



### **PLANS FOR THE ENTIRE CO<sub>2</sub> CONFERENCE WEEK – December 9-13, 2013**

**“It’s the only place you can immerse yourself in all of the exciting aspects of CO<sub>2</sub>: from enhanced oil recovery to carbon capture, utilization and storage. Signup for all week or pick the events of most interest to you and your organization. Registration at [www.eventbrite.com/event/8013110429](http://www.eventbrite.com/event/8013110429)**

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#### **The 11<sup>th</sup> Annual EOR Carbon Management Workshop – Midland, Texas**

The EOR Carbon Management Workshop opens *Mon, Dec 9<sup>th</sup>* with a ½-day workshop at 12:00 noon on the subject of reducing the impasse for billion dollar capture and storage projects. On-site desk opens at 11:00 am at the Midland Center (MC) in Downtown Midland. A sandwich lunch and afternoon refreshment provided. Reservations are required but there is no registration fee. Attendance is limited to 35 persons. Detailed Agenda in Appendix A attached hereto.

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#### *Tuesday, Dec 10<sup>th</sup>, 2013*

The 11<sup>th</sup> Annual EOR Carbon Management Workshop opens at 8:00 a.m. on Tuesday, Dec 10<sup>th</sup> at the MC with registration beginning at 7:30. A continental breakfast is available.

Technical Session I on Tuesday Dec 10<sup>th</sup>, 2013 from 8:00 to 12:00 (at the MC) followed by the Keynote Luncheon Talk by Pieter Kapteijn Maersk Oil-Trigen on CCUS and Novel Oxy Combustion Technical Session II on Tuesday Dec 10<sup>th</sup> from 1:00 pm to 5:00 pm (at the MC).

Detailed Agenda in Appendix B attached hereto

**The evening Reception, sponsored by Maersk Oil, will be held at the MC from 5:30 pm to 7:30 pm**

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#### *Wednesday, Dec 11<sup>th</sup>, 2013*

This year’s field trip will be to the SACROC flood near Snyder, Texas. The SACROC flood is operated by KinderMorgan CO<sub>2</sub> Company, was the first large scale CO<sub>2</sub> flood and still produces nearly 33,000 bopd currently. Both the mature CO<sub>2</sub> EOR flood and its facilities will be viewed; registration limited to first 75 persons. Lunch will be provided. Buses will depart at 9:00 am and return by 5:00 pm; registration is limited to first 75 persons (this is a separate and concurrent event to the shortcourse being held on the subject of surveillance and monitoring at the Midland Center.

Detailed Field trip schedule in Appendix C attached hereto

**The evening reception, sponsored by General Electric, will be held at the MC from 5:30 pm to 7:30 pm**

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**Workshop Ends: 7:30 pm, Dec 11<sup>th</sup>**



*Learn about actual Case Histories of CO<sub>2</sub> Flooding*

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**The 19<sup>th</sup> Annual CO<sub>2</sub> Flooding Conference, Midland, Texas\*\***

*Wednesday, Dec 11<sup>th</sup>, 2013*

CO<sub>2</sub> Flooding Conference activity opens at 8:00 am at the Midland Center (MC) in Downtown Midland on Wednesday, Dec 11<sup>th</sup> with a field trip to SACROC and a concurrent short course on the subject of CO<sub>2</sub> flood surveillance and CCS monitoring.

Detailed Field Trip Schedule in Appendix C and Shortcourse Agenda in Appen D attached hereto.

