



MISSISSIPPI GEOLOGICAL SOCIETY

VOLUME XLIII

NUMBER 1

SEPTEMBER 1994

PRESIDENT'S LETTER

Dear Friends;

It is a privilege to have this forum to address you. I will use it to raise provocative issues for creative discussion.

The Mississippi Geological Society is in a minority position among its society brethren. This was made clear to me last fall when I represented the society at the GCAGS Board meeting at the convention. During lunch each society gave a brief summary of activities. Most of the societies still have a fair membership base from larger independents or majors. Obviously, we do not.

This creates a challenge and an opportunity. The challenge is it "costs" a lot for us to serve the society. We give up "prospecting time" for the good of the geological community. The opportunity, however, is that more than in any other affiliated society one person can have a profound impact. We know the scenario, 100 MBO of new reserves is inconsequential to a large company but is very significant to a small one. In our society every barrel counts.

You certainly appreciate the fact that Mississippi (or the northeast gulf coast) is not the center of the oil and gas or environmental universes. The challenge before each one of us is not to make it the center of the universe but to identify enough opportunities to provide an honest living. I strongly believe that the primary role of the Geological Society is to help establish and maintain an environment that *continually* supports the identification of new opportunities.

What can the society do to help? This is not a rhetorical question. It is an active and dynamic question. If an idea has been percolating for years in the back of your brain figure out how to communicate it to one of the officers and share it. Even if you don't have a solution but recognize a recurring obstacle that the society might help in resolving, share it with us. Even if you don't want to carry the ball yourself, share it.

There is no doubt that we have the creative experience and energy to accomplish a tremendous good for ourselves and our community. What we need are the targets and a commitment to those targets. I have no idea from whence shall come the targets that we can rally around but I know they are out there. My personal bent is that they should be extraordinary in scope, not

something easy. Consider now what it is that at the end of the year you will be pleased to have committed yourselves to. And start on it now by telling us about it. I've got some ideas I will share next month. Let's hear your ideas.

Sincerely,
Neil

P.S. I particularly ask that you appreciate the men who have agreed to serve with me on the MGS "payroll". Let them know you value their contributions of time and energy and please encourage them in that service. Be assured that they have not agreed to serve because they had spare time and were looking for a cause to champion.

DALE DAVIS

HALLIBURTON ENERGY SERVICES

As Chief Economist for Halliburton's world-wide operations, Mr. Davis will be giving us the global picture of the forces at work which result in our domestic oil and gas prices.

Dale Davis is the Director of Business and Economics and also serves as Chief Economist for Halliburton Energy Services. Mr. Davis' principle area of study is econometrics, mathematical economics, linear programming and decision-making under risk and uncertainty. He studied at Oklahoma State University. Mr. Davis is in his 10th year with Halliburton Energy Services. During his tenure with Halliburton, Mr. Davis has developed numerous econometric models for strategic planning and policy evaluation, drilling activity, forecasting models for domestic and international operations and an economic model of the oil and gas industry for his company's participation in the National Petroleum Council's U.S. Oil and Gas Outlook. He is frequently consulted by the "experts" in the financial community for his forecasts.

SURVEY RESULTS

GCAGS Convention City Location Questionnaire

For 42 years, the Gulf Coast Association of Geological Societies, known as the GCAGS, has held its annual convention every October in one of its member society cities. Of the 12 local societies that comprise GCAGS, two have never held an annual convention (East Texas and Alabama) with nine of the other ten member societies hosting the convention every nine years. Since dedicated volunteer members must be found in each city to work on the convention, this nine year schedule has not been burdensome to the memberships, even for the larger three societies who must also host the annual AAPG National convention every six years. However, registrants, exhibitors, and presenters have declined in numbers. In some cases, smaller memberships have left some societies undermanned to barely form committees to hold the GCAGS when it has rotated to their city. Even more importantly, due to the considerable expense guarantees demanded by convention center and hotel facilities in every city, and the recent large loss incurred at Jackson, it seems responsible to at least consider alternative options for future convention years.

HGS has over 5000 of the GCAGS membership of less than 9,000 total members. The Houston membership is consistently represented at over 50% of registrants at all recent GCAGS conventions. Due to the serious financial questions raised by the Jackson GCAGS convention, the HGS Executive Board felt that we should poll the membership about future GCAGS convention options, and offer these results to the GCAGS Board in an advisory capacity when HGS President John Biancardi attends the mid-year GCAGS meeting in May.

Let us know what you think by answering our questionnaire, and be sure to add any additional comments at the end of the page. Thank you for your interest and cooperation.

Please circle the appropriate choice:

165 surveys received!!!!

