Next Quarterly Meeting at Total in Paris, France – June 3, 4

The Quarterly Summer meeting of PERF will be hosted by Total in Paris, France, 3-4 June, 2003. Details of the meeting, registration and accommodation forms are posted on our web site: http://www.perf.org/

The theme of this meeting is Air Quality with presentations on the topics of European regulations, modeling, emissions reduction and monitoring, flaring, and current PERF air projects. There will also be sessions of the Downstream and Upstream Discussion groups, a full compliment of technical presentations, as well as new project proposals. We will also review the progress of existing PERF projects.

See you in Paris!!!

Announcing Changes in PERF Board

At the Spring PERF meeting, Dave Fashimpaur was unanimously voted by the Board and the membership as a new PERF Board member, filling a vacant at-large position. Dave has been instrumental in starting several PERF air projects, and we welcome his enthusiasm and commitment to PERF. Also, at the Spring meeting, Elisabeth Adam announced that due to a new assignment within Total she can no longer serve as a Board member.

However, she requested that Marine Julliand of Total fill her position on the Board. The Board unanimously approved Marine to fill the position of PERF secretary/webmaster. We will miss Elisabeth and thank her for her tremendous efforts in making the PERF website a success.
Current PERF Research Proposals

Proposals are presented at each quarterly meeting and e-mailed to all PERF representatives. The project coordinator then generates a project contract specific to the proposal and e-mails it to all representatives who have expressed an interest in the proposal. It typically takes 6 to 12 months for contracts to be signed and the project to kick-off.

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Title</th>
<th>Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-01</td>
<td>Hg Cooperative</td>
<td>ExxonMobil</td>
</tr>
<tr>
<td>2002-14</td>
<td>NAF cuttings cleaning with supercritical carbon dioxide</td>
<td>ExxonMobil</td>
</tr>
<tr>
<td>2002-13</td>
<td>Water management cooperative</td>
<td>ExxonMobil</td>
</tr>
<tr>
<td>2002-12</td>
<td>Novel solidification/stabilization technology for oily wastes</td>
<td>ChevronTexaco</td>
</tr>
<tr>
<td>2002-10</td>
<td>Hydrocarbon detecting using remote sensing</td>
<td>ChevronTexaco</td>
</tr>
<tr>
<td>2002-09</td>
<td>Crude oil filtration</td>
<td>PetroCanada</td>
</tr>
<tr>
<td>2002-08</td>
<td>Water reuse – Water as resource for irrigation</td>
<td>Shell</td>
</tr>
<tr>
<td>2002-07</td>
<td>Remote Leak Detection using Alternative Technologies</td>
<td>BP/API</td>
</tr>
<tr>
<td>2001-01</td>
<td>Dimpled Tube Technology For Process Heaters</td>
<td>BP</td>
</tr>
</tbody>
</table>

DOE/PERF Bioremediation Workshop Summary Now Available

DOE and PERF held a Bioremediation Workshop in May, 2002. A written summary from this workshop will be available for distribution at the June meeting in Paris and posted on the PERF website, www.perf.org, at the following link: www.perf.org/index.php?act=workshopssummaries. The document summarizes the highlights of the nine technical presentations from the workshop, and it is written in an easy to understand question and answer format. A special thanks goes to Kerry Sublette from the University of Tulsa for assisting with writing and editing the summary.

PERF Project 00-01 – E&P Waste

ChevronTexaco is coordinating PERF project 00-01 which is aimed at sharing lessons learned, tools, and guidelines for E&P waste management technologies and methods, both domestic and internationally. Participants so far are ChevronTexaco, ExxonMobil, ConocoPhillips, Unocal, and Argonne National Laboratory. Deliverables span a variety of topics including waste management alternatives and guidelines for remote locations, several bioremediation studies and field tests, oily solids management and remediation techniques, coalbed methane water treatment, and others. The project is still open to new participants, so please contact Evan Sedlock (evansedlock@chevrontexaco.com) if you are interested.
## Current PERF Projects

PERF currently has ten active projects underway. These projects include research on remediation technologies, waste management, air, water, wastewater, and risk assessment. The total value of these projects in terms of the cost of conducting the research is estimated to be >U.S. $8 million. It’s not too late to join many of these projects, so please contact the project coordinator (contact info can be found on www.perf.org) to find out how to join one of the projects listed below.

