## **NOVEMBER 2017**

Volume 58, Number 5



NOVEMBER 6 - NOGS LUNCHEON Presentation: The Potential for Subsidence in South Louisiana Resulting from the Subsurface Dissolution of Salt Guest Speaker: Jeffrey S. Hanor, Ph.D. Louisiana State University • Baton Rouge, Louisiana



# Holiday Christmas Party SATURDAY

# DECEMBER 9, 2017 7:00 - 10:00 p.m.

Home of Jack and Penny Bryant

> 515 Northline Street Metairie, LA 70005

Please RSVP to info@nogs.org by December 4th

\$45 per member and their guests\$25 per student



Published monthly by the New Orleans Geological Society. This issue was sent to press on Oct. 28, 2017.

Interested in contributing to the NOGS LOG? Please submit items by the 1st Friday of the month to nogseditor@gmail.com. Advertising requests should contact the NOGS office at info@nogs.org.

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## on the cover

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## Cover Photo provided by National Park Service

## Old Natchez Trace — Mississippi

This month's cover photo comes from the Old Natchez Trace in Mississippi. This historic trail traversed Native American lands long before European settlers began to use the path as a thoroughfare for trade and travel beginning in the 1700's. The Trace is now commemorated by the Natchez Trace Parkway, which is administered by the NPS. The Trace extends from Natchez, MS to Nashville, TN and is most famous for its fall foliage, the surviving portions of the original sunken trail, and the legends and tall tales of who those who once trod its path. Whether they were keelboat workers making their way north after docking Under-the-Hill at Natchez, Methodist circuit riders, highwaymen preying upon fellow travelers, or famous figure like Captain Meriwether Lewis, these travelers played an important role in developing settlements across the Mississippi and Tennessee frontiers before the rise of Memphis and the shift of trade to the west with the rise of the steamboat.

# From the Editor

With the apparent breakdown of civil discourse in the public forum, I'm reminded of a friendship with one of my engineer friends. Aside from the laws of physics and the belief that all humans should be treated with respect and dignity, this engineer and I disagree on every possible social, political, or faith-based issue. But this disparity in our belief systems never kept him from broaching these topics with me. His favorite game involved popping around corners and quizzing me on a controversial issue just to see what would happen. While this might be boorish behavior in others, he actually took the time to then listen to my words before responding in kind. We remained vehement about our positions, never changed the other's mind, and never fell back on the well-intended but weak "agree to disagree" response. But we spoke without lapsing into condescension, smugness, or anger...usually. It takes empathy and self-awareness to recognize that the right belief for you might not be the right choice for someone else, even if you love or respect that person. All too often, I fail to remember this and allow stress, fear, or arrogance to dictate my words. Yet I contend that the effort to try is not meaningless. Indeed, when success of a thing is so difficult to attain, sometimes the effort counts more than the success. It would behoove us all as scientists, Americans, and humans to remember this.

₋aura Laura Sorey, Editor

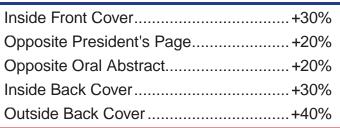


2015 Rates

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The New Orleans Geological Society was formed in 1941, with an initial membership of only 55. It has always been an active professional society and presently has a membership of 500.

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Twelfth Page (3.75"x1.65")	\$375	<b>\$188</b>	
Note Size (3.75"x.75")	\$120	\$60	
	PREMIUM LOCATIONS		



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## FROM THE PRESIDENT CHRIS MCLINDON

October is always a special month on the NOGS calendar because it brings the awarding of the NOGS Memorial Foundation Scholarships. This year, twelve graduate and undergraduate students majoring in earth sciences at UNO, Tulane, and LSU were presented with scholarships by Foundation Chairman Al Melillo. Their individual awards and brief biographies were published in last month's NOGS LOG and can be accessed at nogs.org. Every member of NOGS should feel a sense of pride an accomplishment in participating in the direct support of earth science education through these scholarships, but it is also important to recognize that they are the result of hard work and persistence of individual members of the organization.

