

PERF

The Petroleum Environmental Research Forum (PERF)



***Established in 1986 to Stimulate
Cooperative Research and Development of
Technology for Environmental Pollution
Control and Waste Treatment for the
Petroleum Industry***

www.perf.org



◆ Objectives:

- To provide a stimulus for cooperative research and development of technology for the environment, health, safety, waste reduction and system integrity for the petroleum industry.
- To provide a forum to discuss and develop proposals for cooperatively funded projects relating to these areas.

◆ Advantages of PERF:

- DEAL WITH O&G INDUSTRY SPECIFIC PROBLEMS
- RESPOND QUICKLY INITIATING R&D TO MEET NEEDS OF COMPANIES
- CREATE CRITICAL MASS OF TECHNICAL EFFORT TO EXPEDITE RESULTS
- CONDUCT PROJECTS OF BROADER SCOPE THAN ACHIEVABLE BY INDIVIDUAL FIRMS
- EXAMINE MORE TECHNICAL AREAS OF CONCERN THAN POSSIBLE BY INDIVIDUAL FIRMS



Incentives:

- **REDUCE R&D COSTS BY AVOIDING DUPLICATION**
- **ENSURE NEEDED R&D IS DONE ON IMPROVED CONTROL/TREATMENT TECHNOLOGY**
- **INVOLVE MORE EXPERTISE and CREATIVITY TO OBTAIN MORE INNOVATIVE SOLUTIONS**
- **LEVERAGE FUNDING, INCLUDING POSSIBLE GOVERNMENT SOURCES AND MATCHING FUNDING**
- **PARTICIPATION IN THE PERF FORUM HELPS YOU TO GAIN INFORMATION AND LEARN WHAT ARE VIEWED AS CRITICAL ISSUES BY OTHERS IN THE PETROLEUM BUSINESS**



◆ Who Can Participate

- PERF projects are open to anyone who can meet the requirements of the participation agreement established for that project
- Project participation is not limited to PERF members or petroleum companies. A project proposal must be sponsored by a member company
- Recent PERF Co-operative research programs have special provisions to set lower participation contributions for government agencies and trade organizations

◆ Projects to-date

- 83 projects with a value of > \$65 million have been completed
- 3 projects with a value of > \$3 million are underway
- 13 projects are under consideration



◆ Member Companies

- ❖ Amerada Hess
- ❖ Saudi Aramco
- ❖ BP
- ❖ Chevron
- ❖ ConocoPhillips
- ❖ EniTechnologie
- ❖ ExxonMobil
- ❖ INA-Naftaplin
- ❖ Petrobras
- ❖ Petro Canada
- ❖ RepsolYPF
- ❖ Shell
- ❖ Statoil
- ❖ Suncor
- ❖ Total

• Liaison Members

- ❖ American Petroleum Institute (API)
- ❖ Argonne National Laboratory (ANL)
- ❖ US Department of Energy (DOE)
- ❖ Electric Power Research Institute (EPRI)
- ❖ Energy & Environmental Research Center (EERC)
- ❖ Gas Technology Institute (GTI)

• Associate Members

- ❖ Champion Technologies, Inc.
- ❖ Canadian Petroleum Products Institute (CPPI)
- ❖ The QUESTOR Centre
- ❖ Veolia Water North America Operating Services Inc.

- ❖ Lawrence Berkeley National Laboratory (LBNL)
- ❖ International Association of Oil & Gas Producers (OGP)
- ❖ Oak Ridge National Laboratory (ORNL)
- ❖ University of Manchester Institute of Science and Technology (UMIST)
- ❖ Water Environmental Research Foundation (WERF)
- ❖ VITO - Flemish institute for technological research

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Steps to a PERF Project Pre-proposal / Proposal



- ◆ **Idea** – generated from PERF meeting, or individual / company / national lab / university
 - PERF member company “sponsors” project and stewards the contract

- ◆ **Pre-Proposal generation / Project Proposal**
 - Idea for a project, rough outline, thoughts, interested parties?
 - 3-4 slides outlining project idea, timing, potential project deliverables
 - Sign-up sheet, project # issued, conf. call with interested parties – no commitments
 - Decision to proceed with PERF project, Yes -> scope out project/proceed, No ->pull down
 - Develop contract with Exhibit B's – “deliverables” from each company – agreed to items
 - Sign contracts, Project starts
 - Achieved Project Deliverable – books, publication, shared info. (manual, data), white-paper



