



# **SPE Meeting**

## **April 15, 2013**

Christie's Bistro  
Located in the Lexington Lansing Hotel  
925 South Creyts Road  
Lansing, Michigan 48917  
(517) 323-4190

5:00 to 6:00 PM – Social Hour  
6:00 PM – Dinner  
Presentation after Dinner  
Cost (includes dinner): \$30.00 (Students \$20.00)

### **Understanding Liquid Loading Will Improve Well Performance**

by  
**Robert P. Sutton,  
Marathon Oil Corporation**

SPE Dinner Meeting Reservation

Name: \_\_\_\_\_

Number Attending: \_\_\_\_\_

\*NOTE: Please pay at the door to avoid lost mail/checks.

Please RSVP by April 14th.

Jessica Thering, SSOE  
2621 W. Wackerly Street, Ste. D  
Midland, MI 48640  
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# Society of Petroleum Engineers

## Distinguished Lecturer 2012-2013 Lecture Season



### Understanding Liquid Loading Will Improve Well Performance

Robert P. Sutton,  
Marathon Oil Corporation



#### Abstract:

Operators of natural gas wells have long used the Turner equations to calculate critical gas velocity to keep gas wells unloaded. The original Turner method was developed for vertical wells with analysis performed using wellhead conditions. However, this methodology is only applicable to high pressure, vertical wells with simple completion geometry. Modern well design most often employs complex geometries including slant, s-shaped and horizontal well paths as operators seek to reduce costs and the environmental footprint while maximizing the production rate potential. These geometries require special consideration when estimating critical velocity. Wells produced below the critical velocity will develop a static liquid column which can damage the reservoir and impede well productivity. Proper diagnosis of this problem will improve well performance and ultimate recovery.