After several years of discussion and planning, the NOGS Memorial Scholarship Fund was established in 1978 under the leadership of Rudolph B. "Rudy" Seigert and his Board. In that first year, scholarships were awarded to four students, each receiving a check for a modest \$500. It wasn't until 1986 that the awards were increased to \$2,000 for graduate students and \$1,000 for seniors. Scholarship awards have been granted to students at local universities every year since then.

Over a two-year span between 1990 and 1991, the NOGS Memorial Scholarship Fund became the NOGS Memorial Foundation that we recognize today thanks to the work and generosity of three key members of NOGS. What would become the Foundation was changed forever in 1990 by the bequest of over \$250,000 from the estate of Jules and Olga Braunstein Jules Braunstein was memorialized in testimonials written by Doris Curtis and James Hartman that were published in the journals of both the AAPG and GSA. He was both a geologist and micro-paleontologist that worked at Shell from 1937 until 1978. After his retirement, Jules worked as an adjunct professor teaching historical geology at UNO. His AAPG memorial included these quotes from his acceptance speech upon becoming an honorary lifetime member of AAPG: "Because of the strong debt of gratitude I felt toward my profession for affording me so interesting a career, I have been willing to work on any committee for any geologic organization that invited me to do so," and "I believe that a geologist who can retire from the field has been in the wrong profession!" Clearly Jules Braunstein embodied the spirit of the NOGS Memorial Foundation. By the spring of 1991, under the leadership of President Bob Branson and President-elect Jack Langford, the NOGS Memorial Scholarship Fund was renamed the NOGS Memorial Foundation, Inc. Through a tenacious and long process with the Internal Revenue Service, Jack Langford was successful in having the Memorial Foundation granted a temporary IRS 501(c)3 status on December 11, 1992. Earlier this year, on February 6, the State of Louisiana State Records Department recognized the Foundation as a non-profit corporation.

I am very grateful to Ed Picou for helping me to assemble the factual information of this history of the NOGS Memorial Foundation. His contributions are integrated throughout this letter, but I want to leave one paragraph that Ed shared with me exactly as he wrote it:

"Although the assets of the Memorial Foundation now exceed one million dollars through careful investment management, we (NOGS) are under the gun by the IRS to increase our individual member giving in order to maintain our preferred IRS status. Otherwise, we would lose this status and be compelled to pay taxes. Therefore, I ask every member to make a contribution to the Memorial Foundation this year. The amount of your contribution isn't that important. It is the number of our members who have contributed is the critical factor."

We have all shared in the pride and accomplishment of seeing these scholarships being awarded. We must now also all recognize that they are the result of the hard work and generosity of NOGS members that have come before us. Now is our opportunity to sustain this legacy.

Chris McLindon



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#### **NOGS Office**

Office Manager: Annette Hudson Phone: 504-561-8980 • Email: info@nogs.org • Website: www.nogs.org The office is located at 810 Union Street, Suite 300, New Orleans, LA 70112. Correspondence and all luncheon reservations should be sent to the above address.

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## November 6 • NOGS Luncheon

Holiday Inn Downtown Superdome \$3.00 validated parking in hotel garage

## Presentation:

The Potential for Subsidence in South Louisiana Resulting from the Subsurface Dissolution of Salt

Guest Speaker:

Jeffrey S. Hanor, Ph.D. Louisiana State University • Baton Rouge, Louisiana See page 8 for Abstract and Biography

HOLIDAY INN DOWNTOWN SUPERDOME

Check with concierge or front desk for location. Lunch served at 11:30 am

### **ADMISSION:**

With reservation	\$30.00
Without reservation	\$35.00
Student Member with reservations	. FREE

## November 8

API Delta Chapter Joint Society Luncheon Marriott Convention Center • New Orleans, LA For more info: http://www.api-delta.org

## December 4

NOGS Luncheon & Poster Presentation Holiday Inn Downtown Superdome • New Orleans, Louisiana For more info: annette@noqs.org or 504-561-8980

ting

## November 11

Children's Museum of St. Tammany STEM Fest The Tammany Trace on Koop Dr. • Mandeville, LA

