PROCEEDINGS: PUBLIC WORKSHOP

DECOMMISSIONING AND REMOVAL
OF OIL AND GAS FACILITIES
OFFSHORE CALIFORNIA:
RECENT EXPERIENCES AND FUTURE
DEEPWATER CHALLENGES

Ventura, California
September 23-25, 1997

Sponsored by:
U.S. Department of the Interior, Minerals Management Service
California State Lands Commission

Co-Sponsored by:
E & P Forum
Chevron, USA, Inc.
Torch Operating Company

Hosted by:
University of California, Santa Barbara
University of California, Berkeley

Edited by:
Frank Manago, Minerals Management Service
Bonnie Williamson, University of California, Santa Barbara
Disclaimer

This document was prepared by the Southern California Educational Initiative which is jointly funded by the Minerals Management Service and the University of California, under Minerals Management Service Cooperative Agreement Number 14-35-0001-30761. The report has not been reviewed by the Service for either content or compliance with its editorial standards. The intent of the proceedings is to record what transpired at the workshop. Its publication should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government or any other sponsor or cosponsor. Issue papers, plenary speeches and presentations were edited for form only.

Availability of Report

A limited number of copies of this report will be available for distribution. To order, please contact:
Bonnie Williamson
Marine Science Institute
University of California
Santa Barbara, California 93106
phone: 805-893-2051
fax: 805-893-3777
email: b_willia@lifesci.ucsb.edu

This document is also available via FTP at the MMS Pacific Region web site:
ftp://www.mms.gov/pub/pacific/

Citation

The suggested citation for these proceedings is:
SPONSORSHIPS

The Minerals Management Service and the California State Lands Commission sponsored the workshop.

In addition, the following organizations made financial contributions to the workshop:
- **Gold** E & P Forum
- **Silver** Chevron, USA, Inc.
- **Bronze** Torch Operating Company

The following made in-kind contributions:
- UC Coastal Toxicology Program
- Ecomar, Inc.
- Twachtman, Snyder & Byrd, Inc.

ACKNOWLEDGEMENTS

Acknowledgements are extended to all the participants involved in this very successful workshop.

BACKGROUND

There are a total of 27 oil and gas platforms and approximately 200 miles of associated pipelines located off the coast of southern California. Of the 27 platforms, four are located in state tidelands within 3 miles of the coast and 23 on the Federal Outer Continental Shelf (OCS). There are also six artificial islands located in State tidelands that have been constructed to recover oil and gas resources. As the end of the service life approaches for these facilities, plans for decommissioning and removing the facilities must be developed.

In 1994, the Minerals Management Service (MMS) and the California State Lands Commission (SLC) jointly sponsored a workshop to familiarize the public with the decommissioning process and disseminate information on upcoming projects. Since that time several major decommissioning projects have been completed and several others are underway or moving forward. This includes a recently-announced project that could involve the decommissioning and removal of as many as five OCS platforms and two associated onshore processing facilities. The decommissioning and removal of these platforms, which are located in water depths ranging from 318 to 740 feet, will present significant technical, environmental and material disposal challenges.

To facilitate the continuation of public involvement and participation in the decommissioning process, the MMS and SLC decided to sponsor a 1997 workshop to review recent experiences and discuss future deepwater decommissioning challenges.

WORKSHOP GOALS

The goals of this workshop were to disseminate information to the public on the results of recently completed projects, identify issues of concern, and elicit recommendations on future California decommissioning operations and associated technical, environmental, socio-economic and disposition issues.
WORKSHOP ORGANIZING COMMITTEE

Frank Manago, Minerals Management Service, Pacific OCS Region
John Smith, Minerals Management Service, Pacific OCS Region
Pete Johnson, California State Lands Commission
Marina Voskanian, California State Lands Commission
Mark Carr, Department of Biology, University of California, Santa Cruz
Bonnie Williamson, Marine Science Institute, University of California, Santa Barbara

WORKSHOP SESSION CO-CHAIRS

Technical Workshop Session
Robert Byrd, Co-Chair, Twachtman, Snyder & Byrd, Inc.
Marina Voskanian, Co-Chair, California State Lands Commission

Environmental Workshop Session
Bill Douros, Co-Chair, Santa Barbara County, Energy Division
Simon Poulter, Co-Chair, Padre Associates, Inc.

Disposition Workshop Session
Mark Carr, Co-Chair, University of California, Santa Cruz
John Stephens, Co-Chair, Vantuna Research Group and University of California, Los Angeles
# TABLE OF CONTENTS

**Workshop Program** .................................................................................................................... 1

**Workshop Steering Committee** ................................................................................................... 5

**Workgroup Chairs and Members** ................................................................................................ 6

**Workshop Presentations**

**PLENARY ADDRESSES**

- **Introductory Remarks**, Carolita Kallaur, Associate Director, Offshore, Minerals Management Service .......................................................................................................................... 9
- **Pacific Region Decommissioning Update, Outlook, and Perspectives**, Tom Dunaway, Minerals Management Service, Pacific OCS Region ................................................................. 11
- **California State Lands Commission Management Responsibility and Recent Decommissioning Experience**, Paul Mount, California State Lands Commission ................................................. 13
- **Update on Decommissioning Issues**, Bud Danenberger, Minerals Management Service, Headquarters ........................................................................................................ 14
- **California State Lands Commission: Decommissioning Policy and Regulations**, Dwight Sanders, California State Lands Commission .................................................................................... 16
- **International Developments: Lessons Learned and Need for Public Input**, W.S. (Bill) Griffin, Jr., Phillips Petroleum Company .................................................................................................. 20

**TECHNICAL SESSION**

- **The Plugging Process: Securing Old Gas and Oil Wells for the Protection of the Environment**, Steve Fields, California Dept. of Conservation, Division of Oil, Gas & Geothermal Resources and Max Martin, Twachtman, Snyder & Byrd, Inc. ........................................................................................................ 25
- **Offshore Production Facilities: Decommissioning of Topside Production Equipment**, Dr. Peter Prasthofer, Offshore Decommissioning Communications Project ................................................................................................................ 38
- **Pipeline and Power Cable Decommissioning**, Andy Culwell, American Pacific Marine, Inc. and Jack McCarthy, Minerals Management Service, Pacific OCS Region ........................................................................................................... 68
- **Site Clearance and Verification**, Jack McCarthy, Minerals Management Service Pacific OCS Region ........................................................................................................................................... 74
- **Decommissioning of Onshore Facilities: Technical Issues**, Luis Perez, Santa Barbara County Department of Planning and Management, Energy Division.................................................................................. 83

**ENVIRONMENTAL SESSION**

- **Air Quality**, Peter Cantle, Santa Barbara County Air Pollution Control District ........................................................................................................................................................................ 93
- **Platform Decommissioning: Commercial and Recreational Fisheries Effects**, Dr. Craig Fusaro, Joint Oil / Fisheries Liaison Office ................................................................................................................ 95
- **The Commercial Fishing Industry in South/Central California**, Dr. Craig Fusaro, Joint Oil/Fisheries Liaison Office and John Richards, UC Santa Barbara ........................................................................... 97
- **Fisheries Impacts of Explosives Used in Platform Salvage**, Dr. Ann Bull, Minerals Management Service, Gulf of Mexico OCS Region .................................................................................. 104
- **Effects of Decommissioning Activities on Marine Benthos**, Leray deWit, DeWit Consulting, Inc. ............................................................................................................................. 105
DISPOSITION SESSION

Commercial Fisheries: Long-term Effects of Offshore Oil and Gas Facilities Decommissioning, John Richards, UC Santa Barbara ........................................................................ 111