1) Does the host city location affect your decision to:

a) attend as a registrant	yes	146 (89%)	no	17 (11%)
b) submit a paper or poster	yes	48	no	64
c) exhibit your service or product	yes	40	no	48

2) Which of the nine cities should we continue to visit in the traditional nine city rotation, assuming that all of them wish to continue to host the convention.?

Houston	161 (96%)	Corpus Christi	93 (56%)	Baton Rouge	20 (12%)
San Antonio	150 (91%)	Lafayette	87 (52%)	Jackson	16 (10%)
New Orleans	148 (89%)	Austin	92 (55%)	Shreveport	23 (14%)

3) Should GCAGS visit a non-local society Gulf Coast city as a wildcard convention location, much like AAPG National will do in 1996 with our visit to San Diego?

Yes	43 (26%)	No	106 (64%)	No Opinion	16 (10%)
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4) Would you be more inclined to attend a GCAGS convention located in the following suggested Gulf Coast cities?

Pensacola 41 (25%) Biloxi 32 (19%) Other 20 for 10 other cities No Other 70+ (?)

5) Should GCAGS follow the practice of the AAPG Midcontinent section and hold its convention EVERY TWO YEARS, instead of an annual convention.?

Yes	46 (28%)	No	98 (60%)	No Opinion	20 (12%)
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6) If the GCAGS convention continues to be held annually, should the format of every second year be altered to be more streamlined and focused like a research conference?

Yes	27 (16%)	No	100 (60%)	No Opinion	38 (23%)
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7) Please indicate if you attended the recent GCAGS Conventions?

Shreveport '93	Jackson '92	Houston '91	None
57 (35%)	57 (35%)	154 (93%)	18 (11%)

8) If you did not attend, please write down the principal reason for not attending in the space provided below. Thank you again for taking the time to participate in this fact finding process.

GCAGS Convention City Questionnaire Comments

Most comments were addressing the respondents reason for not attending, and most of those that did comment (over 50% did) explained their convention absences due to: a) a schedule conflict or b) too costly for their personal budget that year.

The following is a sampling of the other comments that pertain to location, as well as other problems or suggestions that the respondent wished for you to here.

I will only drive to GCAGS - Jackson too far!!! Shreveport — not worth the drive (same for Baton Rouge). Annual convention should be held in Houston every 4th or 5th year.

Stay on Southwest Airlines grid!!!

City and past conventions in city did not stimulate any interest for expense involved.

Shreveport and Jackson have essentially nothing to do for social activities.

No interest in travel to Shreveport or Jackson, hard to get to from Houston — No direct flights.

Too expensive for consultant, papers given too local, small scale problems of minor interest to others.

Shreveport & Jackson — Too far away from Houston (expenses). Need more assistance to job placement for geoscientists.

The location, I went to a convention there once (Shreveport) and decided to never return (did not go to 1993)

LOCATION! LOCATION! LOCATION! JACKSON WAS LOUSY!

When the GCAGS is held in Houston, my Houston based company allows me and many geological staff members to attend. When it is in the other 9 cities, it is very rare any of us get to attend.

Jackson — bad location. Either cutback on travel costs to accommodate a constricted industry and budget conscious professionals or pay the price.

Shreveport - Jackson - mainly location, especially Jackson.

I do not feel Shreveport & Jackson worth the \$. Would not go again!

Due to the host city location, I did not attend Shreveport & Jackson, this is due to having to combine vacation with convention since employer does not provide financial support for attendance.

Did not want to attend a meeting in these cities. Programs were not attractive.

Time marches on!! Smaller cities no longer have adequate membership or infrastructure.

Jackson 92 — poor location and probable related poor attendance by registrants and exhibitors (Shreveport 93 was pitiful).

Key: Location is everything. Keep conventions in key oil towns, not like Pensacola, Biloxi.

Location is the key; I believe conventions should be held in the cities with the most oil & gas professionals.

The cities were not of interest to me — Will attend Austin this year 1994.

Galveston might draw a large registration and probably can handle GCAGS-size convention. HGS members can get there without difficulty. Galveston's attractions are now many and varied, and include History, coastal setting, Moody Gardens, Museums, Greyhound racing, and NASA, restaurants, etc.

Too hard to get to Shreveport from Houston. Even Jackson is easier.

Papers are too heavily biased toward geology of the host area.

Could not justify the expense of going to hard-to-get places.

92 & 93 locations! Who wants to go to Baton Rouge, Jackson, Shreveport, or Austin!

I felt it was not worth the cost to attend! However, I did feel that it was well worth the cost to attend the recent AAPG sponsored EXPO '94 recently held in Houston. I saw more interesting geology and discussed more geology there than I ever have in the last 10 years GCAGS conventions that I have attended during the last 40 years.

Did not attend Shreveport & Jackson due to location.

Jackson & Shreveport too difficult to get too.