For more info: Tom Bergeon at tom.bergeon@upstreamexp.com

## December 9

NOGS Christmas Holiday Party

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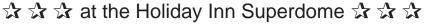
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Nov 6 NOGS Luncheon Presentation





## The Potential for Subsidence in South Louisiana Resulting from the Subsurface Dissolution of Salt

Presented by

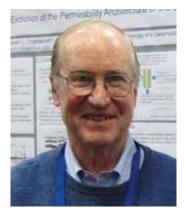
**Jeffrey S. Hanor, Ph.D.** Department of Geology and Geophysics

Louisiana State University • Baton Rouge, Louisiana

## ABSTRACT

It has been estimated that a significant volume of the Jurassic salt originally deposited in southern and offshore Louisiana has been destroyed by subsurface dissolution. This dissolution is manifested in part by the presence of formation waters in freshwater, brackish, and marine sediments having salinities significantly in excess of that of seawater. Destruction of halite reduces total sediment volume, thus contributing to subsidence. Estimates of total minimum volume of NaCl dissolved at individual salt. structures can be made from: 1) the volume of solid products of salt dissolution, such as the anhydrite-calcite cap rock at Bayou Choctaw and Weeks Island or the calcite-pyrite cements at West Hackberry, and 2) the mass of excess salinity in formation waters surrounding the structure, such as at the Welsh Dome. Such estimates have been typically in the range of cubic kilometers of NaCl per individual salt structure. Determining how these cubic kilometers of volume loss have been spatially distributed is more elusive, particularly if rising salt continuously fills the volume lost by dissolution. Broad areas of dissolution-induced subsidence around a rising salt stock could easily be obscured by other mechanisms of subsidence or by ongoing sediment deposition. However, at Bay Marchand, salt dissolution has produced localized normal faults immediately above the crest of salt having throws on the order of 100 m in Pliocene sediments. Interferometric Synthetic Aperture Radar (InSAR) has been used with success to study land surface response to salt tectonics in Iran and China, and it is possible that it could be used similarly in south Louisiana.

## **BIOGRAPHY**



## **Jeff Hanor**

received his PhD in Geology from Harvard and then spent several years as a Post-Doc and Research Oceanographer at the Scripps Institution of Oceanography. He joined the faculty

of the Department of Geology and Geophysics at LSU in 1970, where he has taught courses in sedimentary geochemistry and has served as a major professor to nearly 60 M.S., Ph.D., and B.S. Honors students. Jeff became an emeritus professor in 2011 and continues his research in sedimentary geochemistry and hydrogeology.

## "And Looking Ahead . . ."

THE NOVEMBER LUNCHEON RESERVATION DEADLINE IS NOV 3. CONTACT THE NOGS OFFICE

The next luncheon will be held on December 4. Our guest speaker will be Paul Post of BOEM. There will also be a poster presentation by Ryan P. Jones and William F. Morrison, Dept. of Earth and Environmental Science at UNO. Contact the NOGS office at 504-561-8980 or use the PayPal link at www.nogs.org to make your reservation.



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## CALENDAR OF EVENTS: NOVEMBER — DECEMBER 2017

If you know of upcoming seminars or academic events that may be of interest to our members, please email the event details to Laura Sorey at nogseditor@gmail.com to be included in the monthly calendar.