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*Thursday, Dec 12<sup>th</sup>, 2013*

CO<sub>2</sub> Supply, Policy & Flood Ops Technical Session 1 on Thurs, Dec 12<sup>th</sup> from 8:00 – 11:30 am (at the MC)

**Luncheon and Keynote Speaker on Thurs, Dec 12<sup>th</sup> from 11:45 – 1:00 pm (at the MC)**

CO<sub>2</sub> Flooding Flood Ops Technical Session 2 on Thursday, Dec 12<sup>th</sup> featuring operations and reservoir case histories – from 1:15 - 4:45 pm (at the MC)

Detailed Agenda in Appendix E attached hereto

**The evening reception will be held at the Wagner-Noel Performing Arts Center at 1310 N FM 1788 (corner of FM 1788 and Hwy 191) between Midland and Odessa, TX 79710. Rebecca Williams of the Planetary Science Institute will speak on the results to date of the Martian Rover exploration mission following the reception.**

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*Friday, Dec 13<sup>th</sup>, 2013*

CO<sub>2</sub> Flooding Technical Session 3 featuring business and reservoir case histories on Friday, Dec 13<sup>th</sup> from 8:00 – 12:00 noon (at the MC)

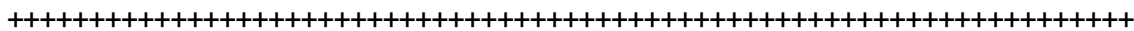
Detailed Agenda in Appendix E attached hereto

**Light Lunch Available from 12:00-1:00 pm (at the MC)**

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Conference Ends: 1:00 p.m. Dec 13<sup>th</sup>

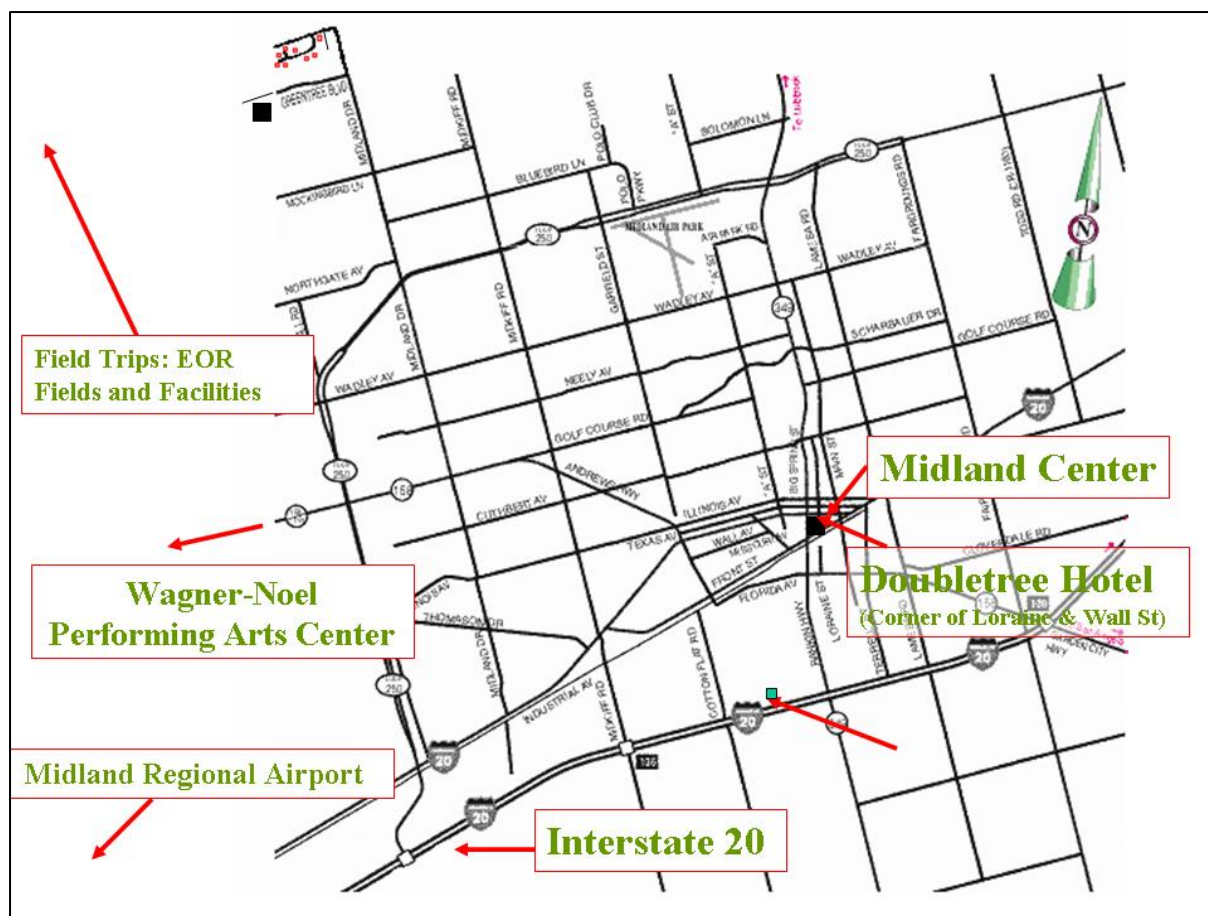
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Airlines serving Midland are Continental (IAH, Houston’s Bush Intercontinental and from Denver’s Int’l Airport) and Southwest Airlines (from Hobby in south Houston, from Dallas’ Love field, and from El Paso and Las Vegas). American Eagle serves Midland from the Dallas Regional Airport (DFW). Continental flights are either the Brazilian Embraer jets or United turboprops, the Southwest flights are Boeing 737 jet service, and the Eagle flights can be either regional jets or turboprops.