<table>
<thead>
<tr>
<th>Project Year</th>
<th>Project Title</th>
<th>Sponsor</th>
<th>Participants</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-02</td>
<td>Bioremediation sharing project</td>
<td>ExxonMobil</td>
<td>4</td>
<td>$650,000</td>
</tr>
<tr>
<td>2001-08</td>
<td>Downstream Waste Management</td>
<td>ExxonMobil</td>
<td>6</td>
<td>$700,000</td>
</tr>
<tr>
<td>2000-03</td>
<td>Next Generation Lo-NOx Burner Performance Testing</td>
<td>BP</td>
<td>5</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>2000-01</td>
<td>Effective Methods and Lessons Learned for E&amp;P Waste Treatment</td>
<td>ChevronTexaco</td>
<td>6</td>
<td>$600,000</td>
</tr>
<tr>
<td>1999-13</td>
<td>Risk Cooperative Project</td>
<td>ChevronTexaco</td>
<td>8</td>
<td>$850,000</td>
</tr>
<tr>
<td>1999-06</td>
<td>Upset Early Warning Devices for Wastewater Treatment Plants</td>
<td>BP</td>
<td>4</td>
<td>$100,000</td>
</tr>
<tr>
<td>1999-01</td>
<td>Ecological Evaluation for Upstream Site Remediation</td>
<td>ChevronTexaco</td>
<td>10</td>
<td>$750,000</td>
</tr>
<tr>
<td>1998-09</td>
<td>Accidental Release Mitigation Project</td>
<td>ExxonMobil</td>
<td>11</td>
<td>$1,320,000</td>
</tr>
<tr>
<td>1998-04</td>
<td>Manage Water Soluble Organics in Produced Water</td>
<td>ChevronTexaco; Shell</td>
<td>6</td>
<td>$1,300,000</td>
</tr>
<tr>
<td>1997-06</td>
<td>Phytoremediation of Hydrocarbons – Phase II Field Project</td>
<td>ExxonMobil</td>
<td>7</td>
<td>$500,000</td>
</tr>
</tbody>
</table>

Total: **$8,270,000**

Note that details of all of the projects performed under the PERF umbrella since our formation in 1986 are presented on our website. Also note that specific results of projects are generally not published, as these often remain proprietary to the participating companies.
Highlights of Spring Meeting in San Antonio

The Spring 2003 PERF meeting was hosted by PERF in San Antonio, Texas on March 13, 14, 2003. The focus of the meeting was on mercury issues impacting both upstream and downstream oil and gas operations. The objectives of this meeting were to summarize what we as an industry know about the problems caused by mercury in upstream and downstream operations, summarize the current R&D efforts, and to summarize the potential R&D needs of the future. The agenda included presentations on mercury in the environment, toxicology of mercury, analytical issues, and removal of mercury from crude oil, natural gas and water. In addition there was a presentation on slurry fracture injection as a waste disposal option. A detailed agenda for the meeting along with presentations are available on our website at http://www.perf.org.

New PERF Proposal 03-01 – Mercury Cooperative

ExxonMobil is coordinating a new sharing project on mercury. Project participants will share information on the management of mercury contained in crude oils and condensates that are produced and refined by the petroleum industry. This information will provide project participants with the information necessary to effectively manage operational, environmental, and other issues arising from the exploration, production, and refining of mercury-containing petroleum. The project will culminate with a multi-day interdisciplinary workshop currently slated for the First Quarter of 2004.

To date, a kickoff conference call has been conducted, with participation from petroleum industry companies (ExxonMobil, Shell, ConocoPhillips, ChevronTexaco, Sunoco, Unocal) and non-petroleum industry organizations (Mercury Technology Services, Electric Power Research Institute [EPRI], Frontier Geosciences, NATCO Group, and Energy and Environmental Research Center [EERC]). Teleconference participants voiced their interest in pursuing the project and learning more about the many issues related to mercury in the petroleum industry. As an outcome of the teleconference, a list of contributions from project participants will be developed. Additionally, a list of topics for which participants would like more information will be compiled. These lists will be used to develop the project scope of work. At the June PERF meeting, this list will be reviewed and an interim status report of the project will be given. Wide participation is encouraged, and additional project participants are welcome. For more information on this project or to participate, please contact Chuck Feerick (charles.p.feerick@exxonmobil.com) or Ken Motolenich-Salas (kenneth.m.motolenich-salas@exxonmobil.com).
DOE Partnership with PERF

The United State Department of Energy has generously contributed funds to several national laboratories over the last 10 years to assist in achieving the goals of specific PERF projects (e.g., 94-06, 97-08, 98-04, 99-01, 99-13, and 00-01). In addition to specific-project funded work, DOE’s National Petroleum Technology Office has also granted PERF funds to publish books, hold workshops, build websites, and do small scale research that may lead to future projects (e.g., white paper on monitoring methods for deep water environments).