No special interest in the program or location to put on busy schedule.

Distance, cost, and papers presented. Obscure location, mediocre program. Can't go every year if out of town, so the other attractions in the city where the convention is held is usually the determining factor. I live in San Antonio area. Shreveport & Jackson had no interest for me or wife as a city to enjoy.

Too much trouble to go somewhere that has little unusual to offer.

As an independent geologist, I attend conventions mainly for contacts and networking purposes. Relative closeness to Houston (by car or Southwest Air) is a must. Large attendance is a draw for me. Since 1988, I've attended all of GCAGS's except Jackson & Shreveport which are geographically undesirable in my opinion.

Distance to Jackson and I don't like the city.

Did not attend Jackson 92, Shreveport 93, nor will attend Austin 94. Cities too small for fun, shopping, etc., not exciting.

Did not attend Jackson meeting because of distance and technical program.

With an every two year format, hopefully the number and quality of papers would increase. The major factor I've heard from attendees at both Shreveport and Jackson was the high cost of travel and lack of accessibility to both sites, especially from Houston.

Convention cities should be large enough to offer more than a meeting place.

Rather than rotate consider Houston every other year — biggest attendance easiest to get to. When held in Houston — need larger facilities than those of the Adam's Mark Hotel (1991). I plan to attend meeting in Austin 94.

Thank you for your work to improve the GCAGS conventions.

92 & 93 too far and too non-Texas oriented.

The convention needs to be streamlined regardless. Reduce your paper sessions to one day.

If the purpose of the GCAGS convention is to target the most working geologists, then the convention needs to be held in Houston.

I am an out-of-town member of HGS. Caution! The one thing GCAGS has enjoyed in the past is UNITY. The GCAGS & HGS need each other.

Accessibility: Check with the SEG-GCS. It meets only in Houston and New Orleans. It is not much of a convention.

There are many retired people who are still members of HGS and others and admittedly we go for the socialization and local color.

I did not attend because of the location 93 & 92.

I have to pay for my trip myself and live in Houston. The every other year option is a winner!!!

I was not able to attend Jackson due to a business conflict. In the last 33 years I have attended all but 4 GCAGS conventions. I think this survey is a great idea!! (Don R. Boyd)

The declining number of active GCAGS members in the fringe cities will make necessary a less frequently held meeting in a declining number of potential site cities.

The meetings should be held in cities where the local society is strong and enthusiastic. Do not go to research conference, but emphasize each time a session(s) or hot topic(s). Variation is good. Do not make it like the GCS/SEPM research conference always in Houston.

A Memorial: Emmett Ray Adams – 1923 - 1994

Our society lost a dear friend and valued member with the death of Emmett Ray Adams on June 24, 1994. The immediate cause of his death was pneumonia; however he had been weakened by the lung cancer diagnosed last August and subsequent chemotherapy and radiation treatments. He had recovered sufficient strength to attend the April NOGS Luncheon Meeting where he enjoyed visiting with many of his colleagues; that was his last NOGS meeting. Early in May he suffered a stroke which partially impaired his speech. This minor stroke, perhaps, physically and emotionally exacted a heavy toll on him. - Emmett was the personification of a true gentleman, a great family man, a dedicated oil finder and a gifted field geologist. Perhaps no one had a better understanding than he of the subsurface and surface stratigraphy in much of the eastern sector of the gulf basin.

Emmett was born in Paris, Mississippi, on November 28, 1923. A few years later his family moved to Forest Hill, Louisiana, and it was in this small town just south of Alexandria that he put down his early roots. In his youth he became fascinated by the fossils he found in the stream beds and in the pottery and other artifacts unearthed while exploring Indian middens in the area. From these youthful interests he developed an intense love for geology. His early life was interrupted by two major events: the Great Depression of the 1930s and World War II.

At the end of his first semester at LSU Emmett was drafted into the army. He served his country as an infantry-man and saw front-line action throughout the offensive campaign in Germany. For his valor in combat he received the Bronze Star Medal. Many of his close associates have heard Emmett's discourse of how his unit, although severely decimated, took and held the Remagen Bridge on the Rhine - a transportation link vital to sustaining the offensive push toward Berlin.

In the fall of 1946 he enrolled at Louisiana State University to finish his formal education in geology. After graduating with a B.S. degree in 1950 he moved to Mansfield, LA and was employed by Southern Natural Gas for almost a year. His big break occurred in October 1951 when he was hired by Shell Oil Company. At LSU Emmett had specialized in paleontology, but what Shell needed was a physical stratigrapher to decipher the lithologic changes evident in the subsurface sections in Mississippi and Alabama. Emmett soon excelled at "running lith samples" from thousands of wells in Shell's play areas. Over the years he became an authority

on the Smackover and lower Tuscaloosa geology and published papers on the stratigraphic aspects of these formations. In 1966 Shell relocated the Jackson division office to New Orleans where he continued in exploration activities until his retirement from Shell in 1981. He did not want to give up his profession entirely and soon became a successful consultant. In 1985 he joined the Society of Independent Professional Earth Scientists.

