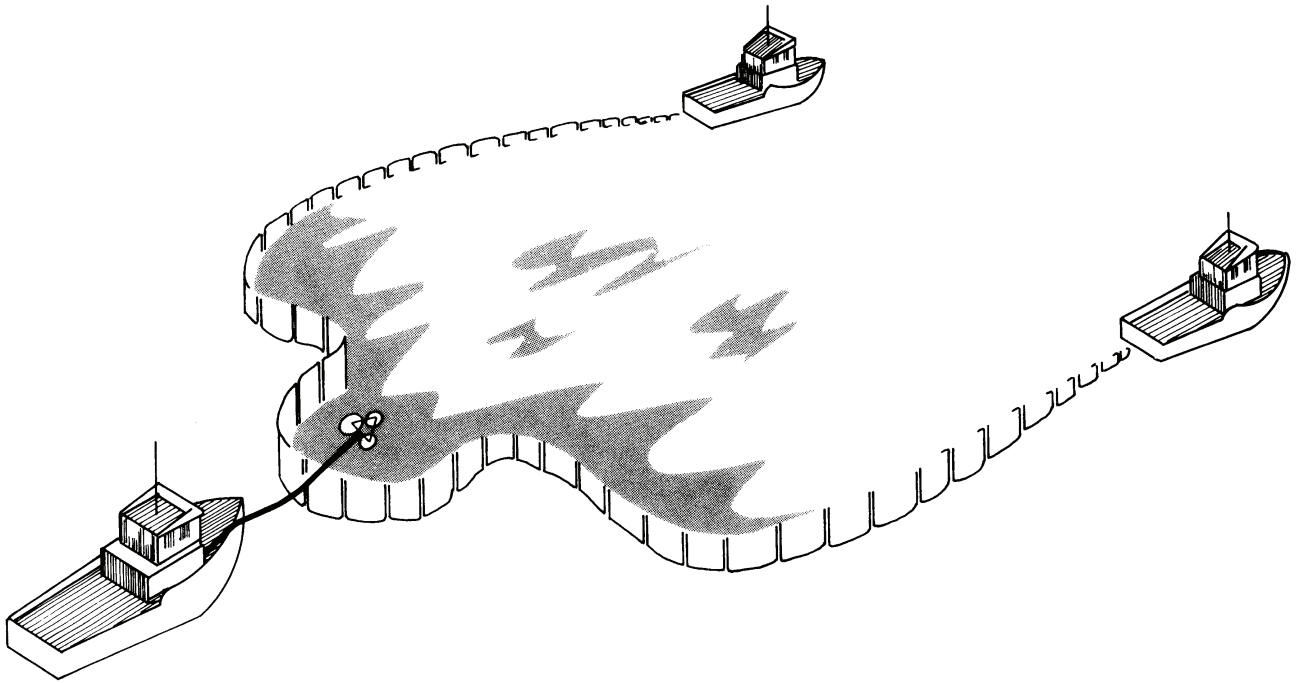
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PREFACE

The World Catalog has now been in general use worldwide for more than twenty years. We have users throughout the United States, Canada, Europe, the Middle East, the Far East, and South America. The goal of this project has been to provide comprehensive information on oil spill response products in a single reference. The first edition of the Catalog in 1986 had 348 pages covering just booms and skimmers. Since that time the Catalog has been expanded to include sorbents, oil/water separators, pumps, beach cleaners, dispersant application equipment, and storage devices. Although recent editions have had as much as 1,000 pages, this new edition, although still complete, is somewhat smaller because of contraction in the industry.

As before, we welcome any comments that will help us to make the Catalog better in the future. Please let us know if there are data that should be included or data that should be omitted. Although data sheets have changed somewhat from the early editions, we have now established a format that has remained essentially the same for several editions. We are trying to make the data entries as descriptive as possible and arrange data sheets so that information is easy to find. To facilitate its use in a database format, we have taken pains to standardize data sheet entries so that computer searches come up with the desired results.

The World Catalog began as a cottage industry in 1986 and continued to be run that way through the 4th edition. The owner and editor did all the work on the first editions and later was helped by two part time assistants. With the expanding size of the 4th edition, it became clear that a new method of operation would be needed, and a joint venture was formed between the original editor and publisher, Robert Schulze, and ECO Inc, headed by Virgil Keith, a former U.S. Coast Guard officer and practising naval architect. With the retirement of these two individuals in 2004, SL Ross Environmental Research took over production of the Catalog. We plan on maintaining the high standards that Bob has set in making the World Catalog the essential reference that it is. For this edition we will be publishing the Catalog in its usual hard-copy form and, for the first time, in a digital CD-version as well. We also plan to develop a web-based version to complement the Catalog with supplementary and archival information. Every indication is that interest in the Catalog remains high, as we have retained the usual support of suppliers for advertising and data listings. We hope to continue publishing on a biennial or triennial basis as long as this support continues.

The World Catalog is proud to provide an important service to the environmental community. Producing a complete reference covering all available oil spill response products is a complex and expensive task. In order for the information in the Catalog to be current, all data must be collected and assembled in a relatively short period of time. All of the work on a single edition of the Catalog is completed in a period of about six months. This is a tremendous task, but one that we feel is necessary to be sure that each new edition is completely up to date when it is published.

ACKNOWLEDGEMENTS

We gratefully acknowledge the enormous contributions to the World Catalog by Bob Schulze, who started the Catalog in 1986 and was the driving force behind it since that time. While we have thoroughly updated the equipment listings, the structure of the data remains and is the result of Bob's knowledge and years of experience in classifying and reporting on equipment specifications and performance. We have also updated and revised much of the text sections that lead each chapter, but again, a significant portion of the material is a result of Bob's work through the years on the Catalog.

We are also grateful to the support of our advertisers and listing companies, without whom the World Catalog would not be possible.

INTRODUCTION

The 9th edition of the World Catalog includes many changes in the text that precedes the data listings in each chapter, but very few changes in the way in that data are recorded. As in recent editions, data reporting follows the format and definitions of American Society for Testing and Materials (ASTM) Standards as much as possible. Several new Standards have been approved or modified since the previous edition and these are referred to where appropriate.

Perhaps the biggest changes that have occurred since the last edition of the Catalog have been in the oil spill response industry. Manufacturing and procurement of response equipment peaked in the early 1990's. Since then there has been a retrenchment in both manufacturing and procurement, and some manufacturers have withdrawn their oil spill response products from the market entirely. Others have cut back and offer fewer products. Finally, there has also been consolidation, with several companies combining to provide a broader range of services.

Here are some important things to look for in the new edition.

Containment Boom

Boom Types: We are continuing to use Fire Resistant, Tidal Seal, and Permanent as standard boom definitions. The latter is designed for long-term deployment in the water, and has also attracted interest as a useful product for port security. The term Fireproof has been dropped because many products are unusable after one burning operation. All three types are listed in the indices of special-purpose booms.