Ecological Consequences of Alternative Decommissioning Strategies for POCS Offshore Facilities, Dr. Mark Carr, UC Santa Cruz, Dr. Graham Forrester, UC Los Angeles and Dr. Michael McGinnis, UC Santa Barbara ................................................ 116

Effect of Offshore Oil Platform Structures on the Distribution Pattern of Commercially Important Benthic Crustaceans, with Emphasis on the Rock Crab, Dr. Mark Page and Dr. Jenny Dugan, UC Santa Barbara ................................................. 119

Enhancement of Platforms as Artificial Reefs, Dave Parker, California Department of Fish and Game ................................................................................................................. 122

Long-term Socio-economic Effects of Onshore Facility Decommissioning, Dr. James Lima, Minerals Management Service, Pacific OCS Region .................................................. 124

SUMMARY AND RECOMMENDATIONS

Technical Session .................................................................................................................. 137

Environmental Session ........................................................................................................ 140

Disposition Session ............................................................................................................. 145

AGENCY PANEL DISCUSSION ................................................................................................ 149

POSITION PAPERS

Environmental Defense Center, Linda Krop and Nichole Camozzi ........................................ 172

Exxon Co., USA, Dave Tyler ................................................................................................... 177

Recreational Fishers, Merit McCreas .................................................................................... 179

Santa Barbara Lobster Trappers, Chris Miller ........................................................................ 181

Southern California Trawlers Association ........................................................................... 182

United Anglers of Southern California / American Sportfishing Association, Daniel Frumkes .................................................................................................................. 184

APPENDICES

APPENDIX I: REGULATORY FRAMEWORK AND ENVIRONMENTAL REVIEW PROCESS FOR THE DECOMMISSIONING OF OIL AND GAS FACILITIES .................................................................................. 193

APPENDIX II: PLATFORM SCHEMATIC AND LOCATIONS ..................................................................................................................... 221

APPENDIX III: GLOSSARY AND ABBREVIATIONS .......................................................................................................................... 231

APPENDIX IV: BIOGRAPHICAL SKETCHES ........................................................................... 245

APPENDIX V: LIST OF ATTENDEES ...................................................................................... 257
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Author</th>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danenberger</td>
<td>Rigs to Reefs....</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Existing OCS Structures by Age</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Existing OCS Structures by Water Depth</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Structures Removed by Water Depth</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Structures by Age at Time of Removal</td>
<td>15</td>
</tr>
<tr>
<td>Poulter</td>
<td>Permitting Jurisdictions</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Major Steps in the Permitting Process</td>
<td>19</td>
</tr>
<tr>
<td>Griffin</td>
<td>Worldwide Distribution of Platforms</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Platform Size Comparison</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Finding the Right Balance</td>
<td>22</td>
</tr>
<tr>
<td>Fields &amp; Martin</td>
<td>Figure 1. Well P&amp;A Rig vs. Rigless, Step 1</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Figure 2. Well P&amp;A Rig vs. Rigless, Step 2</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Figure 3. Well P&amp;A Rig vs. Rigless, Step 3</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Figure 4. Well P&amp;A Rig vs. Rigless, Step 4</td>
<td>28</td>
</tr>
<tr>
<td>Prasthofer</td>
<td>Figure 1. Integrated Topsides / Deck</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Figure 2. Modular Topsides / Deck</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Figure 3. Hybrid Topsides on Concrete Gravity-based Structure</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Figure 4. Topsides Removal / Disposal Options</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Figure 5. Removal in One Piece</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Figure 6. Lifting of Combined Modules</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Figure 7. Reverse Installation</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Figure 8. Piece Small Removal</td>
<td>42</td>
</tr>
<tr>
<td>Culwell</td>
<td>Figure 1. Facilities Decommissioned on the West Coast</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Figure 2. Platforms Hope, Heidi, and Hilda Design</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Figure 3. Platform Hazel Design</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Figure 4. Pipeline Bypass at Platform Hope</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Figure 5. OS&amp;T Abandonment Project Facilities Layout</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Figure 6. SALM Base Structure</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Figure 7. Equipment Spread – Shallow Water Decommission</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Figure 8. Lift Plan – Crane Chart</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Figure 9. Lift Plan – Lift Points and CG Locations</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Figure 10. Materials Transport Planning</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Figure 11. Preparations to Deck Packages</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Figure 12. Pile and Conductor Severing Using Explosives</td>
<td>63</td>
</tr>
<tr>
<td>Culwell &amp; McCarthy</td>
<td>Figure 1. Diagram of Articulated Concrete Mat</td>
<td>70</td>
</tr>
<tr>
<td>McCarthy</td>
<td>Figure 2. Exxon OS&amp;T Project Facilities</td>
<td>71</td>
</tr>
</tbody>
</table>
LIST OF FIGURES
(continued)

Author Figure
Fusaro & Richards Figure 1. Crab & Lobster Traps as Deployed .............................................. 98
Figure 2. Crab or Lobster Vessel, Fore Deck ................................................................. 98
Figure 3. Set Gillnet Deployed .................................................................................... 100
Figure 4. Drift Gillnet – Structure of Gear .................................................................. 100
Figure 5. Vessel Gillnet .............................................................................................. 100
Figure 6. Hook & Line Gear, Deployed ...................................................................... 101
Figure 7. Trawl .............................................................................................................. 101
Figure 8. Vessel, Purse Seine .................................................................................... 102
Figure 9. Purse Seine .................................................................................................... 102
Figure 10. Troll ............................................................................................................. 103
Page & Dugan Figure 1. Summary of Distribution & Movement Scenarios for the Rock Crab ............................................................................................................ 121
Appendix I Figure 1. Permit Requirements by Facility Location .................................... 196
Figure 2. NEPA Environmental Review Process: An Overview .................................. 199
Figure 3. Steps in the Environmental Review Process under CEQA .......................... 211
Appendix II Platform Schematic .................................................................................. 223
Offshore Facilities, Santa Barbara Channel .................................................................. 226
Offshore Facilities, Southern California ....................................................................... 227
Onshore Oil & Gas Facility Decommissioning Tree ...................................................... 228
Offshore Oil & Gas Facility Decommissioning Tree ...................................................... 229

LIST OF TABLES

Author Table
Poulter Overview of Permitting Requirements ................................................................. 19
Fields & Martin Table 1. Basic Cementing Materials ....................................................... 31
Perez Table 1. Listing of Potential Contaminants Associated with Oil & Gas Operations ................................................................. 85
Table 2. Potential Hazards of Hydrocarbons ................................................................. 87
Table 3. Remediation Techniques .................................................................................. 88
Lima Table 1. Criteria for the Assessment of Social & Economic Impact in Onshore Facilities Decommissioning ................................................................. 125
Appendix II Platforms Located in Federal Waters, Pacific OCS Region .................... 224
State Waters Offshore Facilities ................................................................................... 225
WORKSHOP PROGRAM

DECOMMISSIONING AND REMOVAL
OF OIL AND GAS FACILITIES OFFSHORE CALIFORNIA:
RECENT EXPERIENCES AND FUTURE DEEPWATER CHALLENGES
DOUBLETREE HOTEL, VENTURA, CALIFORNIA
SEPTEMBER 23 - 25, 1997
WORKSHOP PROGRAM

TUESDAY, SEPTEMBER 23 - MORNING
8:00-8:30 Registration

PLENARY SESSION
8:30 - 9:00 Welcome and Introduction
• Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara
• Carolita Kallaur, Associate Director, Offshore, Minerals Management Service
• Robert Hight, Executive Officer, California State Lands Commission

9:00 - 9:50 Pacific Region Decommissioning Update, Outlook and Perspectives
• Tom Dunaway, Regional Supervisor, Office of Development, Operations & Safety, Minerals Management Service, Pacific OCS Region
• Paul Mount, Chief, Minerals Resources Management Division, California State Lands Commission
• John Patton, Director, Santa Barbara County, Dept. of Planning and Development
• Linda Krop, Senior Staff Attorney, Environmental Defense Center
• Frank Holmes, Coastal Coordinator, Western States Petroleum Association

9:50 - 10:40 Decommissioning Policy, Regulations and International Developments
• Bud Danenberger, Chief, Engineering and Technology Division, Minerals Management Service
• Dwight Sanders, Chief, Div. of Environmental Planning and Management, California State Lands Commission
• Susan Hansch, Deputy Director, Energy & Ocean Resources Unit, California Coastal Commission
• Bill Griffin, Director of Special Projects, Phillips Petroleum Company
• Simon Poulter, Principal, Padre Associates, Inc.