Throughout his professional life Emmett kept close and loyal ties with the Geology Department at LSU. For a number of years he served as a member of the Geology Alumni Advisory Council and as Vice-President and President of the Geology Alumni Association.

Early in his career Emmett became active in professional organizations. While in Jackson he served the Mississippi Geological Society as Vice President and Treasurer, and on numerous field trip committees. He was a charter member of the Gulf Coast Section of SEPM (1953). Through the years he served the organization as Treasurer, Vice President and as President in 1974. In 1989 he was awarded Honorary Membership in the GCS-SEPM. He also served as the local Business Representative for the GCS-SEPM in Jackson and New Orleans. Field trips were his one of his special interests and he played a leading role in many for SEPM, GCS-SEPM, GCAGS, AAPG and for NOGS. He co-edited the 1960 GCAGS Transactions for the Biloxi meeting. He was Vice-Chairman for SEPM for the 1976 New Orleans AAPG convention and also chaired the Field Trip Committee. Emmett served on AAPG's Energy Minerals Committee and twice as a Delegate representing NOGS. For the April 1993 AAPG convention he chaired the Matson Award Committee. On September 13, 1993 he was awarded Honorary Membership in the New Orleans Geological Society. However, by that date he had already been diagnosed with cancer and was undergoing his first chemotherapy treatment.

Emmett Ray Adams willingly gave over forty years of dedicated service to the gulf coast geologic community. We mourn the loss of our dear friend and extend heartfelt sympathy to his widow, Evelyn, and to their sons, Mark and Paul.

Memorial contributions in Emmett's memory may be made either to the NOGS Memorial Foundation or to the Gulf Coast Section-SEPM Foundation.

- Edward B. Picov, Jr.

June 1, 1994

NEW PUBLICATIONS AVAILABLE FROM THE OFFICE OF GEOLOGY

The Mississippi Office of Geology has made available three reports that were completed as research projects funded by grants from the Minerals Management Service of the U. S. Department of the Interior. All deal with the stratigraphy and petroleum potential of rocks beneath coastal Mississippi and state-owned waters.

OPEN-FILE REPORT 21. REGIONAL GEOLOGIC FRAMEWORK OF THE CRETACEOUS, OFFSHORE MISSISSIPPI, by A. John Warner, 40 p. plus 1 plate in pocket. \$8.00

OPEN-FILE REPORT 22. REGIONAL JURASSIC GEOLOGIC FRAMEWORK AND PETROLEUM GEOLOGY, COASTAL MISSISSIPPI AND ADJACENT OFFSHORE STATE AND FEDERAL WATERS, by Rick L. Ericksen and Stanley C. Thieling, 102 p. plus 2 plates in pocket. \$20.00

OPEN-FILE REPORT 23. REGIONAL GEOLOGIC FRAMEWORK OF THE MIOCENE, COASTAL AND OFFSHORE MISSISSIPPI, by Stephen D. Champlin, S. Cragin Knox, and T. Markham Puckett, 109 p. plus 2 plates in pocket. \$10.00

These open-file reports may be purchased from the Office of Geology at Southport Center, 2380 Highway 80 West, Jackson. Mail orders will be accepted when accompanied by payment (total cost plus \$3.00 postage and handling for the first copy and \$1.00 for each additional copy).

Send mail orders (with check or money order) to:

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Mississippi Geological Society Treasurer's Report

Operating Year Ending May 31, 1994

Revenues

Bulletin Advertisement	830.00
Christmas Party	867.00
Fall Social	1,120.35
Spring Fling	635.00
Luncheon Receipts	2,530.00
Membership Dues	3,580.00
D. Hughes' Book (Oil in ..South)	6,316.31
Sequence Stratigraphy Seminar	260.00
Other Income	30.00
Total	\$ 18,311.69

Gross Operating Expenditures

Bank Service Charges	127.41
Christmas Party	1,274.77
Fall Social	1,198.65
Spring Fling	1,464.61
Office Expenses	208.63
Monthly Luncheons	3,639.55

Plaques	496.53
Bulletin Printing & Expenses	3,940.76
University Press (Printing Oil ... South)	3,412.80
Sequence Stratigraphy Seminar	358.78
Miscellaneous Expenses	2,232.88
Total	\$ 18,363.37

Revenues 6/1/93 - 6/1/94	\$ 18,311.69
Expenditures 6/1/93 - 6/1/94	18,363.37
Net Loss From Operation	\$ 51.68

