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Nota di contenuto	Oil Spill Remediation: Colloid Chemistry-Based Principles and Solutions; Copyright; Contents; Foreword; Preface; Contributors; 1 Science-Based Decision Making on the Use of Dispersants in the Deepwater Horizon Oil Spill; 1.1 Introduction; 1.2 Brief History and Evolution of Dispersants for Oil; 1.2.1 Spill Mitigation; 1.3 Dispersant Efficacy and Dispersion Effectiveness; 1.4 Toxicity of Dispersants; 1.4.1 Laboratory Testing; 1.4.2 In-Field Monitoring; 1.5 Monitoring of Dispersants on the Surface and in the Deep Sea; 1.5.1 Monitoring in Surface Waters; 1.5.2 Monitoring in the Deep Sea 1.6 Fate and Transport of Dispersants and Dispersed Oil 1.7 Future Oil Spill Research as a Result of Lessons Learned; 1.8 Summary; References; 2 Understanding and Properly Interpreting the 2010 Deepwater Horizon Blowout; 2.1 Introduction; 2.2 Background; 2.2.1 Significant Past Marine Oil Spills; 2.2.2 1967 Torrey Canyon Spill; 2.2.3 1969 Santa Barbara Blowout; 2.2.4 1979 Ixtoc I Blowout; 2.2.5 1989 Exxon Valdez Oil Spill; 2.3 Brief Summary of Gulf of Mexico Marine Ecosystems; 2.4 Brief Deepwater Horizon Oil Spill Overview 2.4.1 Before the Deepwater Horizon: An Overview of Offshore Petroleum

Extraction 2.4.2 2010 Deepwater Horizon Spill; 2.5 Existing Marine Oil Spill Paradigm; 2.5.1 Old Oil Spill Scenario: The Vast Majority of Oil and Gas Rises to the Sea Surface and No Dispersants Are Used (for a Shallow-Water, Nearshore Spill); 2.6 A New Conceptual Model for Deepwater Marine Oil Spills; 2.7 New Spill Scenario: Oil Is Released at Significant Depth from a Hot, Pressurized Reservoir; 2.8 The Need for an Integrative, Interdisciplinary Marine Oil Spill Oceanography; 2.9 Conclusions; 2.10 Future Research; References

3 Remediation and Restoration of Northern Gulf of Mexico Coastal Ecosystems Following the Deepwater Horizon Event 3.1 Introduction; 3.2 Shoreline Protection during and Following the Spill; 3.2.1 Oil Spill Response Administration and Structure; 3.2.2 Limitations of Shoreline Protection through Conventional Offshore Treatment; 3.2.3 Limitations of Shoreline Protection and Conventional Onshore Treatment; 3.3 Advancement through Failure and Innovation; 3.3.1 Evaluation of Alternative Response Technologies; 3.3.2 Shoreline Interventions 3.3.3 Proving Grounds for Shoreline Remediation and Restoration 3.4 Conclusions; References; 4 Challenges in and Approaches to Modeling the Complexities of Deepwater Oil and Gas Release; 4.1 Introduction; 4.2 Survey of Available Data; 4.3 Descriptions of Physical Mechanisms; 4.3.1 Qualitative Dynamics of Two-Phase Plume; 4.3.2 Review of Studies on Submerged Jets and Plumes; 4.4 Generic Approaches for Multiphase Flow Models; 4.5 Sample Model Results; 4.6 Concluding Remarks; Acronyms; Notation; Greek Letters; Acknowledgments; References; 5 Oil Films: Some Basic Concepts; 5.1 Introduction 5.2 Crude Oil Composition

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Sommario/riassunto

This book provides a comprehensive overview of oil spill remediation from the perspectives of policy makers, scientists, and engineers, generally focusing on colloid chemistry phenomena and solutions involved in oil spills and their cleanup. First book to address oil spill remediation from the perspective of physicochemical and colloidal science Discusses current and emerging detergents used in clean-ups Includes chapters from leading scientists, researchers, engineers, and policy makers Presents new insights into the possible impact of oil spills on ecosystems as w

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