10:40-11:00 Break

11:00 - 11:45 Preview of the Workgroup Sessions
Technical Workgroup Co-Chairs
• Marina Voskanian, Chief Reservoir Engineer, Minerals Resources Mgmt. Div., California State Lands Commission
• Dr. Robert Byrd, Principal, Twachtman, Snyder & Byrd, Inc.

Environmental Workgroup Co-Chairs
• Bill Douros, Deputy Director, Energy Division, Santa Barbara County, Dept. of Planning and Development
• Simon Poulter, Principal, Padre Associates, Inc.

Disposition Workgroup Co-Chairs
• Dr. John Stephens, Director, Vantuna Research Group and Office of Research, UC Los Angeles
• Dr. Mark Carr, Assistant Professor of Biology, UC Santa Cruz

11:45 - 12:15 Public Discussion Period
Moderator: Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara

12:15 - 1:30 Lunch Break
TUESDAY, SEPTEMBER 23 - AFTERNOON

TECHNICAL SESSION
1:30 - 3:15 The Process of Decommissioning and Removing Offshore and Associated Onshore Oil and Gas Facilities
Co-Chair: Dr. Robert Byrd, Principal, Twachtman, Snyder & Byrd, Inc.
Co-Chair: Marina Voskanian, Chief Reservoir Engineer, Minerals Resources Management Division, California State Lands Commission

Making Oil & Gas Wells Safe: The Plugging Process
• Steve Fields, Operational Engineer, California Department of Conservation, Division of Oil, Gas and Geothermal Resources

Offshore Production Facilities: Decommissioning of Topside Production Equipment
• Dr. Peter Prasthofer, Technical Manager, Offshore Decommissioning Communications Project

Decommissioning of Decks, Jackets, Pipelines and Cables
• Andy Culwell, Vice President of Special Projects, American Pacific Marine, Inc.

3:30 - 4:30 TECHNICAL SESSION - (continuation)
Site Clearance and Verification
• Jack McCarthy, Geophysicist, Minerals Management Service, Pacific OCS Region

Onshore Facility Cleanup and Removal
• Luis Perez, Energy Specialist, Energy Division, Santa Barbara County, Dept. of Planning & Development

4:30 - 5:30 Public Discussion Period

WEDNESDAY, SEPTEMBER 24 - MORNING
8:00 - 8:30 Registration

ENVIRONMENTAL SESSION
8:30 - 10:30 Environmental and Socio-Economic Effects Occurring During the Decommissioning and Removal Process and Measures for Mitigating Impacts
Co-Chair: Bill Douros, Deputy Director, Energy Division, Santa Barbara County, Dept. of Planning and Development
Co-Chair: Simon Poulter, Principal, Padre Associates, Inc.

Air Quality
• Peter Cantle, Santa Barbara County Air Pollution Control District

Commercial / Recreational Fisheries
• Dr. Craig Fusaro, Director, Joint Oil Fisheries Liaison Office

Fisheries Research
• Villere Reggio, Outdoor Recreation Planner, Minerals Management Service, Gulf of Mexico OCS Region

Marine Mammals
• Peter Howorth, Principal, Marine Mammal Consulting Group

Marine Benthic Organisms
• Ray de Wit, L.A. de Wit, Consulting

Water Quality
• Dr. Peter Raimondi, Assistant Professor of Biology, UC Santa Cruz

10:30 - 10:45 Break
10:45 - 11:25 ENVIRONMENTAL SESSION - (continuation)
Cleanup Standards: Assessment and Remediation of Onshore Sites
• Frank DeMarco, Associate Water Resource Control Engineer, Central Coast Regional Water Quality Control Board

Future Land Use
• Kim Schizas, Land Use Planner, Wynmark Company
11:25 - 12:30  Perspectives of Ocean User Groups and Public Discussion Period
Moderator:  Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara
Ocean User Group Representatives
Commercial Fishing
- Mike McCorkle, President, Southern California Trawlers Association
Recreational Fishing
- Merit McCrea, Owner, Captain McCrea's Sportfishing
Oil and Gas Industry
- David Tyler, Public Affairs Advisor, Exxon Co., USA, Inc.
Environmental Interest Groups
- Marc Chytilo, Chief Counsel, Environmental Defense Center

12:30 - 1:30  Lunch Break

SEPTEMBER 24 - AFTERNOON

DISPOSITION SESSION
1:30 - 3:10  Long-term Environmental and Socio-Economic Effects Related to the Disposition of Oil and Gas Facilities
Co-Chair:  Dr. John Stephens, Director, Vantuna Research Group and Office of Research, UC Los Angeles
Co-Chair:  Dr. Mark Carr, Assistant Professor of Biology, UC Santa Cruz
Commercial Fishing
- John Richards, Sea Grant Extension Program, Marine Science Institute, UC Santa Barbara
Recreational Fishing
- Dr. Milton Love, Associate Research Biologist, Marine Science Institute, UC Santa Barbara
Habitat Value of Oil and Gas Facilities
- Dr. Mark Carr, Assistant Professor of Biology, UC Santa Cruz
Enhancement of Platforms as Artificial Reefs
- Dave Parker, Senior Biologist, California Dept. of Fish and Game
Site Clearance:  Long-term Issues
- Jack McCarthy, Geophysicist, Minerals Management Service, Pacific OCS Region

3:10 - 3:30  Break
3:30 - 4:10  DISPOSITION SESSION - (continuation)
Onshore Disposition:  Ultimate Fate
- Dr. James Lima, Social Scientist, Minerals Management Service, Pacific OCS Region
Social and Economic Effects
- Dr. Robert Ditton, Professor of Wildlife and Fisheries Sciences, Texas A&M University

4:10 - 5:30  Perspectives of Ocean User Groups and Public Discussion Period
Moderator:  Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara
Ocean User Group Representatives
Commercial Fishing
- Gordon Cota, Member, Southern California Trawlers Association
Recreational Fishing
- Dan Frumkes, Director, Conservation Network, American Sportfishing Association
Oil and Gas Industry
- Lee Bafalon, Senior Land Representative, Chevron U.S.A., Inc.
Environmental Interest Group
- Linda Krop, Senior Staff Attorney, Environmental Defense Center
SUMMARY AND RECOMMENDATIONS SESSION
Moderator: Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara

9:00 - 10:00 Report of Session Co-Chairs
Technical Workgroup Session
  • Dr. Robert Byrd / Marina Voskanian
Environmental Workgroup Session
  • Bill Douros / Simon Poulter
Disposition Workgroup Session
  • Dr. Mark Carr / Dr. John Stephens