Attendees should note that the Midland/Odessa hotels are very difficult to reserve due to the heightened oil and gas activity in the region – several room blocks in addition to the Doubletree one (see conference website) have been established and early reservations are not only recommended but probably necessary. The largest room block has been set up at the Midland Doubletree (by Hilton) across the street from the Midland Center in Downtown Midland. Rooms are limited in the Midland and Odessa Hotel room blocks so, again, early registration is recommended. <http://doubletree3.hilton.com/en/hotels/texas/doubletree-by-hilton-hotel-midland-plaza-MAFDTDT/index.html/>

### Map of Midland Area and Key Conference Venues





## APPENDICES

Detailed Conference Week Schedules and Agendas



APPENDIX A – Monday, Dec 9, 2013

**Sponsoring Organization: Global CCS Institute**

Subject: 11th Annual EOR Carbon Management Workshop in Midland, TX – Half-day CCUS Policy & Regulatory Forum (December 9th – 12:00 – 5:00 p.m.)

Project Lead: Pamela Tomski, Senior Advisor Policy & Regulatory – The Americas, Global CCS Institute

Event Title: Concurrent CO<sub>2</sub> EOR and CO<sub>2</sub> Storage: Issues and Pathways Forward for CCUS Implementation

The carbon dioxide enhanced oil recovery (CO<sub>2</sub> EOR) industry is positioned to create the largest market for captured CO<sub>2</sub> that would otherwise be vented to the atmosphere, and after some minor recycling losses, provide storage for essentially all of the injected CO<sub>2</sub>. This carbon capture, utilization and storage (CCUS) approach can mitigate CO<sub>2</sub> emissions from fossil-fuel power plants and industrial facilities, advance CO<sub>2</sub> capture technologies, and provide significant economic and energy security benefits. While CO<sub>2</sub> EOR operations offer concurrent CO<sub>2</sub> storage, none of the 65 CO<sub>2</sub> EOR projects in the Permian Basin are claiming any recognition of their stored volumes. In order for these commercial projects to be accepted as CCUS with permanent CO<sub>2</sub> storage, a number of issues (technology, markets, policy / regulatory) must be clarified and resolved, and policy actions may be needed. It will address the issues associated with concurrent CO<sub>2</sub> EOR and CO<sub>2</sub> storage and explore pathways that could accelerate CCUS deployment and enable credit for CCUS projects. The workshop will be limited to 40 persons and will be held under “Chatham House Rules” (non-attribution). Should workshop participants wish to put forward any key messages, there will be an opportunity to present a summary during the CO<sub>2</sub> Conference.