2017	EVENT	LOCATION	CONTACT / INFO
1-3 Nov	2017 GCAGS-GCSSEPM Convention	Marriott Rivercenter San Antonio, Texas	www.gcags2017.org/
3 Nov	End of Early Registration Discount for AGU Fall Meeting		https://fallmeeting.agu.org/2017/ registration/
3 Nov	Tulane Geology Seminar "Preservation of Distributary Channels Within the Straigraphic Record: Insights from the Modern Yellow River Delta, China" Jeff Nittrouer, Rice University	Tulane University Boggs Center: Room 243 Noon	http://www2.tulane.edu/sse/eens/ events-and-seminars/seminars/ index.cfm
6 Nov	NOGS Luncheon Speaker: Dr. Jeffrey S. Hanor "The Potential for Subsidence Resulting from Subsurface Dissolution of Salt"	Holiday Inn Superdome	annette@nogs.org or 504-561-8980
7 Nov	Election Day		
8 Nov	API Delta Joint Energy Industry Association Luncheon "A Case for the Growth of Louisiana's Oil and Gas Industry" Speakers: Sharon Hewitt, LA State Senator, District 1 Dr. Gregory Upton Jr., Assistant Professor at the Center for Energy Studies, LSU	Marriott at the Convention Center New Orleans, LA	http://www.api-delta.org/events/ gno-joint-energy-industry- association-luncheons.aspx
10 Nov	LSU G&G Lecture Series "Dissolved Rare Earth Elements and Barium in the Ocean: New Insights from GEOTRACES and Beyond" Alan Shiller, USM	LSU Baton Rouge E137 Howe-Russell-Kniffen 3:30 pm	http://www.lsu.edu/science/geology/ seminars/item72050.php
11 Nov	Veteran's Day		
11 Nov	Children's Museum of St. Tammany STEM Fest	Tammany Trace Koop Dr., Mandeville	Tom Bergeon tom.bergeon@upstreamexp.com
17 Nov	Tulane Geology Seminar "Exploring Complex Late Quaternary Ice-Cover Histories in the Artic Using Dead Vegetation and in situ Cosmogenic 14C, 10Be, and 26A1" Nat Lifton, Purdue University	Tulane University Boggs Center: Room 243 Noon	http://www2.tulane.edu/sse/eens/ events-and-seminars/seminars/ index.cfm
17 Nov	LSU G&G Lecture Series "Water Resource Stewardship in the U.S. National Park Service" Forrest "Ed" Harvey, Water Resources Division	LSU Baton Rouge E137 Howe-Russell-Kniffen 3:30 pm	http://www.lsu.edu/science/geology/ seminars/item72050.php
23 Nov	Thanksgiving Day		
28-29 Nov	Oil and Gas Environmental Conference	Royal Sonesta Galleria Houston, Texas	http://oilandgasconference.org/ degault.aspx
4 Dec	NOGS Luncheon & Poster Presentation Speaker: Paul Post, BOEM "Elephants? In the Atlantic?" Poster Presentation: Ryan P. Jones and William F. Morrison Department of Earth and Environmental Science, UNO "A Fluid Pressure-Based Assessment of Vertical and Lateral Hydraulic Connectivity of the Wilcox Formation in	Holiday Inn Superdome	annette@nogs.org or 504-561-8980
	the St. Malo Structure and Surrounding Area of Central WalkerRidge, Northern Gulf Of Mexico."	Home of	
9 Dec	NOGS Christmas Holiday Party	Home of Jack & Penny Bryant 515 Northline St. • Metairie	For more info, see inside front cover

## ENERGY DAY 2017

On September 16, NOGS hosted Energy Day at the Louisiana Children's Museum, showing kids how energy plays such a vital role in their lives and focusing on oil exploration, renewables and electricity. Ten organizations were present, covering the whole spectrum of energy scientific disciplines. Children spun the energy wheel and headed off for some fun at the various learning stations.