10:00 - 12:30 Agency Panel Discussion With Public
Federal Agency Representatives
  • Dr. J. Lisle Reed, Regional Director, Minerals Management Service, Pacific OCS Region
  • Richard Schubel, Chief, Regulatory Functions Branch, U.S. Army Corps of Engineers, Los Angeles District
  • Maureen Walker, Deputy Director, Office of Ocean Affairs, U.S. Department of State
State Agency Representatives
  • Robert Hight, Executive Officer, California State Lands Commission
  • Brian Baird, Ocean Program Manager, California Resources Agency
  • Susan Hansch, Deputy Director, Energy & Ocean Resources Unit, California Coastal Commission
  • Pete Bontadelli, Administrator, Oil Spill Prevention and Response Office, California Dept. of Fish & Game
Local Agency Representatives
  • Nancy Settle, Manager, Regional Programs Section, Ventura County, Planning Division, Resources Management Agency
  • John Patton, Director, Santa Barbara County, Dept. of Planning and Development

Summary and Closing Remarks
Moderator: Dr. Russell Schmitt, Professor of Ecology, UC Santa Barbara
STEERING COMMITTEE MEMBERS / PARTICIPANTS

RICHARD WILHELMSEN, Co-Chair, Minerals Management Service, Pacific OCS Region

PAUL MOUNT, Co-Chair, California State Lands Commission

Doug Anthony, Santa Barbara County, Energy Division
Lee Bafalon, Chevron, USA, Inc.
Chandra Basavalinganadoddi, California State Lands Commission
Dennis Bedford, CA Department of Fish & Game
Theresa Bell, Minerals Management Service, Pacific OCS Region

John Brown, U.S. Coast Guard
Dr. Robert Byrd, Twachtman, Snyder & Byrd, Inc.
Andy Caldwell, Coalition of Labor, Agriculture & Business

Peter Cantle, Santa Barbara County, Air Pollution Control District
Dr. Mark Carr, UC Santa Cruz
Brian Collins, UC Berkeley
Andy Culwell, American Pacific Marine, Inc.

John Deacon, Torch Operating Company
Bill Douros, Santa Barbara County, Energy Division

Tom Dunaway, Minerals Management Service, Pacific OCS Region

Steve Fields, CA Dept. of Conservation, Division of Oil, Gas and Geothermal Resources
Nancy Francis, County of Ventura, Planning Division
Daniel Frumkes, United Anglers of Southern California

Dr. Craig Fusaro, Joint Oil / Fisheries Liaison Office
Troy Gillum, Worley International, Inc.
Bill Grady, Exxon Company, USA, Inc.

Jim Grant, Minerals Management Service, Pacific OCS Region
Richard Habrat, Minerals Management Service, Pacific OCS Region
Frank Holmes, Western States Petroleum Association
Jean Holmes, League of Women Voters

Peter Howorth, Marine Mammal Consulting Group
Pete Johnson, California State Lands Commission
Pat Kinnear, CA Dept. of Conservation, Division of Oil, Gas and Geothermal Resources
Linda Krop, Environmental Defense Center

Irma Lagomarsino, National Marine Fisheries Service

John Lane, Minerals Management Service, Pacific OCS Region
Herb Leedy, Minerals Management Service, Pacific OCS Region
Roger Lyon, Surfrider Foundation
Frank Manago, Minerals Management Service, Pacific OCS Region
Nabil Masri, Minerals Management Service, Pacific OCS Region
Jack McCarthy, Minerals Management Service, Pacific OCS Region
Mike McCorkle, Southern California Trawlers Association

Dr. Daniel Meade, UC Santa Barbara
Elaine Meckenstock, UC Berkeley
Dr. Saahed Meshkatj, University of Southern California, Petroleum Engineering Program

Aiden Naughton, California State Lands Commission
Dave Parker, CA Department of Fish & Game
Dr. Fred Piltz, Minerals Management Service, Pacific OCS Region

Simon Poulter, Padre Associates, Inc.
Greg Sanders, U.S. Fish & Wildlife Service
Jerry Schiebe, Santa Barbara County, Air Pollution Control District

John Segerstrom, Texaco, Inc.
Glenn Shackell, Minerals Management Service, Pacific OCS Region

John Smith, Minerals Management Service, Pacific OCS Region
Robert Sollen, Sierra Club
Rick Sorrell, U.S. Coast Guard

Dr. John Stephens, Vantuna Research Group, UC Los Angeles

Theresa Stevens, U.S. Army Corps of Engineers
Win Thornton, WINMAR Consulting Services, Inc.
Lyman Thorsteinson, U.S.G.S., Biological Resources Division

Marina Voskanian, California State Lands Commission
Kirk Walker, California State Lands Commission
Tiffany Welch, U.S. Army Corps of Engineers
Al Willard, California State Lands Commission
Bonnie Williamson, UC Santa Barbara
James Wiseman, UC Berkeley
WORKING GROUP MEMBERS
Frank Manago and John Smith, Minerals Management Service, Pacific OCS Region, served as liaisons among the working groups

Technical Working Group
DR. ROBERT BYRD, Co-Chair, Twachtman, Snyder & Byrd, Inc.
MARINA VOSKANIAN, Co-Chair, CA State Lands Commission
Dolores Aguilar-Zepeda, Chevron, USA, Inc.
Roma Armbrust, League of Women Voters
Dr. Robert Bea, UC Berkeley
Peter Brooks, Worley International, Inc.
Andrew Culwell, American Pacific Marine, Inc.
Steve Fields, CA Dept. of Conservation, Division of Oil, Gas & Geothermal Resources
Bill Grady, Exxon Company, USA, Inc.
James Grant, Minerals Management Service, Pacific OCS Region
Cathy Hoffman, Minerals Management Service, Pacific OCS Region
Jean Holmes, League of Women Voters
Maher Ibrahim, Minerals Management Service, Pacific OCS Region
Pete Johnson, CA State Lands Commission
Mike Kelley, Exxon Company, USA, Inc.
Pat Kinnear, CA Dept. of Conservation, Division of Oil, Gas & Geothermal Resources

Environmental Working Group
BILL DOUROS, Co-Chair, Santa Barbara County, Energy Division
SIMON POULTER, Co-Chair, Padre Associates, Inc.
Doug Anthony, Santa Barbara County, Energy Division
Pete Johnson, CA State Lands Commission
Lee Bafalon, Chevron, USA, Inc.
Linda Krop, Environmental Defense Center
Dr. Art Barnett, MEC Analytical Systems, Inc.
Herb Leedy, Minerals Management Service, Pacific OCS Region
Theresa Bell, Minerals Management Service, Pacific OCS Region
Joan Leon, League of Women Voters
Peter Cantle, Santa Barbara County, APCD
Dr. Mark Carr, UC Santa Cruz
Richard Nitsos, CA Department of Fish & Game
Alison Dettmeter, California Coastal Commission
Bob Sollen, Sierra Club
Nancy Francis, Ventura County, Planning Division
John Storrer, Storrer Environmental Services
Dr. Craig Fusaro, Joint Oil / Fisheries Liaison Office
Simon Poulter, Padre Associates, Inc.
Bill Grady, Exxon Company USA, Inc.
Marina Voskanian, CA State Lands Commission
Frank Holmes, Western States Petroleum Association
Bonnie Williamson, UC Santa Barbara
Peter Howorth, Marine Mammal Consulting Group
Dr. Charles Woodhouse, Santa Barbara Museum of Natural History