Checking Account Balance 5/31/93	\$ 1,232.58
Saving Account Balance 5/31/93	14,877.01
Cash Balance 5/31/93	\$ 16,109.59

Checking Account Balance 5/31/94	\$ -2,273.95
Saving Account Balance 5/31/94	15,221.77
Cash Balance 5/31/94	\$ 12,947.82

John Warner
Treasurer

BUSINESS MEETING LUNCHEON

11:30 A.M. SEPTEMBER 13, 1994

Capitol City Petroleum Club,
Smackover Room

Dale Davis

Halliburton Energy Services

BUSINESS MEETING LUNCHEON SCHEDULE

1994	1995
September 13	January 10
October 11	February 14
November 8	March 14
Christmas Party-December 13	April 11
	May 9
	Spring Fling-May 11

Mississippi Geological Society – 1994-1995

BOARD OF DIRECTORS

Neil Barnes, President (353-9056).....	Independent
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Jack Moody, 2nd Vice President (961-5522)	Office of Geology
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Jack Moody, Program (961-5522)	Office of Geology
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Charles Williams, Honorary Members (354-4612)Vaughney & Vaughney
Ed Hollingsworth, MGS/GGAGS Scholarship (944-4700).....Moon & Hines

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AAPG	Rick Ericksen (95)
AAPG	Alternate - Dave Chastain (95)

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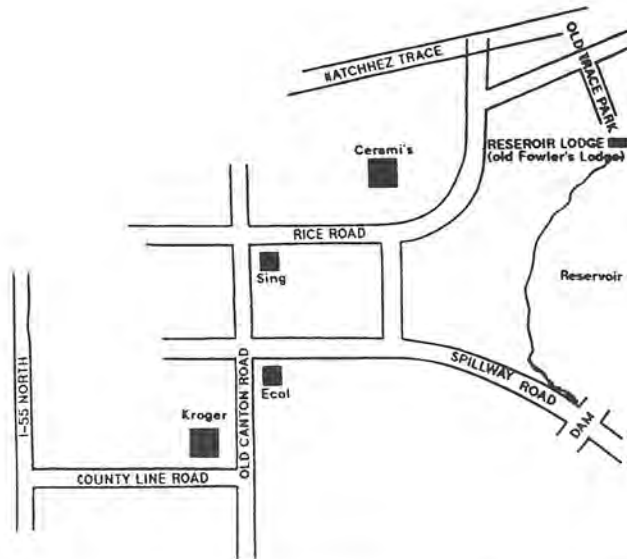
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Wednesday, September 21 – Reservoir Lodge

Festivities – 4:30 p.m.
Dinner – 6:00 p.m.

\$10.00 per person
\$5.00 per student

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at 352-7736

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Yes — Please sign below

No — Please indicate changes and sign below

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is for year

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(PLEASE PRINT)

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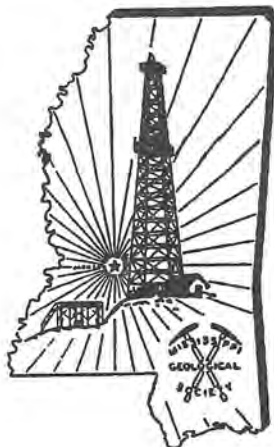
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MISSISSIPPI GEOLOGICAL SOCIETY

VOLUME XLIII

NUMBER 2

OCTOBER 1994

PRESIDENT'S LETTER _____

Dear Friends:

If you measure the success of a speaker on the basis of questions from the floor, September's luncheon meeting was a resounding success. Jack has arranged an outstanding slate of speakers for the year. Now would be a good time to begin attending the luncheon meetings if you are not already in the habit.

Picking up where we left off last monthI invited you to share your ideas as to how the Society can serve its members. I also threatened to share my ideas with you. Here are my ideas. The first is a "no brainer". It's time to do another red book supplement. This publication is often the first and only exposure to our area's resources. If it is not current it is harder to compete with other areas. Right now we are considering either a generic supplement or a supplement focusing on several new plays that have emerged in our area.

The second suggestion is a variation on that theme but will require a Herculean effort from all our members to pull off. I'll give you a hint this month and details next month. Here's the hint:

$$\frac{q_h}{\Delta p} = \frac{2\pi k_o h / \mu_o B_o}{\ln(4r_e/L) + (h/L) \ln(h/2\pi r_w)}$$

If you think you know the next idea and why it would be a good one, call me. The first caller with the correct answer gets a free luncheon admission. As usual, this offer is not open to officers and their immediate and extended families.....

As for your ideas? I'm still waiting. It's kind of like the sailfish division of the spear fishing rodeo. The first entrant may be the winning idea.