Boom Connectors: What was termed the Quick (Z) connector is now referred to as the ASTM connector because now virtually all "Z" type connectors are made to the ASTM Standard. An additional ASTM connector, the ASTM Slide Connector is also referred to.

This edition has updated summaries of recent research and development, including research on fast-water containment, fire-resistant boom testing, experiments to refine knowledge on the towing forces on booms, heavy oil containment, and methods of measuring buoyancy-to-weight ratio. There is also a description of some recent equipment advances relating to boom retrieval and equipment for vessel pre-booming.

Skimmers

This section describes skimmer types, how they are used, and the level of performance that can be expected of each type. Skimmer definitions follow those contained in ASTM Standard F1178, which was itself adapted from the definitions in recent editions of the World Catalog. Note that the names of some skimmer types have changed to correspond to the ASTM definitions. Check this in Section 2 of the Skimmer Chapter.

Classifying skimmers according to their use in Calm Water, Protected Water, and Open Water has always been a difficult task since there are no exact rules as there are for containment booms. To help solve this problem, we have completed a very extensive review of how skimmers have been classified and how they should be classified. Although we have not developed precise rules that can exactly classify every device, we have developed tables that describe every skimmer type listed in the Catalog. We are not publishing the selection criteria, but they are available should manufacturers and interested users wish to discuss them.

Some recent developments in skimmers are summarized, including development of oil-in-ice skimmers, testing to optimize oleophilic surfaces, and ASTM work on developing a standard method of measuring a skimmer's nameplate recovery rate.

Sorbents

Sorbents data sheets have remained the same as before, but we have added summaries of various sorbents tests. Environment Canada's Emergencies Engineering Division (EED) and the Marine Spill Response Corporation (MSRC) joined in a project to study the relationship between oil sorbent material and oil viscosity as they relate to oil pick-up ratios. Because of the significance of this material, we have included a set of tables summarizing these tests results. We have also established a standard for rating the test results. These tables list products as Good, Fair, or Poor according to their sorbency ratio being >10, 5-10, or <5. This should help the user choose products from among those tested.

Environment Canada has produced a database of sorbent performance and published it on the web. The database contains the testing parameters, performance data pertaining to each sorbent, and manufacturer or distributor contact information.

Separators

Chapter 4 contains a summary of the MSRC separator tests, which show a substantial improvement in separator technology as applied to oil spill response. A summary of the final report of U.S. Coast Guard tests of centrifugal separators is also included. Chapter 4 also refers to recent research on decanting of recovered oil spill fluids, discussed more thoroughly in Appendix D.

Pumps

ASTM Committee F-20 developed and approved a Standard for testing pumps for use in oil spill response operations, F1607. The pump data sheets follow the information contained in this Standard. Pumps data sheets also include listings of pumps that are particularly well suited to handling the highly viscous, emulsified product found at many spill sites.

There have been few pump tests that were specifically related to the issues involved in spill response. For that reason, we have retained the descriptions of significant pump tests that were performed in the late 1970's and the 1980's. We

have also updated this with recent work on pumping viscous emulsions by Alaska Clean Seas, and with a summary of US Coast Guard work in the area of pumping highly viscous oils – up to 500,000 cSt – using a variety of flow-enhancement techniques.

Beach Cleaners

Chapter 6 contains a review of the main types of equipment that can be used to clean oiled shorelines. The emerging area of in situ treatments is also summarized. The Chapter also notes a number of good reference documents, some of which are available on the web.

Dispersant Application Equipment

Chapter 7 contains a good overview of how dispersants work, and describes the many factors that determine their effectiveness. A number of important field and laboratory experiments are summarized in this regard. Several options for dispersant effectiveness testing are also described, including meso-scale lab tests and full-scale testing at Ohmsett, which is a recently developed capability at that facility. Recent testing is summarized regarding on dispersant effectiveness in cold water conditions, with heavy oils, and in low seas states.

There is also a description of dispersant application equipment and techniques, and a discussion of the relative merits of airborne and vessel-based application systems.

Temporary Storage of Recovered Oil

This Chapter includes a summary of the criteria to be considered when selecting a storage device, and highlights the advantages and disadvantages of the main options. Some recent test results are also summarized.

Other developments in temporary storage technology include portable barges that are used by several spill response organization such as the Marine Spill Response Corporation (MSRC), Clean Seas in Carpinteria, California, and Alaska Clean Seas. Chapter 8 contains a description of these systems.

Appendix A - In-Situ Burning

This edition of the Catalog features a good overview of the science, technology, operational capabilities and limitations, and ecological consequences of in situ burning as a countermeasure for oil spills on water. An internationally recognized expert in the field, Ian Buist of SL Ross Environmental Research, wrote this chapter.

Appendix B - Forces on a Boom

Equations in earlier editions have been revised based on recent field and experimental work in this area. Simple to use formulae and graphs are provided.

Appendix C - Spill Encounter Rate

This provides a complete explanation of how to apply this concept to spill response problems. This Appendix has been revised and up-dated.

Appendix D – Decanting

This gives a thorough description of recent and ongoing research in this area, and has simple-to-use guidelines for decanting of oil spill fluids.

Appendix E – Unit Conversions

This is a list of unit conversions that we have found to be useful in the field of oil spill response.

Conclusion

Manufacturer response in reporting data for the Catalog continues to improve. We have done everything we can to make this Catalog is the most complete and accurate yet. We feel an increasing sense of duty to do this because we realize that it has become the most important primary reference for regulatory agencies in approving contingency plans and other necessary documents and applications. With this in mind, we continue to strive to make the data as accurate and complete as possible.

We greatly appreciate the support of Catalog users. The World Catalog is a highly specialized publication designed for a limited community. Our only revenue is from paid advertising and purchases of new books. As a result, the Catalog can only continue when supported its users. We hope that you will agree that this is an important reference for the spill response community, and one that deserves to continue to be published on a regular basis. Your feedback on any aspect of the World Catalog will be appreciated.

TABLE OF CONTENTS

LISTS AND INDICES:

List of Figures	11
List of Tables	13
Booms According to Manufacturer/Distributor	15
Permanent Boom	16
Tidal Seal Boom	18
Fire-Resistant Boom	18
Skimmers According to Manufacturer/Distributor	19
Industrial Skimmers	20
Sorbents According to Manufacturer/Distributor	22
Separators According to Manufacturer/Distributor	23
Beach Cleaners According to Manufacturer/Distributor	23
Pumps According to Manufacturer/Distributor	24
Dispersant Application Equipment According to Manufacturer/Distributor	25
Temporary Storage Devices According to Manufacturer/Distributor	26
Cross Reference of Distributors to Manufacturers	28