## Energy Day was dedicated to the memory of Art Johnson, who gave so much to science education.

NOGS teamed up with SGS and SPE on the "How is an Oil Field is Formed?" set of exhibits, the ever popular oil finder game, coal and nuclear sources, and several other stations. Volunteers included LSU geology and SPE students: Juan Carlos Guerrero, Elizabeth Keller, Angel Hernandez, Sarah Gremillion, Nate Benton, Sarah Dailey, Allison Barbato, Abdul Homran, Cameron Ryan, Eriondre Adams, Jesus Diaz, Joseph Najim, Brian Womeldurf, Amrat Gandhi, Dayna Rodriguez, Tamara Kaufman, and Abdullah Al-Tameemi. Shara Gremillion from USM and Jennifer Housey, Joshua Flathers, William Kennedy, Jarrett Levesh, and Miles Sesquerre from UNO were also enthusiastic volunteers. NOGS members included Mike Fein, Kirk Barrell, Alex Janevski, Mike Anderson, Marcella Fink, Louis Wilhoit, Anna Strima, Lily Strima, Rachel Carter, Bill Vollenwider, Chris McLindon, and Nancye Dawers. Dave Cope ran his 3D workstation, Lisa Kennedy of SGS had the kids creating earthquakes, and Lauren Woitha of SPE had kids drilling for the sweet spots in a Jell-O exploration mold. Special thanks go out to Devin Bennett and Calvin Mackie with STEM NOLA who provided a wind power and a steam engine display, **Chris McLindon** for the highly visual Bay Marchand salt model, **Nate Benton** for the seismic recording array, **Daniel Duray** and **John Sanford** of **Shell** for the ultra-cool virtual reality fly by platform and subsea adventure, **Ben Franklin students** for the banana piano, and **NACE** for fruit battery and corrosion models. **Bernie Regel** was instrumental in training volunteers and captured the wonder event photographs. Most of all, major thanks to **Ashley Lucas**, the Early Learning Manager at the **Louisiana Children's Museum**, for her wonderful work helping put Energy Day together.

Those attending Energy Day came away with a greater understanding of the vital role of energy, how much of each source contributes to our current consumption, and various facets

of energy careers. Parents were very active participants, asking a lot of questions and having nearly as much fun as the kids. Thanks to all of you for making Energy Day a big success.









































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## 2018 ASBOG Exam Information



The Louisiana Board of Professional Geoscientists will proctor the ASBOG Fundamentals of Geology and Practice of Geology exams on March 16, 2018.

LBPOG must receive your application (including transcript and references) for GIT certificate or PG license and the LBOPG Proctoring/Verification Application and Fee for approval by the Board prior to December 31, 2017.

Note: you must submit application for a GIT certificate or PG license along with relevant fees or already have an application pending in order to submit the application for proctoring.

See www.lbopg.org for more info.



## South Louisiana and Offshore Gulf of Mexico Exploration and Production Activities

LAFAYETTE DISTRICT, ONSHORE AREA By Kevin J. Trosclair and Carlo C. Christina

The Baker-Hughes United States rig count for the month of September averaged 940 rigs, down 7 rigs from the prior month's average. The Louisiana rig count (not including the OCS) averaged 49 rigs for the month of September.

North Louisiana Rigs:42	2
South Louisiana Rigs:	7
Land	4
Inland Waters	3

## BREAKING NEWS II

As previously reported, Sentry Energy Services, (now **EOG Resources**), has drilled the #1 Eagles Ranch, SN 250209, in **North Bayou Jack Field**, (STAR), Avoyelles Parish. The well has been completed as a significant oil well in the Austin Chalk, flowing **1120 BOPD** and **1157 MCFD** after fracking perforations 16,275 to 20,550 feet. The well was drilled to a total depth of 20,662 feet in a horizontal lateral approximately 5,516 feet long. As stated in the June LOG, a successful completion will possibly kick off a new series of drilling in the area.

As a result of this completion, leasing activity has increased, with more than 200,000 acres leased. New leases have been taken to the southwest in the "old" Lower Tuscaloosa Field of False River. New deeper drilling can be expected soon.

## NEW LOCATIONS

In Beauregard Parish, PIE LA Operating will drill a **wildcat**, (**A**), to test the **Austin Chalk**. The #1 Temple, SN 250505, is permitted to a depth of 15,500 feet, located in Sec. 9, 3S-10W. PIE Operating will re-enter a well, SN 220310, which was drilled by Chesapeake Operating as a horizontal well to a total depth of 15,983 feet. It was plugged and abandoned in 1998. (NOTE— This horizontal Austin Chalk well is located approximate 90 miles southwest of the EOG new Austin Chalk discovery, as discussed above.)