Disposition Working Group
DR. MARK CARR, Co-Chair, UC Santa Cruz
DR. JOHN STEPHENS, Co-Chair, Vantuna Research Group & UC Los Angeles
Lee Bafalon, Chevron, USA, Inc.
Dr. Milton Love, UC Santa Barbara
Art Boehm, Nuevo Energy Company
Annisa Mayer, UC Los Angeles
Bill Douros, Santa Barbara County, Energy Division
Merit McCrea, Captain McCrea’s Sportfishing
Alison Dettmeter, California Coastal Commission
Elaine Meckenstock, UC Berkeley
Dr. Jenifer Dugan, UC Santa Barbara
Dave Parker, CA Department of Fish & Game
Dan Frumkes, United Anglers of Southern California
Dr. Mark Page, UC Santa Barbara
Dr. Craig Fusaro, Joint Oil / Fisheries Liaison Office
Simon Poulter, Padre Associates, Inc.
Michelle Gasperini, Santa Barbara County, Energy Division
Theresa Stevens, U.S. Army Corps of Engineers
Jean Holmes, League of Women Voters
Win Thornton, WINMAR Consulting Services, Inc.
Pete Johnson, CA State Lands Commission
Dr. Mark Page, UC Santa Barbara
John Lane, Minerals Management Service, Pacific OCS Region
Simon Poulter, Padre Associates, Inc.
Herb Leedy, Minerals Management Service, Pacific OCS Region
Win Thornton, WINMAR Consulting Services, Inc.
Pacific OCS Region
PLENARY ADDRESSES

Introductory Comments, Carolita Kallaur ............................................. 9

Pacific Region Decommissioning Update, Outlook, and Perspectives, Tom Dunaway ......................................................... 11

California State Lands Commission Management Responsibility and Recent Decommissioning Experience, Paul Mount........ 13

Update on Decommissioning Issues, Bud Danenberger ....................... 14

California State Lands Commission: Decommissioning Policy and Regulations, Dwight Sanders......................................................... 16

Regulatory Framework and Environmental Review Process for the Decommissioning of Oil and Gas Facilities, Simon Poulter........ 18

International Developments: Lessons Learned and Need for Public Input, W.S. (Bill) Griffin, Jr. ........................... 20
INTRODUCTORY REMARKS

CAROLITA KALLAUR
Associate Director for Offshore Minerals Management
U.S. Department of the Interior, Minerals Management Service

Good morning, it’s my pleasure to be here today to welcome you to this important workshop.

For those of you who may be unfamiliar with the MMS, the MMS is the agency within the Department of the Interior responsible for administering oil and gas and other mineral development on the Federal Outer Continental Shelf (OCS). Offshore California, Federal OCS lands are those submerged lands located seaward of State tidelands, which extend from the coastline to three miles offshore.

Although the MMS is a relatively small bureau, we play a very significant role in managing development of our Nation’s energy resources. We manage mineral development on 27 million acres of the OCS, which supplies over 25% of the natural gas and 12% of the oil produced in the United States. We also collect more than $4 billion annually in revenues from OCS and onshore mineral leases. This money is distributed to Federal and State Treasuries, to allottees, including Indian Nations, and to the Land and Water Conservation Fund and the National Historic Preservation Fund.

As the stewards of America’s offshore resources, MMS has a duty to ensure safe and environmentally sound development of our Nation’s offshore oil and gas resources. This responsibility applies not only to development but also to the decommissioning of offshore production facilities once they have reached the end of their service life.

As many of you are aware, decommissioning operations are commonplace in the Gulf of Mexico where there are more than 4000 offshore platforms currently in place. Between 100 – 200 structures are removed there each year. Of the 1200 structures removed to date in the Gulf of Mexico, the majority (80%) have been small structures located in less than 100 feet of water. To date, there have not been any platforms removed in the Gulf located in water depths greater than 400 feet.

In comparison, there are currently 27 oil and gas platforms (23 OCS and 4 State) located off the coast of southern California. Only seven offshore platforms have been removed to date, all from State tidelands. All of the platforms were relatively small structures located in less than 150 feet of water.

Industry is in the preliminary stages of developing plans for removing as many as five California OCS platforms and two associated onshore processing facilities early in the next century. Three of the platforms are located in water depths ranging from greater than 600 to 740 feet. If scheduling goes as planned, this could very well be the world’s first ultra-deepwater decommissioning project. In terms of its combined onshore and offshore components, it will be the largest and most complex decommissioning project ever to be undertaken.

The decommissioning of deepwater oil and gas structures is a topic that has come to the forefront in the North Sea and is a topic that will be coming to the forefront in California, and the Gulf of Mexico in the near future. The topic is a timely one because it has implications for future deepwater development activity in the Gulf of Mexico, Pacific Region, North Sea, and other parts of the world. In the North Sea, decommissioning of offshore structures has been stymied by public controversy surrounding the Brent Spar Project, which involved the proposed decommissioning and ocean disposal of a large offshore loading structure. Due to this controversy, industry has had to re-evaluate its decommissioning strategy and consider the long-term implications for future development in the North Sea.

In contrast to shallow water, the decommissioning of deepwater facilities (> 200 foot water depths) will present significant technical, safety, environmental, and material disposal challenges. From a technical standpoint, the technology has yet to be developed to remove certain deepwater structures. This is particularly true in water depths exceeding 400 feet. The environmental impacts associated with decommissioning
large deepwater structures are also of much greater significance due to the size of the structures, which can be as large as the Empire State Building. The onshore infrastructure required to dispose of these massive steel structures also may not exist, which may necessitate consideration of other options such as converting the structures to artificial reefs or other uses.

In the Gulf of Mexico, statistics show that the greater the water depth the more likely decommissioned structures are to be converted to artificial reefs. Of the 1200 structures removed to date in the Gulf, about 10% have been converted to artificial reefs. However, 40% of the structures located in 100-200 feet of water, and 85% of the structures located in 200-400 feet of water have been converted to artificial reefs.

Let me assure you, MMS does not have a position one way or the other as to the rigs-to-reef program here in California. We believe that is an issue that falls primarily within the regulatory jurisdiction of the California Department of Fish and Game, Army Corps of Engineers, and the California Coastal Commission. The States of Louisiana and Texas have active rigs-to-reef programs, and MMS is involved to the extent that the decommissioning of OCS platforms takes place in a safe and environmentally sound manner. We are committed to working cooperatively with all interested parties to ensure that this goal is achieved off California.

Although our experience off California is limited, we recognize that the removal of offshore structures is a sensitive issue in California and that the utmost care must be taken to ensure that it is done in a manner that addresses the needs and concerns of all parties.

To accomplish that goal, we must all work closely together to develop a consensus on how to best proceed. That is why public workshops such as this are so important. They provide an opportunity for everyone who has an interest in the subject to share their viewpoints, discuss issues, and develop recommendations.

Offshore California, as in other offshore areas, we continue to place a very high priority on safety. We will also continue to work closely with all interested parties to ensure that the removal and disposal of platforms is conducted in an environmentally sound manner.

To that end, we are pleased to be co-sponsoring this workshop with the California State Lands Commission (SLC). We are also pleased to have participated with the State in sponsoring previous workshops such as the 1994 Decommissioning Workshop at UC Santa Barbara and the 1997 California and the World Oceans Conference in San Diego.

Before closing, I would like to thank the SLC for co-sponsoring this workshop with the MMS and UC Santa Barbara and UC Berkeley for the administrative support they have provided. I also want to thank those who made financial contributions — the E & P Forum, Chevron, USA, and Torch Operating Company — as well as those who have made in-kind contributions.