CHAPTER 1: OIL CONTAINMENT BOOMS

1.0 INTRODUCTION	1-1
2.0 BOOM COMPONENTS	1-1
2.1 Definitions	1-1
3.0 HOW BOOMS OPERATE	1-2
3.1 Buoyancy	1-3
3.2 Roll Response	1-3
3.3 Heave Response	1-3
4.0 HOW BOOMS FAIL	1-4
4.1 Entrainment Failure	1-5
4.2 Drainage Failure	1-6
4.3 Splashover Failure	1-6
4.4 Submergence Failure	1-7
4.5 Planing Failure	1-7
4.6 Structural Failure	1-7
5.0 TYPES OF BOOMS AVAILABLE	1-8
5.1 Fence Booms	1-12
5.2 Curtain Booms	1-13
5.3 External Tension Booms	1-16
5.4 Curtain Boom Summary	1-16
5.5 Fire-resistant booms	1-16
5.6 Tidal Seal Booms	1-17
5.7 Special Purpose Booms	1-18
6.0 BOOM CONNECTORS	1-18
6.1 Connector Selection Criteria	1-18
6.2 Types of Connectors	1-19
6.3 Connector Selection Considerations	1-21
6.4 ASTM Standard Boom Connector	1-21
6.5 Emergency Method for Joining Booms with Incompatible Connectors	1-23
6.6 Second ASTM Standard Connector	1-23
7.0 CRITERIA FOR SELECTING BOOMS	1-24

7.1	Classification of Booms According to Use	1-24
7.2	Roll Response in Currents.....	1-24
7.3	Heave Response in Waves	1-25
7.4	Freeboard Height and Skirt Depth	1-25
7.5	Forces on Boom	1-25
7.6	Boom Strength Criteria	1-25
7.7	Storage and Deployment Information	1-26
7.8	Summary of Boom Selection Criteria	1-26
7.9	Boom Selection Check List.....	1-28
7.10	Selection For Special Applications	1-29
8.0	BOOM PERFORMANCE TESTS	1-29
8.1	Basin Tests.....	1-29
8.2	EPA Tests at Ohmsett	1-30
8.3	Offshore Tests	1-31
8.4	More Recent Boom Tests	1-32
8.4.1	Minerals Management Service Tests.....	1-32
8.4.2	NOFI/Norwegian Oil Trawl Tests	1-33
8.4.3	MSRC At-Sea Tests.....	1-33
8.4.4	Stevens Institute Wave Tank Tests	1-35
8.5	Fire-resistant Boom Tests	1-36
8.5.1	Demonstration Burn After Valdez Spill.....	1-36
8.5.2	Newfoundland Offshore Burn Experiment (NOBE).....	1-36
8.5.3	NIST Burn Tests at Mobile.....	1-37
8.5.4	Propane-Fuelled Burn Tests at Ohmsett	1-37
8.6	USCG Fast-Current Containment Research	1-38
8.6.1	Commercial Fast-Water Systems	1-39
8.7	Research on Boom Towing Forces	1-39
8.8	Effect of Buoyancy on Boom Performance.....	1-39
8.9	Heavy Oil Containment.....	1-39
8.10	Measuring Buoyancy-to-Weight Ratio	1-40
9.0	CONTAINMENT LESSONS LEARNED FROM VALDEZ SPILL.....	1-40
10.0	RECENT DEVELOPMENTS IN BOOM TECHNOLOGY	1-41
10.1	Boom Retrieval Systems	1-41
10.2	Pre-Booming of Vessels	1-41
11.0	ENTRIES IN BOOM DATA SHEETS	1-42
12.0	BOOMS REFERENCES	1-44

CHAPTER 2: OIL SPILL SKIMMERS

1.0	INTRODUCTION.....	2-1
1.1	Skimmer Types.....	2-2
1.2	Factors Affecting Skimmer Performance.....	2-3
1.3	Performance as a Function of Spill Encounter Rate.....	2-4
1.4	Skimmer Measures of Effectiveness	2-5
2.0	SKIMMER TYPES AND APPLICATIONS	2-5
2.1	Boom Skimmers	2-5
2.2	Brush Skimmers	2-6
2.3	Disc Skimmers.....	2-7
2.4	Drum Skimmers.....	2-8
2.5	Paddle Belt Skimmers	2-9
2.6	Rope Mop Skimmers	2-10
2.7	Sorbent Belt Skimmers.....	2-13
2.8	Fixed Submersion Plane Skimmers	2-14

2.9	Submersion Moving Plane Skimmers.....	2-15
2.10	Suction Skimmers.....	2-15
2.11	Weir Skimmers.....	2-17
2.12	Induced Flow (Water Jet) Weir Skimmers.....	2-19
2.13	Advancing Weir Skimmers.....	2-20
3.0	MEASURES OF EFFECTIVENESS.....	2-22
4.0	RECENT DEVELOPMENTS IN SKIMMERS.....	2-22
4.1	Optimization of Oleophilic Surfaces.....	2-22
4.2	Skimmers for Spills in Ice.....	2-23
4.2.1	MORICE.....	2-23
4.2.2	Lamor Oil-in-Ice Skimmers.....	2-24
4.3	Determination of a Skimmer's Nameplate Recovery Rate.....	2-24
5.0	ENTRIES IN SKIMMER DATA SHEETS.....	2-25
6.0	OIL SPILL SKIMMERS REFERENCES.....	2-28

CHAPTER 3: SORBENTS

1.0	INTRODUCTION.....	3-1
2.0	DEFINITIONS AND SORBENT TYPES.....	3-1
2.1	Sorbent Description.....	3-1
2.2	Definitions.....	3-1
2.3	Types of Sorbents.....	3-2
2.4	Product Configurations.....	3-2
3.0	CRITERIA FOR SELECTING SORBENTS.....	3-2
4.0	SORBENT TESTS.....	3-4
4.1	Sorbent Test Standards.....	3-4
4.2	Environment Canada Tests.....	3-5
4.2.1	Tests of Organic Sorbents.....	3-6
4.2.2	Tests of Inorganic Sorbents.....	3-7
4.2.3	Tests of Synthetic Sorbents.....	3-8
4.2.4	Thin Film Tests.....	3-9
4.3	Sorbent Boom Tests.....	3-10
4.4	Environment Canada / MSRC Sorbent Tests.....	3-11
4.5	Environment Canada's Sorbent Test Facility and Database.....	3-12
5.0	SUMMARY.....	3-14
6.0	ENTRIES IN SORBENTS DATA SHEETS.....	3-14
7.0	SORBENTS REFERENCES.....	3-15

CHAPTER 4: OIL / WATER SEPARATORS

1.0	INTRODUCTION.....	4-1
2.0	DISCUSSION.....	4-1
3.0	SEPARATOR OPERATION.....	4-3
3.1	Use of Separators at Spills.....	4-4
4.0	SPILL SEPARATOR TESTS.....	4-5
4.1	NOFO North Sea Tests.....	4-5
4.2	CEDRE Tests.....	4-5
4.3	MSRC Tests.....	4-5
4.4	USCG / MSRC Separator Tests 1992.....	4-7
4.5	U.S. Coast Guard Separator Tests 1994.....	4-9
5.0	COMMENTS ON SEPARATOR TECHNOLOGY.....	4-11
6.0	ENTRIES IN SEPARATORS DATA SHEETS.....	4-11
7.0	SEPARATORS REFERENCES.....	4-12