12:00 – 4:30 p.m. followed by a short reception

- 12:00 p.m. Buffet Lunch  
Introductions and Overview: The Global CCS Institute’s Americas Engagement and CO<sub>2</sub> EOR Highlights from the Global Status of CCS – Ms. Pamela Tomski, Senior Advisor Policy & Regulatory – The Americas, Global CCS Institute
- 12:15 p.m. Framing the Issues of Concurrent CO<sub>2</sub> EOR and CO<sub>2</sub> Storage: Technology, Markets, Policy / Regulation – Dr. Bruce Hill, Senior Geologist Clean Air Task Force
- 1:15 p.m. Q&A / Discussion
- 1:30 p.m. Regulation of Class II and Class VI – Mr. Kevin Connors, North Dakota Industrial Commission (Invited)
- 2:00 p.m. Demonstrating CO<sub>2</sub> Storage – Dr. Sue Hovorka, Senior Research Scientist, Gulf Coast Carbon Center, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin
- 2:30 p.m. Greenhouse Gas Accounting and Lifecycle Considerations for CO<sub>2</sub> EOR / Storage – Dr. Sean McCoy, Energy Analyst, CCS Unit, International Energy Agency
- 3:15 p.m. CO<sub>2</sub> EOR / CCUS Offset Methodology – Mr. Nicholas Martin, American Carbon Registry (Invited)
- 3:45 p.m. Facilitated Discussion and Determination of Key Messages to Present at the Conference
- 4:15 p.m. Discussion on Member Guided Directions for the Global CCS Institute
- 4:30 p.m. Adjourn / Reception



**APPENDIX B – Tuesday, Dec 10, 2013**  
**11<sup>th</sup> Annual Carbon Management Workshop**

**Sponsoring Organizations**  
**BP, Chevron, Global CCS Institute, Maersk Oil, Reagan Power and Generation,**  
**Schlumberger, U.S. DOE**

2013 EOR Carbon Management Workshop Agenda  
December 9-11, 2013; Midland Center, Midland, Texas

**2013 Carbon Management Workshop - Snapshot**

This year's version of the Carbon Management Workshop again returns to its roots from the CO<sub>2</sub> Flooding Conference and Midland, Texas in the heart of the CO<sub>2</sub> EOR projects in the Permian Basin. Its objective has always been to gather the folks with the CO<sub>2</sub> injection experience in the same room with the folks trying to economically capture CO<sub>2</sub> and convert a waste stream of emissions into a commodity for sale to the enhanced oil recovery industry.

A trip to Midland would not be complete without a visit to the oil fields and to witness a large CO<sub>2</sub> operation in full swing. Kinder-Morgan is hosting the field trip for the CCS audience at their SACROC CO<sub>2</sub> flood and surface facilities. A more detailed agenda and list of speakers is shown below