For 2003, DOE has granted funding to aid PERF in hosting two workshops: (1) bioavailability of organics and (2) vapor pathways. In addition to the workshops, DOE is also funding the development of a bibliography of drilling discharge environmental research as well as tools for assessing the impacts of habitat fragmentation. PERF is very grateful to DOE for the assistance given to PERF in funding these important research topics!

PERF Board and Officers Nominating Committee Formed

Sara McMillen, John Wilkinson and May Britt Eiken were appointed at the last PERF Board meeting to form the nominating committee for the upcoming election of PERF Officers and Directors. The election will be held at PERF’s next annual meeting, and a slate of nominated Officers and Directors will be announced to each PERF member’s designated representatives prior to that meeting. Additional nominations will also be accepted from the floor at the meeting.

PERF Officers manage PERF’s administrative structure and finances, preside at meetings, and interface with government representatives on behalf of PERF. All PERF Officers are also PERF Directors, and together with the at-large Directors form PERF’s Board. The Board sets the agenda for PERF meetings, determines PERF priorities and sets PERF’s budget and dues. The Board meets in person prior to each PERF meeting and as often as necessary outside of regular PERF meetings, usually by conference call.

If you would like to become more involved in PERF leadership, contact one of the nominating committee members and let them know of your interest.

PERF Proposal 01-10: Hydrocarbons and Remote Sensing

ChevronTexaco has proposed a project for Surface Hydrocarbon Detection Using Remote Sensing. Hyperspectral data collected via airborne sensors could be used as a tool to detect and determine the extent of onshore surface hydrocarbons from leaks, spills, or past operational practices. The sensor provides blanket data coverage which could be used to screen properties and decrease field work compared to current technologies. This is a funded project requiring $40-50K per participant. Research would be conducted by the Institute for Geosciences and Natural Resources in Berlin, Germany. Interested companies are ExxonMobil, Sasol, and Shell. Please contact Gail Korenaga (gkorenaga@chevrontexaco.com) for more information.
The Petroleum Environmental Research Forum (PERF)* is a research and development joint venture, formed to provide a stimulus to and forum for the collection, exchange, and analysis of research information relating to the development of technology for health, environment & safety, waste reduction and system security in the petroleum industry. PERF is a non-profit organization of Members which are corporations engaged in the petroleum industry that recognize the importance of a clean, healthy environment and are committed to support cooperative research and development. PERF does not itself participate in research projects but provides a forum for Members to collect, exchange, and analyze research information relating to practical and theoretical science and technology concerning the petroleum industry, and a mechanism to establish joint research projects in that field.

*The name Petroleum Environmental Research Forum and its acronym PERF are registered service marks.

PERF encourages external groups such as trade associations, national laboratories, and research institutes to join as Liaison members. PERF values the partnerships that we have with these external groups and they frequently join PERF projects and contribute valuable research. Liaison members appoint Representatives which have the right to attend and participate in meetings of PERF and its committees but they do not have the right to vote or to serve as an officer of PERF. Liaisons are not required to pay the fee paid by Members.

American Petroleum Institute (API)
Department of Energy (USDOE)
Gas Technology Institute (GTI)
Lawrence Berkeley National Laboratory (LBNL)
Water Environmental Research Foundation (WERF)
Argonne National Laboratory (ANL)
Electric Power Research Institute (EPRI)
International Association of Oil and Gas Producers
Oak Ridge National Laboratory (ORNL)
University of Manchester Institute of Science and Technology (UMIST)

Member Companies & Representatives

Amerada Hess
Aramco Services Co.
BP Amoco
ChevronTexaco
ConocoPhillips
EniTechnologie
ExxonMobil
Petrobras
PetroCanada
Shell International E&P
Statoil
Total
Unocal

Gerry Bresnick
Robert Finley
Edward Pincetatto
Davis Taggart
Sara McMillen
Sung-I Johnson
Renzo Boni
John Wilkinson
Sergio Soares
Bruce Kennedy
Zara Khatib
Per Gerhard Grini
Marine Julliand
Todd Ririe

Associate Members & Representatives

BOC Gases Technology
Canadian Petroleum Products Institute (CPPPI)
Petrozyme Technologies
TNO

Ram Ramachandran
Adolfo Silva
Bill Mullin
Huub Rijnaarts