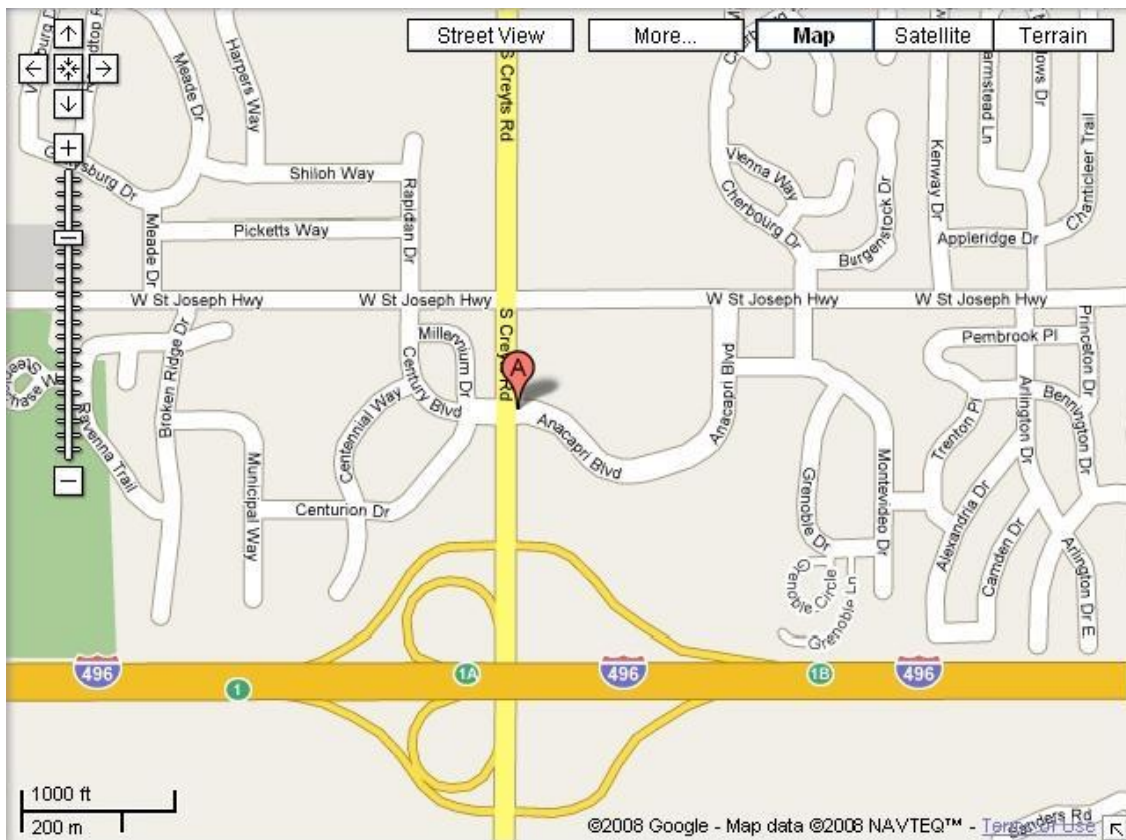
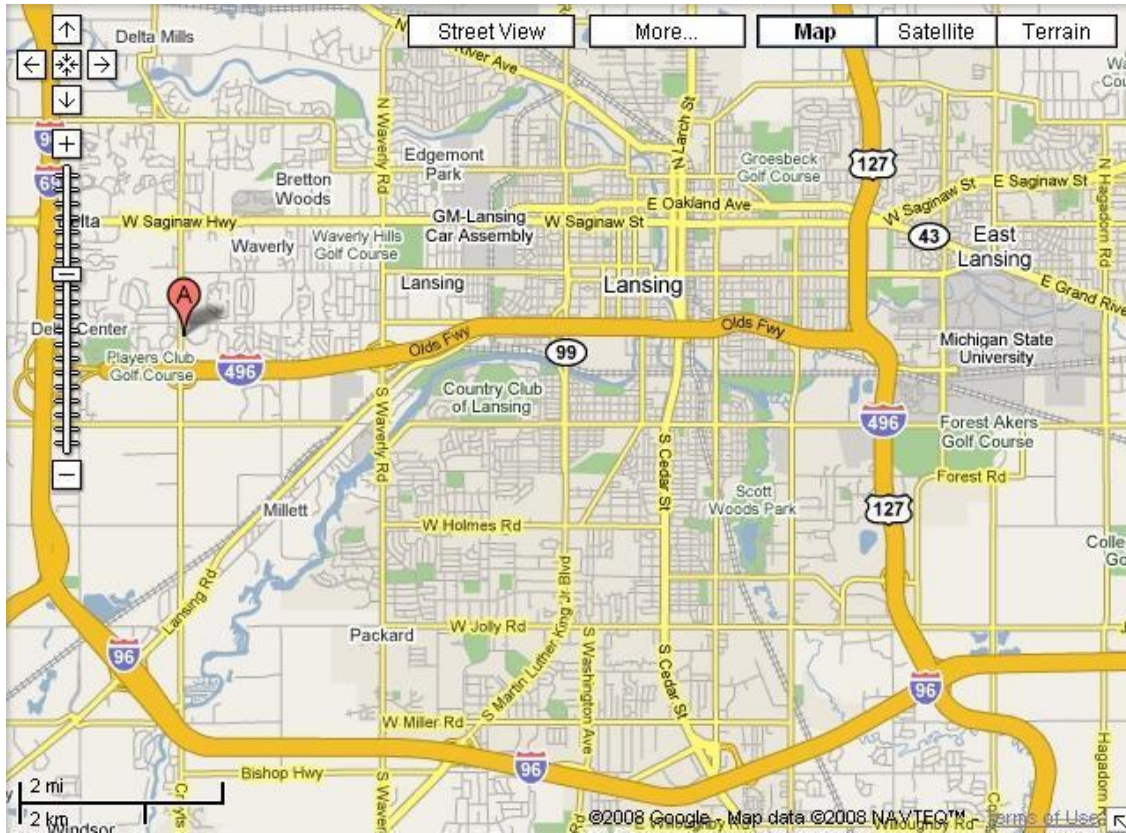
The purpose of this presentation is to provide an overview of historical techniques for detecting liquid loading and to provide modification to the classical Turner method that address contemporary well designs. The discussions will include recent advances which address the proper evaluation point based on reservoir and well conditions. The talk will also compare the modified Turner methods to the use of multiphase flow pressure drop models for predicting liquid loading and will demonstrate the superiority of using a modified Turner's method to determine critical velocity. Flow loop videos are used to illustrate the result of producing below the critical velocity. Potential improvements will be quantified through field examples for conventional, unconventional and horizontal well applications.

#### Biography:

Rob Sutton is a Senior Technical Consultant for Marathon Oil Company in Houston where he works in the Reservoir Performance Group under the Upstream Technology organization. He has worked for Marathon over 33 years starting in the Gulf Coast Offshore District in 1978. He moved to Marathon's Technology Center in 1985 where he worked in the Reservoir Management Department and developed Marathon's in-house nodal analysis software. He moved with the technology organization to Houston in 2001.

Rob received a BS in Petroleum Engineering from Marietta College. He also holds an MS in Petroleum Engineering from the University of Louisiana at Lafayette. He has authored 23 papers for SPE along with 8 journal publications. He wrote the chapter on oil PVT correlations in the recently updated Petroleum Engineering Handbook as well as coauthored a chapter in Gas Well Deliquification.

Map to **Christie's Bistro**





**MICHIGAN SECTION NEWS**

<http://connect.spe.org/Michigan/Home/>

**2012-2013 Section Executives**

Chairperson:	Sue Burla	248-205-7414	<a href="mailto:susan_burla@transcanada.com">susan_burla@transcanada.com</a>
Program Chair:	Ben Updyke	313-235-1115	<a href="mailto:updykeb@dteenergy.com">updykeb@dteenergy.com</a>
Treasurer:	Frank Pochyla	248-345-8913	<a href="mailto:fgpochyla@cmsenergy.com">fgpochyla@cmsenergy.com</a>
Secretary:	Jessica Thering	989-835-3950	<a href="mailto:JThering@ssoe.com">JThering@ssoe.com</a>
Scholarship Chair:	Boyan Makarenko	248-205-7536	<a href="mailto:boyan_makarenko@transcanada.com">boyan_makarenko@transcanada.com</a>

**SPE Michigan Section is actively seeking potential officers to serve on the executive committee for the 2013-2014 fiscal year. If you are interested in joining the Michigan Section executive committee, please contact any of the current committee members.**

**Michigan Section SPE Scholarship**

The Michigan Section of the Society of Petroleum Engineers (SPE) would like to announce that it will be awarding a scholarship of \$1,000 to a Michigan college student or an incoming college student who is interested in the petroleum and natural gas industry. For a detailed list of the requirements for the scholarship, please see <http://connect.spe.org/Michigan/AboutUs/Scholarships/>.