CHAPTER 5: PUMPS

1.0	INTRODUCTION.....	5-1
2.0	PUMPS FOR SPILL CLEANUP	5-1
2.1	Pump Types	5-2
3.0	PUMP TESTS	5-4
3.1	Tests Performed by Environment Canada	5-4
3.2	Tests Performed by Environment Canada 1979	5-7
3.3	Tests Performed by Environment Canada 1981	5-8
3.4	Tests Performed by Ohmsett 1983.....	5-8
3.5	Alaska Clean Seas Pumping Tests	5-8
3.6	USCG Viscous Oil Pumping Tests	5-10
4.0	PUMPS DATA SHEETS.....	5-11
5.0	PUMPS REFERENCES	5-12

CHAPTER 6: BEACH CLEANERS

1.0	INTRODUCTION.....	6-1
2.0	MANUAL CLEANING	6-1
3.0	WASHING	6-2
4.0	MECHANICAL CLEANERS	6-2
4.1	Upper Beach Layer Processors.....	6-2
4.2	Beach Rakes	6-2
4.3	Oleophilic Devices	6-3
5.0	VACUUM CLEANING	6-3
6.0	IN SITU BEACH CLEANING METHODS.....	6-3
7.0	BEACH CLEANER REFERENCES	6-4

CHAPTER 7: DISPERSANTS AND DISPERSANT APPLICATION EQUIPMENT

1.0	INTRODUCTION.....	7-1
2.0	HOW DISPERSANTS WORK	7-1
2.1	General.....	7-1
2.2	Main Factors Influencing Dispersant Effectiveness	7-2
2.2.1	Definition of Dispersant Effectiveness	7-2
2.2.2	Problems in Obtaining High Dispersant Effectiveness for Spills at Sea	7-4
2.2.3	Dosage Control	7-4
2.2.4	Oil Viscosity and Water-in-Oil Emulsification	7-5
2.2.5	Herding and Dispersant Drop Size	7-5
2.2.6	Sea Energy	7-7
2.2.7	Method of Application: Neat versus Water-Diluted Dispersant	7-7
2.2.8	Temperature	7-7
2.2.9	Salinity	7-7
3.0	EUROPEAN FIELD EXPERIENCE WITH DISPERSANTS IN THE 1990s.....	7-7
4.0	DISPERSANT EFFECTIVENESS TESTING OPTIONS	7-8
4.1	Large-scale Tank Testing at Ohmsett	7-8
4.2	Meso-scale Tank Testing	7-8
4.3	Small-scale Laboratory Testing	7-8
5.0	RECENT DISPERSANT TESTING	7-8
5.1	Dispersant Effectiveness in Cold Water	7-9
5.2	Dispersant Effectiveness on Heavy Oils.....	7-9
5.3	Dispersant Effectiveness in Non-Breaking Waves	7-9

6.0	“APPROVED” DISPERSANTS LISTS.....	7-9
7.0	EQUIPMENT REQUIREMENTS FOR DISPERSANT APPLICATION.....	7-10
8.0	TYPES OF APPLICATION EQUIPMENT	7-11
8.1	Application by Surface Vessels	7-11
8.2	Application by Aircraft.....	7-13
8.2.1	Air Application Equipment.....	7-13
8.2.2	Application by Helicopters.....	7-14
8.2.3	Application by Fixed-wing Aircraft.....	7-14
8.3	Shoreline Application Equipment.....	7-14
8.4	Calibration Of Dispersant Application Equipment.....	7-15
8.5	Comparison Of Airborne And Vessel Dispersant Application Systems	7-15
9.0	ENVIRONMENTAL CONSIDERATIONS IN USING DISPERSANTS.....	7-15
10.0	ENTRIES IN DISPERSANT APPLICATION DATA SHEETS	7-15
11.0	DISPERSANT REFERENCES.....	7-16

CHAPTER 8: TEMPORARY STORAGE OF RECOVERED OIL

1.0	INTRODUCTION.....	8-1
2.0	TYPES OF TEMPORARY STORAGE VESSELS AVAILABLE	8-1
2.1	Barges	8-1
2.2	Towable Tanks	8-2
2.3	Stationary Tanks.....	8-3
3.0	STORAGE DEVICE REQUIREMENTS	8-3
3.1	Requirements Definitions	8-3
3.2	Criteria for Selecting Storage Devices.....	8-4
4.0	MINI-BARGE SYSTEMS.....	8-5
4.1	MSRC Shallow Water Barge System.....	8-5
4.2	Clean Seas Shallow Draft Barge System	8-6
4.3	Alaska Clean Seas Mini-Barges	8-7
5.0	TESTS OF STORAGE DEVICES	8-8
5.1	Ohmsett Tests of the Lancer Inflatable Barge	8-8
5.2	Ohmsett Tests of the CANFLEX “Sea Slug”	8-8
6.0	ASTM STANDARDS FOR STORAGE DEVICES	8-9
7.0	ENTRIES IN STORAGE DEVICE DATA SHEETS	8-9
8.0	STORAGE DEVICES REFERENCES	8-10

APPENDIX A: IN SITU BURNING

1.0	INTRODUCTION.....	A-1
2.0	THE FUNDAMENTALS OF IN SITU BURNING	A-1
2.1	Requirements for ignition.....	A-1
2.2	Heat transfer back to slick	A-2
2.3	Flame temperatures and total heat fluxes	A-2
2.4	Importance of slick thickness.....	A-2
2.5	The vigorous burning phase	A-2
2.6	Effect of evaporation on slick ignition	A-2
2.7	Other factors affecting ignition	A-3
2.8	Flame spreading.....	A-3
2.9	Oil burning rates	A-3
2.10	Flame heights	A-3
2.11	Burn efficiency	A-3
2.12	Effects of emulsification.....	A-4
3.0	ENVIRONMENTAL AND HUMAN HEALTH RISKS.....	A-5

3.1	Fire and heat	A-5
3.1.1	Effects of heat on spill responders.....	A-5
3.1.2	Environmental effects of heat	A-5
3.2	Air emissions	A-5
3.2.1	Smoke.....	A-6
3.2.2	Proximity to Shorelines, Towns, Airports, etc.	A-7
3.3	Burn residue	A-8
4.0	TECHNOLOGIES FOR CONDUCTING IN SITU BURNS	A-8
4.1	Heli-torch	A-8
4.2	Handheld Igniters	A-9
4.3	Ad-Hoc Igniters.....	A-9
4.4	Ignition Promoters	A-9
4.5	Fire-Resistant Boom.....	A-9
5.0	LOGISTICS	A-10
5.1	Vessels.....	A-10
5.2	Aircraft	A-11
6.0	IGNITION PROCEDURES	A-11
6.1	Aerial Ignition.....	A-11
6.2	Vessel-based Ignition	A-12
7.0	BURN PROCEDURES	A-12
7.1	Continuous Burning	A-12
7.2	Batch Burning.....	A-12
7.3	Fire Extinction.....	A-14
7.4	Uncontained Fire	A-15
7.5	Vessel Fire.....	A-15
8.0	APPENDIX A REFERENCES	A-16