Finally, I would like to thank members of the Workshop Organizing Committee for facilitating workshop planning meetings and organizing the workshop. These individuals include Frank Manago and John Smith from MMS, Pete Johnson and Marina Voskanian from the SLC, and Bonnie Williamson from UC Santa Barbara. I also want to thank the many people who attended workshop planning sessions and contributed to the development of what I consider to be a well rounded and balanced program. In particular, I would like to thank the co-chairs of the Workshop Steering Committee, Paul Mount of SLC and Dick Wilhelmsen of MMS, as well as session co-chairs, speakers and panel members for the significant time and effort they devoted to organizing and planning their respective sessions.

On behalf of the MMS, I welcome your participation in this effort. I want to ensure you that we will carefully consider the views of all parties as well as the recommendations that will be forthcoming. During the open panel discussion with the public on day three, we will share with you our perspectives on the workshop and recommendations.

I am looking forward to an interesting and productive workshop and encourage you all to actively participate. We value your input and look forward to your recommendations.
I'm going to start off with a short overview of our Region. The Minerals Management Service Pacific Outer Continental Shelf Region oversees development of Federal mineral resources, primarily oil and gas, offshore California, Oregon, and Washington. Currently, we manage 83 leases, all of which are off the coast of California. The Federal Outer Continental Shelf (OCS) off California begins 3 miles from the coast adjacent to State tidelands.

We have 23 platforms producing a total of about 150,000 barrels of oil a day and 180 million cubic feet of gas per day, from 43 of the leases in the Region.


The Office of Environmental Evaluation analyzes proposed and ongoing offshore oil and gas operations to ensure the activities are done in a way that safeguards the environment. This office also conducts a comprehensive environmental studies program.

The Office of Resource Evaluation analyzes oil, gas, and other mineral potential on the Federal OCS, using a wide range of geologic and geophysical information, and provides technical support for marine mineral investigations.

I'm the Regional Supervisor of the third office, the Office of Development, Operations and Safety, which is responsible for proper development of OCS resources on existing leases and the safety and environmental integrity of operations on the OCS.

Our office is responsible for the offshore inspections program, and we have inspectors offshore overseeing operations every day of the year.

Decommissioning Update, Outlook and Perspectives, so I'll begin with an update.

The newest of the Pacific OCS Region's 23 platforms have been in place 8 years; the oldest was installed 30 years ago this month. The Pacific OCS Region's facilities range from small shallow water to world class deepwater structures. We have one platform in less than a 100 feet of water; we also have two platforms in water depths of over a thousand feet. We haven't had any platforms decommissioned yet, but we had an offshore storage and treating vessel, a converted tanker, decommissioned in 1994. Though it wasn't a platform, the decommissioning was a technically complex operation, with separate phases involving disconnecting and removal of the vessel, the mooring buoy, and a riser section; cutting of piles and removal of the mooring base and subbase from the seafloor; cutting and removal of pipeline and power cable segments; and a survey of the area to recover debris. The Pacific OCS Region worked cooperatively with all interested parties before, during, and after that work. We learned from the experience, and we'll build on what we learned, for future decommissionings.

As to outlook, our first platform decommissionings will likely take place over the next 5-10 years. Chevron has started the planning process for decommissioning of their 5 platforms. Of those 5, the oldest was installed 18 years ago, and the newest only 11 years ago. The water depths range from around 300 feet to about 700 feet. Platform Harvest, off Point Arguello, is in 675 feet of water. And Platform Gail, in the Santa Barbara Channel, is in 739 feet of water.

These deeper waters, which would set a decommissioning world record to date for water depths, and the necessarily larger structures provide challenges for both industry and regulatory agencies. And these challenges will
be met with a collective effort that gives consideration to the various perspectives and concerns of all interested parties.

With regard to perspectives, we see decommissioning not as a surprise, but as an integral part of each oil and gas project. The careful planning for these final phases of the projects will thoroughly address safety of operations and of the environment. The planning will be a cooperative process involving industry, regulatory agencies, and the public, to ensure that everyone's concerns are heard and addressed.
CALIFORNIA STATE LANDS COMMISSION MANAGEMENT
RESPONSIBILITY AND RECENT DECOMMISSIONING EXPERIENCE

PAUL MOUNT
Chief, Minerals Resources Management Division
California State Lands Commission

STATE LANDS COMMISSION
- Created in 1938
- 3 Independent Commissioners
  Lt. Governor
  State Controller
  Director of Finance
- Manages
  Sovereign lands - 1 million acres
  1100 miles of coastline
  30 rivers and 40 lakes
  School lands - 5.5 million acres

RECENT DECOMMISSIONING
- Chevron 4-H project
  Hope, Hazel, Hilda, Heidi
  Four year project
  About $40 million
- SWARS – Subsea Well Abandonment
  Currently decommissioning wells and pipelines
- Belmont Island
  Currently decommissioning wells
  Island decommissioning in 1998

OFFSHORE FACILITIES
CURRENTLY ON STATE LANDS
- 4 Platforms
  Emmy
  Esther
  Eva
  Holly
- 6 Islands
  4 Thums Islands
  Rincon
  Belmont

MINERAL RESOURCE
MANAGEMENT
- Oil 60,000 BBL/D
- Gas 27,000 MCF/D
- Geothermal 5,217,000 Lb/Hour
- Mineral 220,000 Tons/Year

Cumulative $ to date $6 Billion

LESSONS LEARNED FROM 4-H
- Intensive advance planning and coordination prevented accidents and minimized environmental effects
- Early and complete coordination with all involved agencies
- Provide information early to community on project
- Must understand the needs of fishermen
- Explosives can be used safely underwater with detailed engineering and environmental pre-planning
- SLC engineering staff onsite essential to timely approval of plan modifications and prevention of problems
UPDATE ON DECOMMISSIONING ISSUES

ELMER “BUD” DANENBERGER
Chief, Engineering and Technology Division, Minerals Management Service

EXPLOSIVES HAVE PROVEN TO BE SAFE AND EFFECTIVE

• Used in 70% of removals
• Not diver dependent
• Mitigations have minimized the risk to turtles and dolphins

WHY 15 FEET?

• Proven to be effective in preventing seafloor obstructions
• Allows margin for error
• Reduces operator’s liability risk
• District Supervisor may adjust

THREE-FOOT REMOVAL DEPTH MAY BE RISKY

• 3-5 feet scour potential in water depths less than 30 feet
• Bottom conditions affect removal depth measurements

SERIOUS CONCERNS ABOUT OBSTRUCTIONS

• Any exposed casing stubs or pilings could remain in place for 100+ years
• Thousands of trawling vessels work in the Gulf

PIPELINE BURIAL TO 3 FEET HAS NOT ALWAYS PROVEN TO BE SUFFICIENT

• Hurricane Andrew:
  9+ pipeline segments were exposed
  10 segments damaged by mud slides
  18 segments damaged by anchor dragging
• Shrimpers have often raised concerns about pipeline obstructions

PARTIAL REMOVALS

• Both Marine Board and Workshop support partial removals

MARINE BOARD AND WORKSHOP RECOMMENDED CHANGES IN MITIGATIONS

• Develop guidelines for determining the size of explosive charges
• Remove the limit on the number of detonations at any one time
• Shorten the observation time to 24 hours before the blast
MARINE BOARD AND WORKSHOP
RECOMMENDED MORE STUDIES

- Turtle detection and scaring devices
- Compare natural reefs and oil and gas platforms
- Advanced explosive and non-explosive removal technology
- Consider deep-water pipeline abandonment procedures
- Evaluate the reef effect associated with deep-water platforms
- Evaluate the habitat value of structures in cold water environments
- Determine the water depth profile for fish killed by explosives
- Consider the effects of platform size on fish attraction
- Evaluate platform disposal options

INTERNATIONAL CONVENTIONS

- London Convention of 1972 (LC)
- International Maritime Organization guidelines

LESSEES ARE RESPONSIBLE FOR ALL LEASE ABANDONMENT COSTS

STATUS OF STRUCTURE ON THE OCS
Age and Water Depth
August 1997

Rigs to Reefs

As of August 1997
Proceedings: Decommissioning Workshop, September 1997

CALIFORNIA STATE LANDS COMMISSION: DECOMMISSIONING POLICY AND REGULATIONS

DWIGHT E. SANDERS
Chief, Division of Environmental Planning & Management
California State Lands Commission

As we prepare for the approaching decommissioning and removal of additional structures, both offshore and onshore, we should recall that California is no stranger to oil and gas development. The area of Ojai was the site of an oil discovery in 1857 and oil was discovered on the coast of Ventura County some years later.