I will be attending the GCAGS on behalf of the society. The business meeting will last all day Friday. If you have any particular points or inquiries you'd like me to make, please call and let me know. If you don't speak up now, you don't have the right to complain later.

Sincerely,
Neil

ALAN H. STEVENS

OCCIDENTAL INTERNATIONAL EXPLORATION AND PRODUCTION COMPANY

Current Trends In International Petroleum Projects Highlighting Oxy's Experiences in Russia

Mr. Stevens attended high school in southern Michigan, and received a B.S. Degree in Geological Engineering from Michigan Tech in 1966. He worked for four years in the Michigan basin for Northern Michigan Exploration Company (NOMECO), during which time he helped develop and initiate the Northern Michigan Reef Play. He returned to Michigan Tech and received an M.S. in Geological Engineering in 1971,

In 1971 he joined the Humble Company (Exxon) and worked in various domestic plays and spent several years in Norway working on the North Sea. Mr. Stevens joined Texas Eastern in 1978 as a senior staff Geophysicist working in their international projects, and in 1979 he joined Tenneco as Exploration Manager and later General Manager of their North Sea Office in London. In 1983 he was transferred to Tenneco's Pacific Coast Division in Bakersfield, California as Exploration Manager covering the western United States.

After Tenneco was sold in 1988, Mr. Stevens joined Occidental Petroleum Company in Bakersfield as Regional Exploration Manager for the Far East. In 1994 he was promoted to his current position of Vice President of Operations for the CIS countries of the former Soviet Union. Currently Mr. Stevens oversees two projects in Russia producing 40,000 BOPD and various new opportunities under review in other CIS countries. He spent 90 of the first 180 days of 1994 in Russia.



Cartoon by Shelly with permission.

BUSINESS MEETING LUNCHEON

11:30 A.M. OCTOBER 11, 1994

Capitol City Petroleum Club, Smackover Room

Alan H. Stevens

Occidental International Exploration and
Production Company

BUSINESS MEETING LUNCHEON SCHEDULE

1994	1995
October 11	January 10
November 8	February 14
Christmas Party-December 13	March 14
	April 11
	May 9
	Spring Fling-May 11

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SALT, SEDIMENT AND HYDROCARBONS

Sixteenth Annual Gulf Coast Section Society of Economic Paleontologists and
Mineralogists Foundation Research Conference
Houston, Texas—December, 3-6, 1995

Recent subsalt discoveries in the US Gulf of Mexico, together with improvements in subsalt/salt flank seismic imaging and advances in understanding of salt movement, have stimulated widespread interest in salt tectonics and its impact on sedimentation and hydrocarbon distribution. With this research conference, we hope to gather a suite of oral and poster presentations which will: (1) document the "state of the art" in understanding of salt tectonics and its relationship to sedimentation and hydrocarbon accumulations, (2) present innovative new and/or improved techniques for predicting salt and sediment geometries, (3) present new data resulting from active subsalt exploration in the US Gulf of Mexico and elsewhere, and (4) highlight current issues and point the way forward to new understanding and advances in the search for hydrocarbons in salt basins. We are soliciting international contributions as well as those dealing with the Gulf of Mexico, since many of the salt tectonics relationships and hydrocarbon exploration problems faced here are similar to those found in other salt basins.

Both oral and poster sessions are available. Authors submitting for an oral presentation are encouraged to present a poster under the same title, but this is not required. All authors are expected to prepare a short paper or extended abstract (minimum 2 printed pages, maximum 12 printed pages, including illustrations).

Author deadlines for GCSSEPM conferences are set to permit publication of the conference papers in time for the meeting. In the case of this conference topic, we are aware that several important wells will not be released until shortly before the meeting. Accordingly, we will accept a limited number of "provisional" papers, with the understanding that the final content will contain data and conclusions that are not yet ready for release in time for all of the program deadlines listed below.

Authors wishing to present a paper should submit a preliminary title, along with a short-provisional abstract indicating the main emphasis of the presentation to Frank Peel or Chris Travis by December 1, 1994 at:

BP Exploration, Inc. • P.O. Box 4587 • Houston, TX 77210-4587

PROGRAM DEADLINES

Preliminary title and abstract due	December 1, 1994
Tentative program announced	January 15, 1995
First manuscript due	March 1, 1995
Final manuscript with illustrations due to Editor	June 1, 1995

SESSION TOPICS

Geometry and Evolution of Salt Bodies and the Sediments Surrounding Them

- Sediment geometries around and above salt; salt withdrawal basin geometries
- Subsalt sediment geometries and their origin
- Seismic imaging of salt bodies and subsalt strata: how well can we resolve the salt and surrounding sediments?
- Improvements in seismic imaging: techniques, results, case studies. What is the impact of improved imaging on subsalt

exploration?