APPENDIX B: ESTIMATING FORCES ON OIL SPILL CONTAINMENT BOOMS

1.0	INTRODUCTION.....	B-1
2.0	Minerals Management Service Tests at Ohmsett 1999	B-1
2.1	Test Description.....	B-1
2.2	Test Variables.....	B-2
2.3	MMS Formulae for Boom Tension.....	B-2
3.0	DISCUSSION OF EARLIER EQUATIONS	B-3
4.0	USE OF PROPOSED MMS EQUATIONS	B-4
5.0	APPENDIX B REFERENCES	B-5

APPENDIX C: OIL SPILL ENCOUNTER RATE FOR CONTINGENCY PLANNING

1.0	INTRODUCTION.....	C-1
2.0	DEFINITIONS.....	C-1
3.0	COMPUTING SPILL ENCOUNTER RATE	C-2
3.1	Work Sheet Entries.....	C-2
3.2	Sample Spill Encounter Rate Computation	C-3
4.0	CONCLUSIONS.....	C-4
5.0	APPENDIX C REFERENCES	C-7

APPENDIX D: STUDIES ON DECANTING RECOVERED OIL SPILL FLUIDS

APPENDIX E: UNIT CONVERSIONS FOR OIL SPILL RESPONSE

LIST OF FIGURES

CHAPTER 1: OIL CONTAINMENT BOOMS

Figure 1-1: Components of a boom	1-2
Figure 1-2: Boom roll in currents	1-3
Figure 1-3: Heave response in waves	1-4
Figure 1-4: Heave response of a flexible boom	1-4
Figure 1-5: Entrainment and drainage failure	1-5
Figure 1-6: Boom angles to reduce velocity perpendicular to the boom.....	1-5
Figure 1-7: Flow under boom skirt.....	1-6
Figure 1-8: Boom failure from splashover, submergence, and planing	1-7
Figure 1-9: Drag force on a calm water boom	1-9
Figure 1-10: Drag force on a protected water boom.....	1-10
Figure 1-11: Drag force on an open water boom.....	1-11
Figure 1-12: Typical fence booms	1-13
Figure 1-13: Curtain boom with internal foam floatation	1-14
Figure 1-14: Curtain boom with external foam floatation	1-14
Figure 1-15: Inflatable curtain boom	1-15
Figure 1-16: External tension boom.....	1-16
Figure 1-17: Elastec / American Marine (3M) fire-resistant boom	1-17
Figure 1-18: Tidal seal boom	1-18
Figure 1-19: ASTM connector.....	1-19
Figure 1-20: Universal slide connector, type 1	1-19
Figure 1-21: Universal slide connector, type 2	1-19
Figure 1-22: Slide (U.S. Navy) connector	1-20
Figure 1-23: Slotted tube connector	1-20
Figure 1-24: Raised channel.....	1-20
Figure 1-25: Bolt connector	1-20
Figure 1-26: Notched plate and pin connector.....	1-20
Figure 1-27: Hinge and pin connector	1-20
Figure 1-28: Fireboom "U" connector	1-21
Figure 1-29: ASTM end connector.....	1-22
Figure 1-30: Emergency method for joining booms	1-23
Figure 1-31: Fast-water Flow-Diverter	1-38
Figure 1-32: NOFI Current Buster in tests at Ohmsett	1-39
Figure 1-33: Seacor boom handler	1-41
Figure 1-34: Quali-Tech Boom Bully.....	1-41
Figure 1-35: Kepner Stand-Off Ladder System	1-42

CHAPTER 2: OIL SPILL SKIMMERS

Figure 2-1: Boom skimmer (weir located on face of air-inflated boom)	2-5
Figure 2-2: Chain brush skimmer	2-6
Figure 2-3: Drum brush skimmer	2-6
Figure 2-4: Disc skimmer.....	2-7
Figure 2-5: Star disc skimmer.....	2-8
Figure 2-6: Drum skimmer	2-8
Figure 2-7: Helical drum skimmer.....	2-9
Figure 2-8: Paddle belt skimmer.....	2-9
Figure 2-9: Submersion paddle belt skimmer	2-10
Figure 2-10: Stationary rope mop skimmer	2-10

Figure 2-11: Boom rope mop skimmer	2-11
Figure 2-12: Suspended rope mop skimmer	2-12
Figure 2-13: Zero relative velocity skimmer	2-12
Figure 2-14: Sorbent belt skimmer	2-13
Figure 2-15: Fixed submersion plane skimmer.....	2-14
Figure 2-16: Submersion moving plane skimmer	2-15
Figure 2-17: Suction skimmer	2-16
Figure 2-18: Air conveyor system	2-16
Figure 2-19: Weir skimmer with external pump	2-17
Figure 2-20: Weir skimmer with integral pump	2-18
Figure 2-21: Large, high capacity weir skimmer	2-18
Figure 2-22: Induced flow (weir vortex) skimmer	2-19
Figure 2-23: Induced flow (water jet) weir skimmer	2-19
Figure 2-24: Advancing weir skimmer	2-20
Figure 2-25: Sweeping arm weir skimmer	2-20
Figure 2-26: Oil head weir skimmer.....	2-21
Figure 2-27: Grooved drum skimmer.....	2-23
Figure 2-28: Prototype MORICE recovery system	2-23
Figure 2-29: Lamor Arctic skimmer.....	2-24
Figure 2-30: Lamor Oil Recovery Bucket (illustrating brush-wheel skimming concept).....	2-24
Figure 2-31: LOIS skimmer mounted on a ship	2-24

CHAPTER 4: OIL / WATER SEPARATORS

Figure 4-1: Gravity coalescing separator.....	4-3
Figure 4-2: Gravity parallel plate separator	4-4
Figure 4-3: Simple gravity separator.....	4-4
Figure 4-4: Stove pipe separator	4-4
Figure 4-5: MSRC Separator	4-6

CHAPTER 5: PUMPS

Figure 5-1: Double-diaphragm pump.....	5-2
Figure 5-2: Lobe pump	5-2
Figure 5-3: Peristaltic pump.....	5-3
Figure 5-4: Progressive-cavity pump	5-3
Figure 5-5: Archimedean screw pump.....	5-4
Figure 5-6: Sliding shoe pump.....	5-4
Figure 5-7: Schematic diagram of annular water injection system for pumping viscous oils.....	5-10

CHAPTER 7: DISPERSANTS AND DISPERSANT APPLICATION EQUIPMENT

Figure 7-1: Mechanisms of chemical dispersion.....	7-1
Figure 7-2: Effect of viscosity on dispersant effectiveness	7-6
Figure 7-3: Effect of viscosity on dispersant effectiveness	7-6

CHAPTER 8: TEMPORARY STORAGE OF RECOVERED OIL

Figure 8-1: Completed waterborne assemblies with Thrustmaster power unit.....	8-5
Figure 8-2: Clean Seas shallow-draft barge	8-6
Figure 8-3: Clean Seas barge with containment boom and stern-mounted skimmer	8-6
Figure 8-4: ACS mini-barge under tow	8-7
Figure 8-5: Mini-barge, positioned by workboat.....	8-7