In 1890, gas was discovered within the limits of Summerland in Santa Barbara County and a few years later, in 1894, oil was discovered in Summerland very near to the sea. By 1896, Summerland hosted the first offshore oil and gas development – wooden piers and platforms began to appear along the area’s beaches and shoreline. I am sure that most of us at one time or another have seen pictures of the developments that changed a popular swimming area into a forest of derricks.

By 1920, most pumping activity in the wells was finished and the industry moved on to more productive prospects, as in the gold rush, the area was abandoned by man but his structures remained. During the next 50 years, these decaying facilities were a constant reminder of man’s “What me worry” philosophy.

The vistas of the offshore area of the county of Santa Barbara began to change in the summer of 1988 with the abandonment and removal of platforms Helen and Herman from State waters. I can still use these terms here since as far as I can determine, decommissioning was not substituted for abandonment until 1996 at the ‘International Workshop on Offshore Lease Abandonment and Platform Disposal’ in New Orleans.

By August 1997, four more platforms, Hope, Hazel, Hilda, and Heidi, were removed from the State waters offshore Santa Barbara County. We are still dealing with some aspects of this project, the circumstances of which I am sure you will hear more of both within and without the context of this workshop.

What has changed since the specter of Summerland? For one, the California State Lands Commission was created by the Legislature in 1938 and given the responsibility for the management, development and extraction of mineral resources located on State sovereign tide and submerged and State school lands. The State’s sovereign offshore tide and submerged lands are those generally located from the mean high tide line to three nautical miles seaward.

The Commission’s oil and gas leases, predominately issued in the fifties and sixties, contain the following language: “At the expiration of this lease or sooner termination thereof, the lessee shall surrender the premises leased, with all improvements thereon, in good order and condition, or, at the option of the State and as specified by the State, the lessee shall remove such structures and fixtures as have been put on the leased land by the lessee and otherwise restore the premises, all removal and restoration costs to be borne by the lessee, subject to the lessee’s right to remove his equipment as provided in the statutes. Notwithstanding any provision of this lease, the lessee shall have the right to remove any oil drilling and producing platforms and other oil field development and producing equipment having a re-use or salvage value.”

You can tell from the construct of this language that our attorneys were not paid on the basis of the number of periods used.

To date, the Commission has encouraged the removal of platforms rather than some form of abandonment in place. A Spring 1996 article in “Underwater Magazine” by Ross Saxon, Ph.D. entitled, ‘Offshore Lease Abandonment and Platform Disposal, A Status Report’ opines that
the removal of a platform involves five distinct steps:

1. Obtaining necessary permits and approvals, observed to be a complex, time consuming and difficult job of which I am sure Simon will inform us later
2. Plugging the well
3. Decommissioning, defined as ridding the platform of hydrocarbons
4. Removing the platform
5. Clearing the site

The Commission’s lease terms, statutory authorities and responsibilities, and regulations governing the “decommissioning and removal” of oil and gas facilities offshore are augmented by the provisions of the California Environmental Quality Act or CEQA. Through the CEQA process, a project’s potential adverse impacts on the environment are identified and analyzed. If any of these impacts are found to be significant, mitigation requirements are developed to avoid, substantially lessen or eliminate such impacts. Once adopted by the Commission, such mitigation is implemented by a Mitigation Monitoring Program administered by the Commission.

The CEQA process also provides opportunities for the public, public interest groups, other maritime user groups, and federal, state and local agencies to review and provide comments on the project and its environmental documentation.

Within the context of the Commission’s experiences in 1988 and 1997, the process has certainly encouraged debate and discussion, but little consensus on major issues affecting facility decommissioning and disposition. For instance, who will accept liability if some or all of a structure remains in place; or, what portion of a structure could, by itself or with augmentation, function as an artificial reef?

To heighten the challenge, the issues have issues. For example, do artificial reefs nurture marine life or merely attract it and in either case do they place marine life at a disadvantage with respect to sport or commercial fishing activities? Which fishing interests should prevail, sport or commercial? Which environmental perspective should govern, that which advocates the use of offshore structures for artificial reefs or that which holds that no such disposition should occur since such reefs could pose potential harm to fishing operations?

Unfortunately, I cannot wrap this up with “Have I got a deal for you.” I do hope, however, to learn from the discussions planned in this workshop and from you, the participants. Thank you for the opportunity to do both.
REGULATORY FRAMEWORK AND ENVIRONMENTAL REVIEW PROCESS FOR THE DECOMMISSIONING OF OIL AND GAS FACILITIES

SIMON POULTER
Principal
Padre Associates, Inc.

Lead and Key Agencies

• Lead Agencies
  – Minerals Management Service
  – Army Corps of Engineers
  – State Lands Commission
  – County or City Governments

• Other Key Agencies
  – California Coastal Commission
  – Air Pollution Control District
  – Regional Water Quality Control Board
  – NMFS/CDF&G
  – U.S. Coast Guard

Environmental Review Process

• National Environmental Policy Act (NEPA)
  – Environmental Impact Statement
  – Environmental Assessment/FONSI

• California Environmental Quality Act (CEQA)
  – Environmental Impact Report (EIR)
  – Mitigated Negative Declaration

Permitting Jurisdictions

[Diagram showing various locations and agencies related to decommissioning, including Platforms, Subsea Well, Onshore Processing Plant, Marine Terminal, Federal OCS MMS/ACOE Lead Agency, State Waters SLC Lead Agency, and Onshore County or City Government Lead Agency]
Overview of Permitting Requirements

<table>
<thead>
<tr>
<th>Permit Requirement by Facility Location</th>
<th>Federal OCS</th>
<th>State Waters</th>
<th>Onshore - County or City</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Agencies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minerals Management Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lease Condition/Stipulations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Development and Production Plan</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- Lease Term Pipeline Application</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pipeline Right-of-Way</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>EPA - NPDES Permit</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACOE - Section 10/404 Permit</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USCG - Aids to Navigation</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td><strong>State Agencies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Coastal Commission</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- Consistency Certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Coastal Development Permit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLC - Lease Agreement/Permit</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>RWQCB - NPDES Permit</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDF&amp;G - Section 1603</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>County or City</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preliminary Development Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditional Use Permit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Development Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal Development Permit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc. Permits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Pollution Control District</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Authority to Construct</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>- Authority to Operate</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

Major Steps in the Permitting Process

- **Applicant Prepares Decommissioning Plan**
  - **Timing**: 3 to 6 months
- **Conduct Pre-application Meetings with Agencies**
  - **Timing**: 1 to 6 months
- **Application Submitted/Completeness Review**
  - **Timing**: 1 to 6 months
- **Draft Environment Document Prepared**
  - **Timing**: 1 to 12 months