- Controls on salt body development; for example, salt supply rate, active tectonics, slope
- Hydrocarbon traps associated with salt
- How does salt diapirism compare with diapirism of mud (or other materials)?
- Insights from physical, numerical, and analytical modeling of salt body development. Implications for hydrocarbon exploration.
- Lessons from structural restoration: restoration techniques, 2-D/3-D, section balancing Is it possible? Useful?. Impact on hydrocarbon exploration.

Salt and Hydrocarbons

- Impact of salt on temperature and hydrocarbon generation
- Influence of salt on pore pressures, seals, and migration pathways; for example, is the salt surface a seal, a migration path, or both?
- Basin modeling
- Case studies of subsalt and salt flank wells; discoveries, failures, and their significance

Salt and Sedimentation

- The effect of salt movement and related structuring on depositional systems and reservoir distribution at a variety of scales
- Sedimentary controls on salt tectonics; impact of depositional style, sedimentation rate, eustasy, etc.
- Prediction of subsalt stratigraphy

Regional Systems of Salt Tectonics— Gulf of Mexico and Worldwide

- Is there a systematic distribution of salt canopies/sheets, diapirs, rollers, salt withdrawal basins, etc. in the US Gulf of Mexico and other salt basins? If so, what explains these distributions? What are the implications for hydrocarbon exploration?
- What is the regional timing of canopy and diapir emplacement: are there salt tectonics "events"?
- What was the original extent of the autochthonous salt in the Gulf of Mexico? What controlled this distribution? What is the age and relationship of the salt to rifting and oceanic spreading? does the salt overlie oceanic crust? What is the relationship between the Louann and Campeche salt?
- How does the US Gulf of Mexico compare with other salt basins - e.g., Angola, Brazil Campeche, Pricaspian basin, North Sea, Oman, Red Sea, etc? Which features are common between basins? Which differ? Why? Do these similarities and differences extend to the hydrocarbon systems?
- The intrusive sill model for salt sheet emplacement does not appear to apply to the US Gulf of Mexico. Does it apply anywhere?

QUICK LOOK TECHNIQUES

Mapping Throw In Place Of Vertical Separation: A Costly Subsurface Mapping Misconception

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508 (318) 981-7496

Perhaps the most costly subsurface mapping error made by interpreters is to map vertical separation as if it is throw. The two terms are often confused; vertical separation is called throw, or throw is substituted for vertical separation. These two terms are, however, not identical. They are measurements of two distinctly different geometric fault components.

The following discussion is a simplified explanation of correct mapping procedures. For a complete discussion of proper mapping techniques and methods please consult Tearpock and Bischke (1991).

Terminology, Definitions

The term throw is commonly used in structural literature to describe a fault displacement component. Throw is illustrated in Figure 1. It is important to understand that throw, in contrast to vertical separation, is a fault slip or dis-

placement component. Throw is defined in the A.G.I. Glossary as the vertical component of the net slip, which is AC in Figure 1.

Throw, which is related to fault slip or displacement, cannot be directly measured from electric logs, as is discussed below. Throw is not normally used in subsurface mapping techniques.

Vertical separation (AE) in Figure 1 can be defined as the distance that a bed has been vertically displaced during faulting. This distance is important to mappers,