**Tuesday Dec 10th Main Workshop Program - full day - 8:00-5:30 pm**

- 8:00-8:30** Opening of Program Michael Moore NACCSA/FearnOil and Steve Melzer- APTA/Melzer Consulting with opening thoughts by Chuck McConnell Executive Director of Rice University's Energy and Environment Initiative (e2i) <http://e2i.rice.edu/home> previously the Assistant Secretary of DOE Fossil Energy
- 8:30-9:00** Opening Keynote Speaker-Latest on the "The Growing CO<sub>2</sub> EOR Oil Recovery and Utilization "Prize" Vello Kuuskraa President an COB of Advanced Resources Intl. ([www.adv-res.com](http://www.adv-res.com))
- 9:00-9:20** TCEP- Summit Power TCEP Updates and Additional Projects Eric Redman President Summit Power Group LLC ([www.summitpower.com](http://www.summitpower.com))
- 9:20-9:40** The CCUS Projects and Development from the DOE's Perspective; Joe Giove Division Director at U.S. Department of Energy ([www.doe.gov](http://www.doe.gov))
- 9:40-10:00** CCUS, Coal, CO<sub>2</sub> EOR and Energy – The View from the Navajo Nation; Sam Woods Policy Advisor to the President of the Navajo Nation ( Harrison Tsosie Attorney General Navajo Nation) (<http://www.navajo-nsn.gov>)
- 10:00-10:20** Highlights and Recent Developments from the SSEB/SECARB; Gary Garrett Senior Technical Analyst Southern States Energy Board ([www.sseb.org](http://www.sseb.org))
- 10:20-10:45** EERC Developments and Novel CO<sub>2</sub> EOR Development in Shale, John Harju Associate Director Energy & Environmental Research Center, Grand Forks, ND (<http://www.eerc.und.nodak.edu>)
- 10:45-11:00 Networking Break**
- 11:00-11:30** Latest in Geologic Storage Wayne Rowe –Schlumberger Carbon Services (<http://www.slb.com/services/additional/carbon.aspx>)
- 11:30-12:00** Federal and State Overview: Kipp Coddington General Counsel NACCSA and Partner Kazmarek-Mowrey-Cloud Laseter LLP ([www.nacssa.org](http://www.nacssa.org)) ([www.kmcllaw.com](http://www.kmcllaw.com))
- 12:00-1:30 Luncheon Keynote luncheon speaker— Pieter Kapteijn Maersk Oil-Trigen CCUS and Novel Oxy Combustion ([www.maerskoiltrigen.com](http://www.maerskoiltrigen.com)) Speaker starts at 12:00**
- 1:30-1:50** DOE Loan Program for Clean Energy (CCUS) Douglas Schultz Director of Loan Guarantee Origination for the U.S. Department of Energy's Loan Programs Office (<http://www.lgprogram.energy.gov>)



**2:00-3:00** CCUS and CO<sub>2</sub> EOR Panel: Moderator Mike Moore FearnOil/NACCSA Kerry Bowers President and CEO Southern Generation Technologies LLC, Southern Co. ([www.southern.com](http://www.southern.com)) (Invited); Doris Fuji, BP ([www.bp.com](http://www.bp.com)) Tracy Evans, Tabula Rasa (<http://tabularasaenergy.com>)

**3:00-3:15** Networking Break

**3:15-3:45** International Scene: Pamela Tomski Global CCS Institute ([www.globalccsinstitute.com](http://www.globalccsinstitute.com))

**3:45-4:45** Panel CO<sub>2</sub> EOR and Chemical EOR Panel: Moderator Ed Helminski CarbonSeq/GHG Monitor Jason Sowel Business Development Manager Reagan Power and Compression ([www.reaganpower.com](http://www.reaganpower.com)), Gary Pope CEO Ultimate EOR LLC (<http://ultimateeor.com>), Mike Parker Principal Parker Environmental and Consulting (invited)

**4:45-5:00** CCUS Developments and Carbon Markets: Scott Deatherage Partner – Environmental Practice Gardere Wynne Sewell LLP ([www.gardere.com](http://www.gardere.com))

**5:00-5:30** Closing Roundtable: Doug McMurrey Kinder-Morgan, Mike Moore NACCSA/FearnOil, Kipp Coddington Kazmarek-Mowrey-Cloud Laseter LLP/NACCSA and Steve Melzer Melzer Consulting/APTA.

**5:30** Workshop Session Ends and Wrap Up Mike Moore-NACCSA/FearnOil

**5:30 Workshop Reception Sponsored by Maersk Oil-Trigen**



**APPENDIX C – Wednesday, Dec 11, 2013**  
**Field Trip to the SACROC Flood and Facilities**  
*“No first trip to Midland would be complete without a visit to a CO<sub>2</sub> Flood and its Facilities”*