- **Lead Agency Public Hearing for Approval of Proposed Project**
  - **Timing**: 1 month
- **Public Hearing to Approve Environmental Document**
  - **Timing**: 1 month
- **Response to Comments/Final Environmental Document**
  - **Timing**: 1 to 2 months
- **Draft Environmental Document Public Review**
  - **Timing**: 1 to 2 months

- **Other Agency Permit Applications Deemed Complete**
  - **Timing**: 1 month
- **Draft Permit Available for Public Comment**
  - **Timing**: 1 month
- **Public Hearing for Permit Approval**
  - **Timing**: 1 month
- **Project and Mitigation Measure Implementation**
  - **Timing**: 1 to 16 months
INTERNATIONAL DEVELOPMENTS:
LESSONS LEARNED AND NEED FOR PUBLIC INPUT

W. S. (BILL) GRIFFIN, JR.
Director of Special Projects
Phillips Petroleum Company

INTRODUCTION
• Speaking about Decommissioning is only part of the equation - must listen and include feedback into decision
• No communication with the public before Brent Spar

WORLDWIDE DISTRIBUTION OF PLATFORMS

DISTRIBUTION
• 6500 structures in Continental Shelves of 53 countries
• Cost of total removal estimated at 35-40 billion USD
• 4000 structures in GOM cost 5 billion USD
• 400 structures in North Sea cost 12-15 billion USD

PLATFORM SIZE COMPARISON
• Worldwide 600 larger than Shallow Water Structures
• About 50 larger than Deepwater Structures
• About 100 larger than 20 Story Building
• About 4500 smaller than 20 Story Building
• Deep Water Jacket shown weighs approximately 20,000 tonnes – Eiffel Tower weighs 7,100 tonnes

HISTORY
• 1958 GENEVA CONVENTION – GLOBAL
  - Set the legal framework to allow industry to explore and exploit continental shelves
  - Required total removal of platforms
• 1969 USGS - REGIONAL
  - 1st State Practice under 1958 Geneva Convention
  - Required total removal to 15 feet below mud line and location dropped to be sure no obstruction
• 1972 – LS - GLOBAL
  - The current authority for disposal at sea
• 1982 UNCLOS - GLOBAL
  - Supersedes the 1958 Convention for platforms
  - Allows for competent body to set removal guidelines to ensure safety of navigation and not interfere with other users of the sea
• 1989 IMO GUIDELINES - GLOBAL
  - Sets removal guidelines to ensure safety of navigation
  - After 1-1-98, no structure can be emplaced on any continental shelf that is not feasible to remove
• 1990 OSCOM - REGIONAL
  - Specific guidelines for platform disposal at sea in NE Atlantic
- Must be sea disposed in at least 2000 meters of water and 150 nautical miles from level

- **1995 OSCOM MORATORIUM - REGIONAL**
  - After Brent Spar, banned sea disposal at sea in NE Atlantic
  - UK and Norway voted against, so not held to ban

**INTERNATIONAL DEVELOPMENTS**
- **LONDON CONVENTION**
- **IMO GUIDELINES**
- **OSPAR**

**LONDON CONVENTION**
- New Protocol in 1996
- Precautionary Principle
  Be sure of results before doing something
- Polluter Pays Principle
  The party doing the disposal pays all costs
- Reverse List
  1972 LC List what cannot be sea disposed
  1996 Protocol list what can be sea disposed
- Waste Assessment Framework (WAF)
  Procedure to follow for sea disposal
- Will not be in force for several years.
  Until in force, 1972 LC Valid

**IMO GUIDELINES**
Want to have IMO Review to see if they need to be revised
Sets removal guidelines to ensure safety of navigation
After 1-1-98, no structure can be emplaced on any continental shelf that is not feasible to remove
- Minimum Guidelines
  Coastal State can require more removed
- 74 meters / 4,000 tonnes
  All structures in water less than 75 meters deep and substructures weighing less than 4,000 tonnes must be removed
- After 1-1-98 – 100 meters / 4,000 tonnes
  All structures emplaced after 1-1-98 in less than 100 meters of water and substructures weighing less than 4,000 tonnes must be removed
- After 1-1-98 - Design
  Must be shown at time of installation that it is feasible to be removed – actual decision made in future when structure becomes redundant

- **Partial Removal Allowed**
  Structures not totally removed must have a minimum of 55 meters of clear water above parts remaining
- **Rigs-to-Reefs allowed**
  Structures can be converted to a new use

**OSPAR**
Replace separate Oslo & Paris Conventions
Will be enforced by end of 1998
Jurisdiction in North East Atlantic
- **Five Categories**
  - Sea bed completions – to shore
  - Small steel – to shore
  - Large steel - ?
  - Floaters – to shore
  - Concrete – left in place
  All structures come to shore regardless of water depth except for LARGE steel and they cannot reach agreement on definition of large steel
- **Not Agreed**
  Reverse list or prohibitive list – Will not have a reverse list or a prohibitive list to decide what disposal
  Definition of large steel – IMO definition of large steel or a more onerous definition
  Exceptions – There will always be need for exceptions to the rule
  Cut-off date – After a certain date in the future, any structure emplaced will come to shore for disposal
  Topside on large steel and concrete – Some topsides cannot be lifted because of design – special considerations
  Consultation Procedure – How will contracting parties give their approval?

**PIPELINES AND DRILL CUTTING PILES NOT CURRENT ISSUE, BUT WILL BE AFTER PLATFORMS AGREE**

**LESSONS LEARNED**
- Decommissioning is a process not a construction project
  Began with SPAR in 1991, removed in 1995, disposed in 1999?
  Engineering is the easy part.
  Politics is the hard part
LESSONS LEARNED (continued)

• Expect the unexpected
  UK & Operator did not expect outrage
  Technical problems
  Not structural as drawing shows
  Unavailable equipment or service
  Weather

• Time is important
  Don’t do anything until consequences are
  fully understood
  Don’t be pushed
  Dead money spent. Only contractors have
  a return
  Maintaining structure may not be as
  expensive as thought
  New equipment may evolve

• Not all should come ashore
  Continue to enhance Marine Environment
  Clean seabed, but dirty atmosphere and
  land
  Recycled material, but not always cost
  efficient

• Cost, Technology, Safety, Environment
  and Regulatory are important
  ALL must be balanced

• Public must be considered and involved
  Prepare information for public as to what
  you are planning to do

• Communicate and listen

• Regulatory work for Politicians
• Politicians elected by Public
• Target is where the four inter circles
  overlap
  Target moves by pressure from the public

NEED FOR PUBLIC INPUT

• Industry beliefs
  Bases their beliefs on Science, Technology
  & Economics

• Public beliefs
  Bases their beliefs on values and morals

• Hazardous Risk Assessment
  Industry performs calculation
  Public
  ~ If they feel they are in control ~ SAFE
  ~ If they do not feel in control ~ FEAR

NEED FOR PUBLIC INPUT

"IF YOU HAVE THE COURAGE TO SPEAK -
YOU MUST HAVE THE DISCIPLINE
TO LISTEN”

• SPEAK – Give your message
• LISTEN – Hear public concerns
• IMPLEMENT – Incorporate public
  concerns into division or explain why
  not

FINDING THE RIGHT BALANCE

• Balance Between
  Health and Safety of workers
  Environment Impact to Land, Sea and Air
  Cost Effectiveness
  Technical Feasibility