- ◆ **2009-02: PM Methods Sharing Cooperative** - BP, ExxonMobil, Shell
- ◆ **2009-01: Evaluation of In Situ Chemical Oxidation of Petroleum Impacts in GW** - ExxonMobil - Scott Bushroe – scott.buschroe@exxonmobil.com or Chad Shockley chad.e.shockley@exxonmobil.com ***ACTIVE***
- ◆ **2008-05: Chemical Sensors to Monitoring BTEX in GW** – Karen Synowiec – kasy@chevron.com
- ◆ **2008-02: Novel Techniques for Sensing BTEX** - ExxonMobil - Chad Shockley – chad.e.shockley@exxonmobil.com
- ◆ **2008-01: Next Generation Optical Sensors for Gas & Vapor Detection**- BP - Dave Fashimpaur – fashimdn@bp.com
- ◆ **2007-06: EU Refinery Effluent Assessment** - ExxonMobil – Chad Shockley – chad.e.shockley@exxonmobil.com
- ◆ **2007-05: Membrane Bioreactor Demonstration**- ExxonMobil – Ryan Couture – ryan.m.couture@exxonmobil.com ***ACTIVE***
- ◆ **2009-03 Treatment Wetlands** – (sharing of Best Practices / Lessons Learned) – Chevron – Jim Meyers
- ◆ **2009-04 Sheening associated with Contaminated Sediments** – Chevron – Will Galla



- ◆ **Manage Water Systematically / Practices / Guidelines** (water “quality” for various processes in the target industry, water quality monitoring (QA/QC) and how to control (analytical), what are the effects of using different water quality? “Fit for purpose/use”, water quality library, incl discharge limits)
- ◆ **Developing Best Practices / Guidance document for Sampling and Analyzing Hg in all media** - Chevron - Thomas Hoelen - tpho@chevron.com
- ◆ **Technology Evaluation for Removing Metals from Wastewater - Se & Hg** - ExxonMobil - Chad Shockley - chad.e.shockley@exxonmobil.com
- ◆ **Base Scientific Review of Fate and Transport of Hg at a Refinery** - ExxonMobil - Chad Shockley - chad.e.shockley@exxonmobil.com (better understanding of behavior in refinery stream, slugs of Hg, look upstream)
- ◆ **Research on Treatment Technologies for Water Use and Beneficial Reuse** (compilation of lessons learned, costs) - Chevron -Veronica Blackwell - vblackwell@chevron.com & ExxonMobil - Jill Kerr - jill.m.kerr@exxonmobil.com
- ◆ **Sharing of Refinery Water Reuse Projects & Applications** (checklist, best practices development, beneficial use) - Chevron -Veronica Blackwell - vblackwell@chevron.com & ExxonMobil - Jill Kerr – jill.m.kerr@exxonmobil.com

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Completed PERF Projects



- **2000-03 Next Generation Lo-NOx Burner Performance Testing**
- **2001-08 Downstream Waste Management**
- **2002-02 Bioremediation Sharing Project**
- **2003-01 Mercury Cooperative**
- **2003-03 Managing Waste in Countries with Little Infrastructure**
- **2004-06 Minimizing Desalter Environmental Impacts**
- **2006-07 Arsenic Cooperative**

Recent PERF Meetings



Date	Host	Location	Theme
October-06	BP & Argonne National Laboratories	Chicago, IL	Remediation
February-07	Champion Technologies	Houston, TX	Chemical Treatment of Water
June-07	QUESTOR	Belfast, UK	Advanced Biotechnology
November-07	ConocoPhillips	Bartlesville, OK	Environmental Challenges of Heavy Crude Oil
February-08	Flemish Water Institute (VITO)	Antwerp, Belgium	Water Management & Re-Use
November-08	ExxonMobil	Philadelphia, PA	Biofuels
April 2009	Shell	Amsterdam	Innovative Approaches to Managing Water Resources
November-09	Saudi Aramco	Houston, TX	Industry-University Collaboration

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Next PERF Meeting



82nd Meeting of the Petroleum Environmental Research Forum (PERF)

Fall 2010

PERF Board Members



CHAIR –

Todd Ririe, BP

VICE CHAIR –

Chad Shockley, ExxonMobil

TREASURER –

Karen Haynes, Shell

SECRETARY/WEBMASTER - Aurélie Michel, Total

FORMER CHAIR –

Dave Fashimpaur, BP

AT-LARGE MEMBERS –

Veronica Blackwell, Chevron

Ramzi Hejazi, Saudi Aramco

Sung-I Johnson, ConocoPhillips

Jill Kerr, ExxonMobil

Paulo Negrais, Petrobras

LEGAL COUNSEL – Joe Gormley, Baldwin, Kagan & Gormley LLC

UPSTREAM DISCUSSION GROUP LEADER – Jill Kerr, ExxonMobil

DOWNSTREAM DISCUSSION GROUP LEADER – Dave Fashimpaur, BP

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Information on PERF Membership



- ◆ www.perf.org
- ◆ *PERF Chairman, Todd Ririe: todd.ririe@bp.com*
- ◆ PERF MEMBERSHIP COVERS:
 - Participation in discussion groups
 - Participation in meetings (typically 2-3 per year)
 - Access to all current and prior meeting materials via website
- ◆ Annual membership maintenance fee is \$5,000 which covers costs incidental expenses and part-time legal counsel.
- ◆ There is a one-time initiation fee of \$2,000.