**Sponsoring Organization**  
**KinderMorgan CO<sub>2</sub> Company, LLC**

- 8:00-9:00 am      Check-in / Registration at the Midland Center:
- 9:00 **Sharp:**      Buses depart (don't be late)
- 10:45 am          Buses Arrive at SACROC briefing room in Snyder
- 10:45 – 11:45      Safety and Overview Briefings. Buffet Lunch
- Split into two groups; one visits field first, one visits plant first
- 11:45 – 1:15      Tour of SACROC field: injection well, producing well, field battery
- 1:15 2:45          Tour of Recycle Plant
- 2:45-3:15          Comfort Stop at Field Office
- 3:15-5:15          Return Trip to Midland Center
- 5:30-8:00          Reception at the Midland Center sponsored by General Electric





**APPENDIX D – Wednesday, Dec 11, 2013**  
**A CO<sub>2</sub> Conference Short Course Entitled:**  
**“Surveillance and Monitoring of CO<sub>2</sub> Injection Projects”**

**Thanks go to our 2013 Sponsoring Organizations:**

Advanced Resources International, Air Products, Apache, Baker Hughes, Chaparral Energy, Chevron, Enhanced Oil Recovery Institute, ExxonMobil, Enhanced Oil Recovery Institute, General Electric, Global CCS Institute, Kinder Morgan CO<sub>2</sub>, Maersk Oil, NCG Consulting Group, Oxy Permian, Petroleum Technology Transfer Council, Praxair, Premier Oil, Reagan Power, Resolute Energy, Russell K. Hall and Associates, The Research Partnership to Secure Energy for America (RPSEA), Reagan Power and Compression, Schlumberger, Tabula Rasa, Trinity CO<sub>2</sub>, Wackowski Consulting, U.S. DOE, Whiting Petroleum, XTO Energy

A 8 hour course (9:00 to 5:30) on Wednesday, December 11, 2013

9:00-9:15	Welcome and Intros.....	Steve Melzer/APTA
9:15-10:15	Fundamentals of CO <sub>2</sub> Flood Surveillance.....	Ron Wackowski, Wackowski Consulting
10:15-10:30	<b>Break</b>	
10:30-11:15	The “Toolbag”: Logging Methods Utilized in CO <sub>2</sub> Flood Surveillance.....	Wayne Rowe, Schlumberger
11:15-12:00	A Second Look at the Commonly Used Surveillance Tools.....	Mark Holtz, Baker Atlas
12:00-12:45	<b>BUFFET LUNCH</b>	
12:45-1:30	Pattern Balancing and Mass Balance.....	Dave Merchant, Merchant Consulting
1:30-2:30	Monitoring for Storage (Assurance).....	Sue Hovorka / UT Austin/BEG, Gulf Coast Carbon Center
<b>Monitoring Case Histories</b>		
2:30-3:05	Bell Creek Field, Montana.....	John Hamling / PCOR
3:05-3:20	<b>Break</b>	
3:20-4:20	Monitoring CO <sub>2</sub> : The Quest for a Clean Signal (Case Studies).....	Becky Smyth / UT Austin/BEG, Gulf Coast Carbon Center
<b>Moving CCS Forward</b>		
4:20-5:00	Convergence of Policy for Storage Monitoring with CO <sub>2</sub> Flood Surveillance.....	Bruce Hill/CATF
5:00	<b>Course Conclusion / Evaluation Forms</b>	
5:30-8:00	Reception at the Midland Center sponsored by General Electric	



**APPENDIX E – Thursday and Friday, Dec 12-13, 2013  
The 19<sup>th</sup> Annual CO<sub>2</sub> Flooding Conference**

**Thanks go to our 2013 Sponsoring Organizations:**

**Advanced Resources International, Air Products, Apache, Baker Hughes, Chaparral Energy, Chevron, Enhanced Oil Recovery Institute, ExxonMobil, Univ of Wyoming, General Electric, Kinder Morgan CO<sub>2</sub>, Maersk Oil, NCG Consulting Group, Oxy Permian, Petroleum Technology Transfer Council, Praxair, Premier, Oil Resolute Energy, Russell K. Hall and Associates, The Research Partnership to Secure Energy for America (RPSEA), Tabula Rasa, Trinity CO<sub>2</sub>, Wackowski Consulting, Whiting Petroleum, XTO Energy**