Also in Beauregard Parish, PIE LA Operating will drill the #1 Mineral Resources Dev B, SN 250507, a **rank wildcat**, (**B**), located in Sec.15, 5S-10W. It will be drilled to a total depth of 8300 feet to test Cockfield sands. There is no production within 3 miles of the location, and no well control within 1 mile of the proposed well.

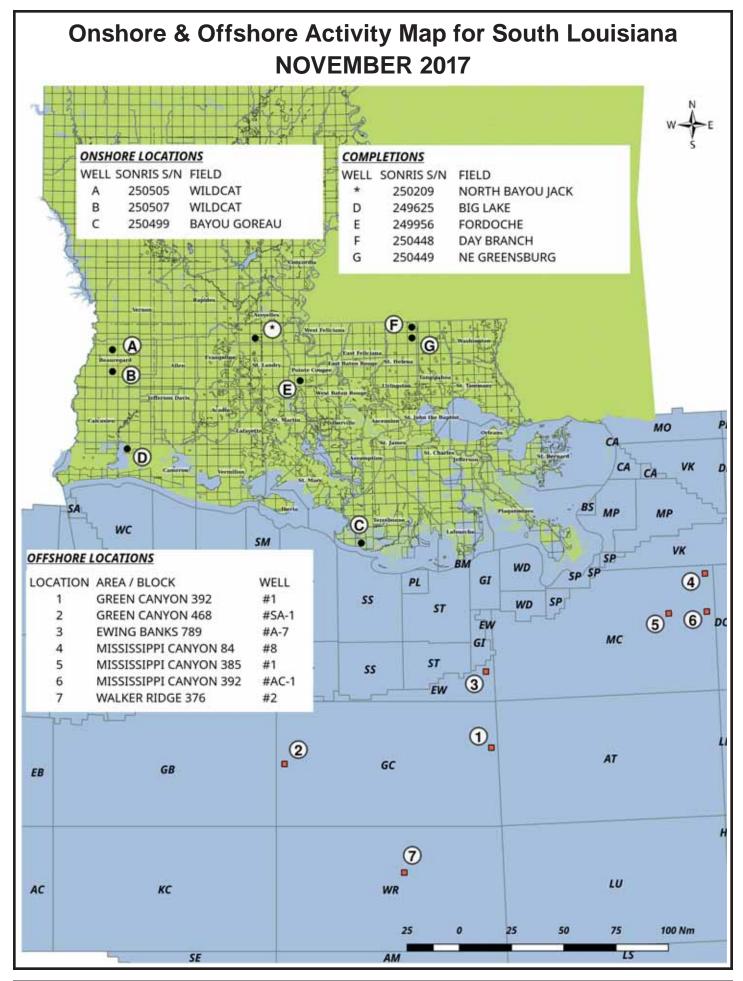
Castex Energy has re-permitted its #1 DISC 12 RA SUA; SL 21615, SN 250499, in **Bayou Goreau Field**, (C), in Terrebonne Parish. The well will be drilled to 18,870 feet, (17,500 feet, total vertical depth), in Sec 34, 21S-13E to test Disc 12 sands. The location is within one-half mile of a well drilled by Pel-Tex Oil & Gas, SN 175063, to a depth of 22,030 feet, which was plugged and abandoned in 1982. Several attractive sands were found below 16,500 feet.

## **COMPLETIONS**

In Avoyelles Parish, **North Bayou Jack Field**, (**STAR**), EOG Resources has completed a significant oil well in the Austin Chalk, flowing **1120 BOPD** and **11567 MCFD** after fracking perforations 16,275 to 20,550 feet. The #1 AUS C RB SUB;EAGLES RANCH 14 H, SN 250209, is located in Sec. 14, 2S-4E. It was drilled to a total depth of 20,662 feet in a horizontal lateral approximately 5,516 feet long.(See Breaking News II report above.)

Warhorse Oil & Gas has completed a gas well in **Big Lake Field**, (**D**), Cameron Parish. The #1 JOYCE D GRANIER ETAL, SN 249625, was completed flowing 1634 MCFD and 2 BCPD in the Camerina 1 sand through perforations 9704 to 9710 feet. It was drilled to a total depth of 12,800 feet in Sec. 13, 12S-9W.