**SPE Michigan Section Meeting Schedule**

**May 8, 2013** – How Oil Improves the Planet; Joint SPE-MBGS meeting with Oil and Gas Industry motivational speaker Alex Epstein presenting

**Upcoming SPE Events:**

Date	Title	Location
12 - 14 Mar	SMU/SPE Geothermal Energy and Water Heat to Power: Utilizing Oil and Gas Plays	Dallas, Texas
18 - 20 Mar	SPE Americas E&P Health, Safety, Security and Environmental Conference	Galveston, Texas
19 - 20 Mar	SPE/AIChE Flow Assurance	Austin, Texas
23 - 26 Mar	Production and Operations Symposium	Oklahoma City, Oklahoma
26 - 27 Mar	SPE/ICoTA Coiled Tubing & Well Intervention Conference & Exhibition	The Woodlands, Texas
8 - 10 Apr	SPE Caprock Integrity for Thermal Applications	Banff, Alberta
8 - 10 Apr	SPE International Symposium on Oilfield Chemistry	The Woodlands, Texas
9 - 10 Apr	Subsea Standardization: Finding Common Ground	San Antonio, Texas
10 - 12 Apr	SPE Unconventional Resources Conference—USA	The Woodlands, Texas
15-Apr-13	Slugging It Out	Calgary, Alberta
17 - 18 Apr	IADC Managed Pressure Drilling and Underbalanced Operations Conference & Exhibition	San Antonio, Texas
19 - 25 Apr	SPE/AAPG Western Regional Meeting	Monterey, California
24 - 25 Apr	Reducing Environmental Impact of Unconventional Resource Development	Denver, Colorado

For information regarding the upcoming SPE conferences or exhibitions, visit the Society for Petroleum Engineers website at [www.spe.org](http://www.spe.org).

### **Other Interesting Oil & Gas Meetings**

**March 14, 2013** - Michigan Section AIPG meeting, speaker Nick Swiger of the Michigan Department of Environmental Quality, presenting RRD Updates on NAPL Management, location: University Center, Central Michigan University, Mt. Pleasant, MI, register no later than March 11th at:

<http://events.constantcontact.com/register/event?llr=hppwbcjab&oeidk=a07e6xw23op71e8e5ea>

**April 5, 2013** – Upper Peninsula Society for Mining, Metallurgy, and Exploration Annual Conference, Ramada Inn, Hancock, Michigan, announcement included in newsletter. April 10th, 2013– MBGS Monthly Membership Meeting, speaker Dr. Ralph Stearley, Calvin College, “The Bible, Rocks and Time: Geological Evidence for the Age of the Earth”, Michigan State University

**April 18, 2013** - OGS Meeting, Holiday Inn Columbus-Worthington - Worthington, OH, [www.ohgeosoc.org](http://www.ohgeosoc.org)

### **Request for feedback**

Comments? Questions? Concerns? How can your SPE section serve you better? To voice your opinion on any aspect of section membership, please contact Sue Burla or talk to any of the executives at an upcoming meeting.

### **Continued Education**

***SPE understands the importance of continuing education for keeping skills up to date, improving expertise or learning new techniques.***

You can grow your knowledge by attending short programs and courses, such as:

SPE Training Courses <http://www.spe.org/training/courses.php>

American Association of Petroleum Geologists (AAPG) Education programs <http://www.aapg.org/education/>

Michigan Oil and Gas Association's Petroleum Conference

<http://www.michiganoilandgas.org/2013PetroleumConference.aspx>

Field trips with Michigan Basin Geological Society [http://www.mbgs.org/field\\_trips.html](http://www.mbgs.org/field_trips.html)

For Professional Engineer information go to [www.ncees.org](http://www.ncees.org) or

<http://www.dleg.state.mi.us/bcsc/forms/eng/peexam.pdf> for application process for Professional Engineers License in Michigan.

### **Request for Speakers**

We are always looking for speakers for upcoming SPE meetings. If you have a talk on a geological or engineering topic, we can provide the audience. Please contact Sue Burla.

### **Advertising Opportunities**

If you are interested in advertising in the Michigan Section newsletter, please contact Sue Burla or Jessica Thering. Proceeds from advertising go to the SPE scholarship program.

#### **Advertising Fee Schedule**

Full page ad	\$75 per month
Half page ad	\$45 per month
Quarter page ad	\$25 per month

Deadline for the next newsletter: April 4, 2013.