APPENDIX A: IN SITU BURNING

Figure A-1: Heat transfer processes that drive ISB	A-2
Figure A-2: Continuous burning using tow boats [8].....	A-13
Figure A-3: Independent task force operational procedure [8]	A-13
Figure A-4: Coordinated task force operational procedure [9].....	A-14
Figure A-5: Burning an uncontained oil slick [8]	A-15

APPENDIX B: ESTIMATING FORCES ON OIL SPILL CONTAINMENT BOOMS

Figure B-1: Tension parameter vs. gap ratio	B-4
---	-----

LIST OF TABLES

CHAPTER 1: OIL CONTAINMENT BOOMS

Table 1-1: Water body classification for spill control systems	1-24
Table 1-2: Ballast requirement for a 0.7 knot current	1-24
Table 1-3: Guideline for the selection of booms according to water body classification (ASTM F1523) ..	1-27
Table 1-4: OPA 90 criteria for selecting booms	1-28

CHAPTER 2: OIL SPILL SKIMMERS

Table 2-1: ASTM test oils	2-3
---------------------------------	-----

CHAPTER 3: SORBENTS

Table 3-1: Environment Canada sorbent tests - organic sorbents	3-12
Table 3-2: Environment Canada sorbent tests - synthetic sorbents	3-13

CHAPTER 4: OIL / WATER SEPARATORS

Table 4-1: MSRC ACS Industries Separator Tests	4-6
Table 4-2: Oil/Water Separator Characteristics	4-9
Table 4-3: US Coast Guard Separator Tests	4-10

CHAPTER 5: PUMPS

Table 5-1: Pump test with crude oil [1]	5-5
Table 5-2: Pump tests in lubricating oil [1].....	5-5
Table 5-3: Pump tests in brine and oil [2]	5-9
Table 5-4: Pump tests in crude oil and lube oil, Roper rotary gear pump [3].....	5-9
Table 5-5: Pump tests in crude oil and lube oil, Komline-Sanderson double-diaphragm pump [3]	5-9

CHAPTER 7: DISPERSANTS AND DISPERSANT APPLICATION EQUIPMENT

Table 7-1: Dispersibility of oil versus API gravity and pour point..... 7-3
Table 7-2: Illustration of over- and under-dosing during the 1984 Norwegian experimental spill 7-5
Table 7-3: Lists of Approved Dispersants from National Contingency Plans 7-10

CHAPTER 8: TEMPORARY STORAGE OF RECOVERED OIL

Table 8-1: Storage Requirements Based On Skimmer Pumping Rate..... 8-4

APPENDIX A: IN SITU BURNING

Table A-1: Minimum ignitable thickness A-2
Table A-2: Burn removal rates for large fires A-4
Table A-3: Extinguishing slick thickness A-4
Table A-4: Safe approach distance for in situ oil fires A-5
Table A-5: Airborne emissions from an in situ oil fire on water..... A-6
Table A-6: Estimates for maximum downwind extent of PM-10 Particulates A-7

APPENDIX B: ESTIMATING FORCES ON OIL SPILL CONTAINMENT BOOMS

Table B-1: Booms used for tow-force testing at Ohmsett B-2
Table B-2: Values of K for booms tested B-3
Table B-3: Values of constant K for standard water body classifications, from MMS study B-4

APPENDIX C: OIL SPILL ENCOUNTER RATE FOR CONTINGENCY PLANNING

Table C-1: Contingency planning work sheet – example calculation C-5
Table C-2: Contingency planning work sheet C-6

INDEX
BOOM ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	CALM WATER	PROTECTED WATER	OPEN WATER
Abasco	1-48 to 1-49	1-95 to 1-97	1-153 to 1-155
Acme Products Co.	1-50 to 1-51	1-98	1-156
Action Petroleum	1-52 to 1-53	1-99	1-157 to 1-158
AllMaritim AS		1-100 to 1-102	1-159 to 1-162
Applied Fabric Technology, Inc.	1-54 to 1-57	1-103 to 1-107	
Aqua-Guard Spill Response, Inc.	1-58	1-108 to 1-117	1-163
Brockton Equipment/Spilldam	1-59	1-118	
Crucial, Incorporated	1-60 to 1-61	1-119	1-164 to 1-165
Eco Equipments Inc.	1-62 to 1-65		
Elastec/American Marine	1-66 to 1-68	1-120	1-166 to 1-169
Jackson Trawls, Ltd.		1-121	1-170
Kepner Plastics Fabricators, Inc	1-69	1-122 to 1-127	1-171 to 1-172
Lamor Corporation AB	1-70 to 1-71	1-128 to 1-130	1-173 to 1-175
Markleen AS	1-72	1-131 to 1-133	1-176 to 1-179
New Naval Limited	1-73	1-134 to 1-136	1-180
Oil Stop, LLC	1-74	1-137	1-181
Parker Systems, Inc.	1-75	1-138 to 1-141	
Pol-E-Mar Inc.	1-76		1-182
Quali Tech Environmental	1-77	1-142	1-183 to 1-184
Ro-Clean Desmi A/S	1-78 to 1-81	1-143 to 1-144	1-185 to 1-187
Seacor Environmental Products		1-145	
Slickbar Products Corporation	1-82 to 1-89	1-146 to 1-148	1-188
Vikoma International Limited	1-90 to 1-94	1-149 to 1-152	1-189 to 1-193

**INDEX
PERMANENT BOOM**

MANUFACTURER/DISTRIBUTOR	MODEL	PAGE
Abasco LLC	SIGMA I/24	1-95
	SIGMA I/36	1-95
	SIGMA I/48	1-95
Acme Products Co.	24" PERMA BOOM	1-51
	36" PERMA BOOM	1-52
Applied Fabric Technology, Inc.	OILFENCE 16	1-57
	OIL FENCE 24	1-106
	OIL FENCE 36	1-106
	OIL FENCE 48	1-106
Aqua-Guard Spill Response, Inc.	HARBOURFLEX L 18	1-108
	HARBOURFLEX L 24	1-108
	HARBOURFLEX L 36	1-108
	HARBOURFLEX S 18	1-109
	HARBOURFLEX S 24	1-109
	HARBOURFLEX S 30	1-109
Crucial, Incorporated	PERM A FENCE 24 SERIES	1-60
	PERM A FENCE 36 SERIES	1-60
ECO Equipments	ECO PB 350	1-65
	ECO PB 650	1-65
	ECO PB 900	1-65
Elastec/American Marine	PERMAFENCE 18	1-67
	PERMAFENCE 24	1-67
	PERMAFENCE 36	1-67
Lamor Corporation AB	LPB 600	1-71
	LPB 900	1-71
Markleen AS	UNIBOOM® P700	1-132