In Pointe Coupee Parish, Fordoche Field, (E),



Fordoche Operating Company has completed the #1 JO LONG ETAL, SN 249956, as an oil well flowing 24 BOPD and 135 MCFD through perforations 8320 to 8327. The well was drilled to a total depth of 8580 feet, in Sec.29, 6S-8E.

Paloma Resources has plugged and abandoned 2 shallow MIOCENE wells in St. Helena Parish. The #1 DENKMANN ASSOC, SN 250448, in **Day Branch** Field, (F), was drilled to a total depth of 4000 feet. It was located in Sec. 11, 1S-6E.

In **N E Greensburg Field**, (**G**), the #1 DENKMANN ASSOC was drilled to a total depth of 4500 feet and was plugged and abandoned on 10/4/2017. It was drilled in Sec. 5, 2S-6E.

## **OFFSHORE GULF OF MEXICO SHELF AND DEEPWATER ACTIVITIES** *by Al Baker*

During September 2017, the BOEM approved 65 Gulf of Mexico drilling permits. 13 of these were for shelf wells, and 52 were for deepwater wells. Of the total number of permits, there were 7 new well permits, all in deepwater.

The seven deepwater new well permits were for five exploration wells and two development wells. The development well permits were issued to Hess Corporation for their Green Canyon 468 #SA-1 well and to Walter Oil & Gas for their Ewing Bank 789 #A-7 well. The exploration well permits were issued to Anadarko Petroleum for their Mississippi Canyon 84 #8 well, BHP Billiton Petroleum (Deepwater) for their Green Canyon 392 #1 well, Deep Gulf Energy III for their Mississippi Canyon 385 #1 well, and two to Shell Offshore for their Mississippi Canyon 392 #AC-1 and Walker Ridge 376 #2 wells.

On September 29th, **IHS-Petrodata** reported that the Gulf of Mexico mobile offshore rig supply stood at **94**, which is **1** less than last month. The marketed rig supply consisted of **53** rigs, of which **35** were under contract. The marketed rig supply number decreased by **1**, while the contracted rig supply number increased by **1** compared to the previous month. The marketed contracted versus total rig supply utilization rate stands at **37.2%**, and the marketed contracted versus marketed supply utilization rate stands at **66.0%**. By comparison, the September 2016 total fleet utilization rate stood at 46.6% (versus 56.4% today) with 48 out of the 103 rigs under contract.

As of September 29th, **BakerHughes** indicated that there were **22** active mobile offshore rigs in the Gulf of Mexico, which is **62.9%** of the rigs under contract mentioned above. This active rigs number is **5** more than reported last month. Of the 22 rigs, **3** are located on the **shelf**, and **19** are situated in **deepwater**. At the same time last year, there were 21 mobile offshore rigs operating in the Gulf of Mexico.

As of September 29th, the **BakerHughes** total U.S. rig count stood at **940** rigs, **the same as** at the end of August. Of the 940 rigs, **750** are **oil rigs** and **189** are **gas rigs**. A year ago, there were 522 rigs working in the U.S. Thus, the current rig figure represents an 80% increase year over year. Texas still has the largest number of rigs with 451, which is slightly less than half (48.0%) of the total number of rigs in the U.S.

On September 29th, the **BOEM** announced that **14** bids submitted at **OCS Sale 249** were deemed acceptable during the **Phase 2** evaluation period. No bids were accepted in the **Phase 1** evaluation period. A total of 76 tracts remain to be evaluated. The BOEM has 90 days from the August16, 2017 sale date to determine if the high bids are sufficient.

On September 5th, **Stone Energy** announced its drilling results from the deepwater **Rampart Deep** well in **Mississippi Canyon Block 116**. The well, operated by **Deep Gulf Energy III**, found approximately **130 net feet of liquid-rich natural gas pay**. The well provided critical information to reduce the exploration risk of Stone's **Derbio Prospect**, which is located northwest of and updip to the Rampart Deep discovery in **Mississippi Canyon Block 72**.



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