**2013 CO<sub>2</sub> Conference Theme Session Agenda**

**THURSDAY, DEC 11th**

**Theme Session #1: " CO<sub>2</sub> Supply & Flood Operations" (Thurs, Dec 11th: 8:00 to 11:30 am)**

8:00-8:45 "Recap of the EOR Carbon Management Workshop;" Mike Moore - Workshop Director

8:45-9:40 "North American CO<sub>2</sub> Supply Updates," Glen Murrell, Enh Oil Rec Institute

9:40-10:00 **Break**

10:00-11:15 Deploying Advanced Technology into Novel CO<sub>2</sub> Separation Processes at Two U.S. Projects including CO<sub>2</sub> Capture at Port Arthur, TX," John Palamara, Air Products

11:15-11:30 Speaker Panel Discussion - All Speakers

11:30-1:00 **Lunch at the Midland Center - Keynote Speaker**

**Theme Session #2: CO<sub>2</sub> Flood Ops, Planning and Case Histories" (Thurs, Dec 12th: 1:00-4:30 pm)**

1:00-1:35 "Portable Enhanced Oil Recovery Technology: A Solution to Pilot Scale CO<sub>2</sub> Needs" Robert Zubrin, Pioneer Energy

1:35-2:10 "New Operational Techniques in CO<sub>2</sub> EOR," Chad McGehee, Hess Corporation

2:10-2:40 "New Lab Technique for MMP and Capillary Rise," Steve Hawthorne, Energy & Environ Research Center, U of ND

2:40-3:00 **Break**

3:00-3:40 "Simulation and Experimental Investigations of CO<sub>2</sub> Injection in Both Conventional (Wellman Field, PB) and Unconventional Reservoirs," David Schecter, Texas A&M University

3:40-4:15 "The Wellman Field Case History (West Texas)," Bruce Howard, Trinity CO<sub>2</sub>



4:15-4:50 "The Enhanced Oil Recovery's New CO<sub>2</sub> EOR Scoping Model," Benjamin R. Cook, Enhanced Oil Recovery Institute (U of Wy)

4:50-5:15 Panel Discussion: All Speakers

5:30-7:30 Reception at the WagnerNoel Performing Arts Center; Sponsors: Kinder Morgan CO<sub>2</sub> Company, Russell K. Hall and Associates, Chevron, and Whiting along with the PB Section of the SPE

8:00-9:00 Rebecca William, Planetary Science Institute Speaking at 8:00 pm on the "Findings to Date from the Martian Rover Exploration Mission" (Open to the Public)

## **FRIDAY, DEC 13th**

### **Theme Session #3: "CO<sub>2</sub> Flooding Case Histories" (Fri, Dec 13th: 8:15 am- 12:15 pm)**

8:15-8:45 "Flexibility in CO<sub>2</sub> Compression," Jason Sowels, Reagan Power and Compression (American Warrior)

8:45-9:15 "Concepts for CO<sub>2</sub> EOR in the Bakken Formation," John Sorensen. Energy & Environ Research Center, U of ND

9:15-9:45 "Reservoir Case Histories, Hastings and Oyster Bayou, David D'Sousa, Denbury Resources

9:45-10:05 "Exploiting ROZ in Lithuania," Tom Haselton, Minoil

10:05-10:25 Break

10:25-11:05 "SACROC CO<sub>2</sub> Flood Project Challenges: Past, Present, and Future," Steve Pennell Kinder Morgan CO<sub>2</sub>

11:05-11:30 "Norwegian Investigations of Residual Oil Zones," Inge Tappel/Fridtjof Riis, Norwegian Petroleum Directorate, (Invited)

11:30-12:15 Panel Discussion All Speakers

12:15 Light Lunch and Conference Conclusion