Oil Stop, LLC	HUSKY	1-137
Parker Systems, Inc.	SPILLMASTER SUPERFLEX 18"	1-140
	SPILLMASTER SUPERFLEX 24"	1-140
	SPILLMASTER SUPERFLEX 36"	1-140
	ORIGINAL 18"	1-139
	ORIGINAL 24"	1-139
	ORIGINAL 36"	1-139
Ro-Clean Desmi	RO-FENCE 610	1-81
	RO-FENCE 900	1-81
Seacor Environmental Products	PETRO BARRIER 24 INCH	1-145
	PETRO BARRIER 36 INCH	1-145
Slickbar Products Corporation	MK 16-16" U (LW)	1-87
	MK 16-16" U (HW)	1-87
	MK 16-18" PVC	1-87
	MK 8-24" ULW	1-88
	MK 8-24" UHW	1-88
	MK 8-24" PVC	1-88
	MK 8-36" ULW	1-89
	MK 8-36" UHW	1-89
	MK 8-36" PVC	1-89
Vikoma International Limited	POD BOOM	1-92

**INDEX
SHORE SEAL BOOM**

MANUFACTURER/DISTRIBUTOR	MODEL	PAGE
Aqua-Guard Spill Response, Inc	BEACHFLEX 65	1-58
Crucial, Incorporated	SHORE/TIDAL GUARD	1-61
Jackson Trawls, Ltd.	JACKSON 2.0 MTR TIDAL POLLUTION NET	1-121
Markleen AS	UNIBOOM® S650	1-133
Ro-Clean Desmi A/S	RO-BOOM BEACH	1-78
Vikoma International Limited	SHOREGUARDIAN 400	1-93
	SHOREGUARDIAN 550	1-93

**INDEX
FIRE-RESISTANT BOOM**

MANUFACTURER/DISTRIBUTOR	MODEL	PAGE
Applied Fabric Technology, Inc.	PYROBOOM 30	1-107
	POCKETBOOM	1-107
Elastec/American Marine	HYDRO-FIREBOOM 14" X 18" SYSTEM	1-168
Oil Stop, LLC	FIRE MODEL OFFSHORE AUTO BOOM™	1-181
	FIRE MODEL HARBOR AUTO BOOM™	1-137

INDEX
SKIMMERS ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	CALM WATER	PROTECTED WATER	OPEN WATER
Abasco	2-30 to 2-32	2-59	2-98 to 2-99
Action Petroleum	2-33	2-60 to 2-61	2-100 to 2-101
AllMaritim AS		2-62	2-102 to 2-103
Aqua-Guard Spill Response, Inc.	2-34 to 2-35	2-63 to 2-65	2-104 to 2-105
Crucial, Incorporated	2-36 to 2-37	2-66 to 2-67	2-106 to 2-108
Douglas Engineering			2-109
ECO Equipments Inc.	2-38	2-68 to 2-69	2-110
Elastec/American Marine	2-39	2-70	2-111
Frank Mohn Flatoy A/S			2-112
Jackson Trawls, Ltd.			2-113
JBF Environmental Technology		2-71 to 2-73	2-114 to 2-115
Kepner Plastics Fabricators, Inc	2-40	2-74	
Lamor Corporation AB	2-41 to 2-42	2-75 to 2-83	2-116 to 2-125
Markleen AS	2-43		2-126
Megator Limited	2-44		
Morris Skimmers International, LLC	2-45	2-84	2-127
New Naval Limited		2-85	
Quali Tech Environmental	2-46	2-86	2-128 to 2-130
Ro-Clean Desmi A/S	2-47 to 2-50	2-87 to 2-91	2-131 to 2-137
Slickbar Products Corporation	2-51 to 2-54	2-92	
Vikoma International Limited	2-55 to 2-58	2-93 to 2-96	2-138 to 2-143
Webster Barnes, Inc.		2-97	

**INDEX
INDUSTRIAL SKIMMERS**

MANUFACTURER/DISTRIBUTOR	MODEL	TYPE	PAGE
Abasco	TW-24	Boom rope mop	2-31
	Q-13 EL	Suspended rope mop	2-30
	Series 10	Brush/disc/drum	2-59
	Series 25	Brush/disc/drum	2-59
	Series 40	Brush/disc/drum	2-59
Crucial, Inc.	MINI ORD	Stationary	2-36
	1D-18-36	Drum	2-36
	1B-18-36	Brush	2-36
	C-14	Stationary rope mop	2-37
	C-24	Stationary rope mop	2-37
	ORD	Disc	2-66
	2D-18-36	Drum	2-66
	RF Series	Weir	2-67
	VSP-3	Weir	2-107
	VSP-4	Weir	2-107
	Douglas Engineering	Skim Pak 2300-SH	Weir
Skim Pak 18300-SH		Weir	2-109
Skim Pak 19300		Weir	2-109
ECO Equipments Inc.	ECO DSS	Drum	2-38
	ECO DS20	Drum	2-68
	ECO DS50	Drum	2-68
Elastec/American Marine	TDS-136	Drum	2-39
	MAGNUM 100	Drum	2-70
	MINI-MAX	Drum	2-39
	TDS-118	Drum	2-39
JBF Environmental	DIP 400 VOSS	Submersion moving	2-71

Markleen AS	MS 10	Brush / disc / drum	2-43
	MS 20	Brush / disc / drum	2-43
Megator	ALPHA	Weir	2-44
	SIGMA	Weir	2-44
	SUMP	Weir	2-44
Morris Skimmers Int'l	MI-2	Disc	2-45
	MI-2HE	Disc	2-45
	MI-2HD	Disc	2-45
	MI-11-24	Disc	2-84
	MI-30	Disc	2-84
Ro-Clean Desmi	OM 140	Stationary rope mop	2-47
	Termite	Weir	2-49
	Terrapin	Weir	2-49
	DBD-5	Disc / brush drum	2-89
	OM 240	Stationary rope mop	2-87
	OM 260	Stationary rope mop	2-87
	OM 290	Stationary rope mop	2-87
	SEAMOP 3040	Suspended rope mop	2-88
	DBD-15	Disc / brush drum	2-89
	DBD-22	Disc / brush drum	2-89
Slickbar Products Corp.	SLURP (Stainless Steel)	Weir	2-52
	SLURP (Aluminum)	Weir	2-52
	CIRCULAR WEIR 12-INCH	Weir	2-53
	CIRCULAR WEIR 24-INCH	Weir	2-53
	CIRCULAR WEIR 36-INCH	Weir	2-53
Vikoma International, Ltd.	T-6	Disc	2-57
	KEBAB T9 FXD	Disc	2-57
	KEBAB T9 FLT	Disc	2-57
	KEBAB T14 FXD	Disc	2-58
	KEBAB T14 FLT	Disc	2-58

INDEX
SORBENTS ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	PAGES
Abasco	3-17, 3-18
Chemtex, Inc.	3-19
Crucial, Incorporated	3-20
ECO Equipments Inc.	3-21, 3-22
Markleen AS	3-23 to 3-26
New Naval Limited	3-27, 3-28
Parker Systems, Inc.,	3-29
Quali Tech Environmental	3-30

INDEX
SEPARATORS ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	PAGE
ECO Equipments Inc.	4-13
Hyde Marine, Inc.	4-14, 4-15
Webster Barnes, Inc.	4-16

INDEX
BEACH CLEANERS ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	SERVICE TYPE	PAGE
Abasco LLC	Mechanical Cleaner/Vacuum/Pressure Washer	6-5
Aqua-Guard Spill Response, Inc,	Mechanical Cleaner/Vacuum/Pressure Washer	6-6
Crucial, Incorporated	Mechanical Cleaner/Vacuum	6-7
Elastec / American Marine	Mechanical Cleaner/Vacuum/Pressure Washer	6-8
Faltech AB	Mechanical Cleaner/Vacuum	6-9
Lamor Corporation AB	Mechanical Cleaner/Brush/Vacuum	6-10
	Mechanical Cleaner/Brush	6-11
	Mechanical Cleaner/Brush	6-12
	Mechanical Cleaner/Vacuum	6-13
	Mechanical Cleaner Transport/Washer	6-14
New Naval Limited	Mechanical Cleaner/Vacuum	6-15
Ro-Clean Desmi A/S	Mechanical Cleaner/Vacuum	6-16
Vikoma International Limited	Mechanical Cleaner/Washer/Skimmer	6-17

INDEX
PUMPS ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	PUMP TYPE	PAGE
Action Petroleum	Screw type	5-13
Aqua-Guard Spill Response Inc.	Screw-type	5-14
	Lobe	5-15
Boerger LLC	Lobe	5-16
Crucial, Incorporated	Diaphragm	5-17
	Vortex Flow	5-17
Faltech AB	Peristaltic	5-18
Frank Mohn Flatoy A/S	Centrifugal	5-19
Hyde Marine, Inc	Vane	5-20
	Vane	5-21
Kvaerner Oilfield Products A.S.	Centrifugal	5-22
Lamor Corporation AB	Progressive Cavity	5-23
	Progressive Cavity	5-24
	Progressive Cavity	5-25
	Centrifugal	5-26
	Peristaltic	5-27
Megator Limited	Sliding Shoe	5-28
	Sliding Shoe	5-29
Quali Tech Environmental	Progressive Cavity	5-30
Ro-Clean Desmi A/S	Positive displacement	5-31
Vikoma International Limited	Positive displacement	5-32
Vogelsang Maschinenbau GmbH	Lobe	5-33
	Lobe	5-34

INDEX
DISPERSANT APPLICATION EQUIPMENT ACCORDING TO MANUFACTURER/DISTRIBUTOR

MANUFACTURER/DISTRIBUTOR	METHOD OF APPLICATION	PAGE
Abasco	Surface Vessel	7-19
	Shoreline	7-19
	Surface Vessel	7-20
Aqua-Guard Spill Response, Inc	Surface Vessel	7-21
	Shoreline, Surface Vessel	7-22
Crucial, Incorporated	Surface Vessel	7-23
	Surface Vessel	7-24
Elastec/American Marine	Surface Vessel	7-25
Markleen AS	Surface Vessel	7-26
Megator Limited	Surface Vessel, Shoreline	7-27
	Surface Vessel	7-28
New Naval Limited	Surface Vessel	7-29
Quali Tech Environmental	Surface Vessel	7-30
Slickbar Products Corporation	Surface Vessel	7-31
Vikoma International Limited	Helicopter	7-32
	Shoreline, Surface Vessel	7-33
	Surface Vessel	7-34

**INDEX
TEMPORARY STORAGE DEVICES
ACCORDING TO MANUFACTURER/DISTRIBUTOR**

MANUFACTURER/DISTRIBUTOR	PRODUCT TYPE	PAGE
CALM/PROTECTED WATER STORAGE		
Abasco	Open pool	8-12 to 8-15
	Open inflatable pool	8-16
Action Petroleum	Open pool	8-17
	Open pool self supporting	8-18
AllMaritim AS	Towable open tank	8-19
Aqua-Guard Spill Response Inc.	Open pool	8-20
Crucial, Incorporated	Towable pillow tank	8-21
	Open pool	8-22
	Open inflatable pool	8-22
ECO Equipments Inc.	Open inflatable pool	8-23
Elastec/American Marine	Open pool	8-24
	Pillow tank	8-25
	Open inflatable pool	8-26
Fast Engineering Ltd.	Open pool	8-27
Kepner Plastics Fabricators, Inc	Towable flexible tank	8-28
	Collapsible tank	8-29
	Open pool	8-30
Lancer Industries Ltd.	Towable open tank	8-31
Markleen AS	Open pool	8-32, 8-33
New Naval Limited	Open pool	8-34
Oil Stop, LLC	Open pool	8-35
	Collapsible tank	8-35
	Towable flexible tank	8-35
Slickbar Products Corporation	Open pool	8-36, 8-37
Vikoma International Limited	Towable open tank	8-38
	Open inflatable pool	8-39, 8-40
	Open pool	8-39

MANUFACTURER/DISTRIBUTOR	PRODUCT TYPE	PAGE
OPEN WATER STORAGE		
Action Petroleum	Towable flexible tank	8-41
Aqua-Guard Spill Response, Inc.	Towable pillow tank	8-42, 8-43
Eco Equipments Inc.	Towable storage bags	8-44
Elastec/American Marine	Towable pillow tank	8-45
Kepner Plastics Fabricators, Inc	Towable flexible tank	8-46
	Collapsible tank	8-47
Lancer Industries Ltd.	Towable open tank	8-48
Markleen AS	Towable flexible tank	8-49 to 8-52
New Naval Limited	Pillow tank	8-53
Vikoma	Open inflatable pool	8-54

CROSS REFERENCE OF DISTRIBUTORS TO MANUFACTURERS

DISTRIBUTOR	MANUFACTURER	PRODUCTS
AllMaritim AS	Nofi Tromsø AS Eidkjosen	Boom
AllMaritim AS	Noren Bergen As	Skimmers
Applied Fabrics International	Morris Skimmers	Skimmers
Skimoil	Douglas Engineering	Skimmers
Hyde Marine, Inc.	Lamor Corporation AB	Beach Cleaners Boom Skimmers Pumps Temporary Storage
Hyde Marine, Inc.	Jackson Trawls, Ltd.	Boom Skimmers
Hyde Marine, Inc.	Webster Barnes, Inc.	Separators Skimmers
Hyde Marine, Inc.	Kvaerner Oilfield Products A.S.	Pumps
Megator Corporation	Faltech AB	Beach Cleaners Pumps
Pol-E-Mar Inc.	Lamor Corporation AB	Beach Cleaners Boom Skimmers Pumps Temporary Storage
Pol-E-Mar Inc.	Frank Mohn Flatoy A/S	Skimmers Pumps
Quali Tech Environmental	Engineered Fabrics	Boom
Quali Tech Environmental	Foilex	Skimmers Pumps
Slickbar Products	JBF Environmental	Skimmers