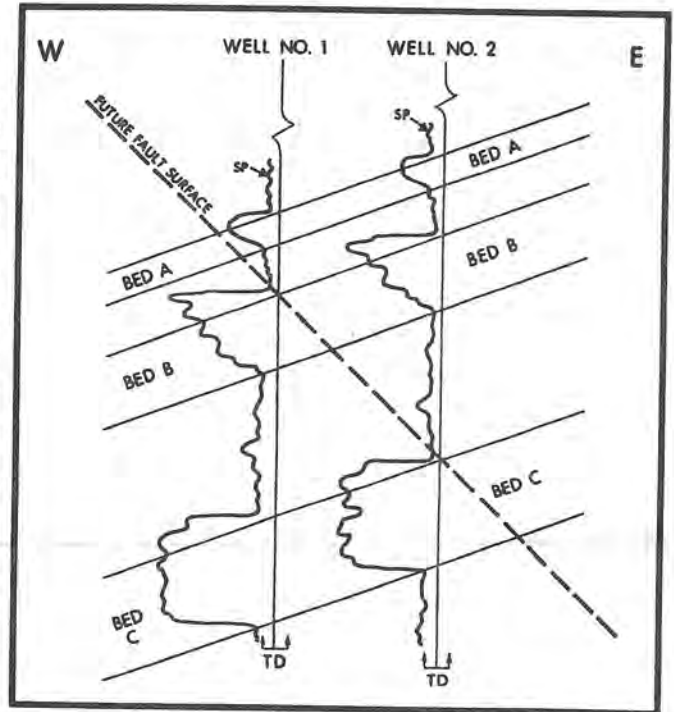


Figure 2

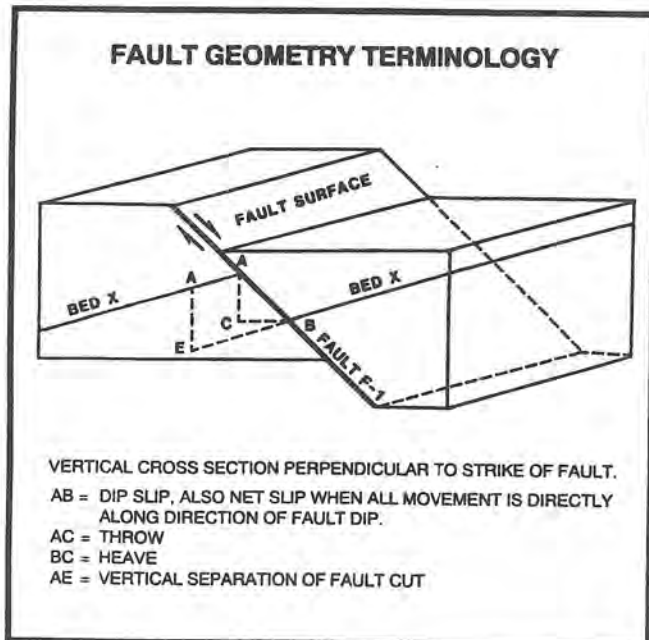


Figure 1

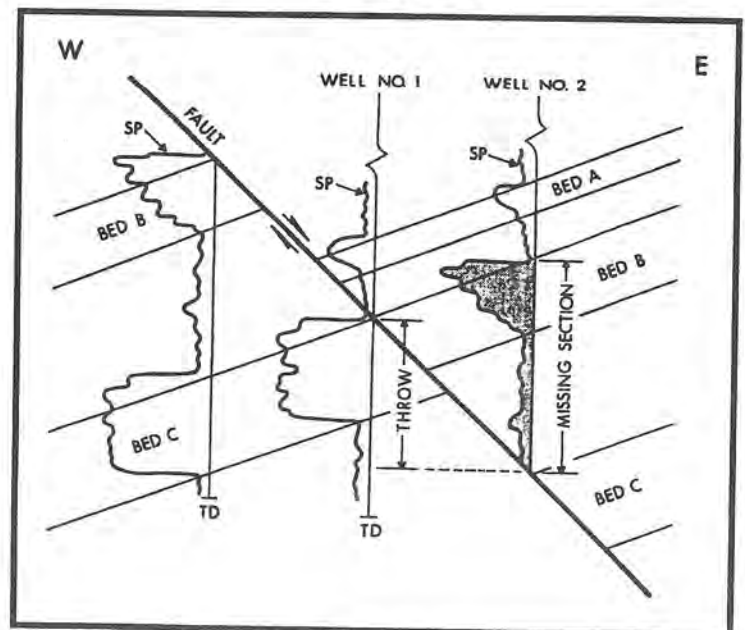


Figure 3

as vertical separation is directly recorded by (or readily calculated from) electric logs. To illustrate this point consider the following hypothetical example of a structure that dips uniformly to the west (Fig. 2). Two wells are drilled into this structure, which contain the SP logs shown in Figure 2. The dashed line in Figure 2 represents a normal fault, which displaces such that the hanging wall portion of Well No. 1 is juxtaposed over the footwall portion of Well No. 2 (Fig. 3).

From the geometric configuration

shown in Figure 3 the following observations can be made. As Well No. 1 is displaced above the footwall portion of Well No. 2, the top of Bed B in the hanging wall is brought into contact with the top of Bed C in the footwall. Therefore, the missing section in Well No. 1 corresponds to the vertical interval from the top of Bed B to the top of Bed C. In Figure 2 the sequence of Beds A, B, and C in Well No. 1 becomes the sequence A and C in Figure 3. Closer inspection of the electric logs reveals that the missing section in Well No. 1 is represented by

the coarsening upward sequence and its lower shale that are present in the hanging wall portion of Well No. 2. Observe that throw is not equal to missing section.

This hypothetical example clearly shows that throw is not equal to missing section. Furthermore, the missing section is equal to the fault component vertical separation.

One Common Error
A common mapping mistake is to measure the vertical separation in electric logs and then apply the vertical separation as if it is throw when mapping across faults.

One Common Error

An incorrect method for mapping across faults is shown in Figure 4. In Figure 4 we employ the -

8000-ft contour as an example and assume 1200 ft of missing section caused by a fault that strikes NE-SW. Data from the upthrown block is contoured, and the contours are projected to the upthrown fault trace. At the intersection of the -8000-ft contour with the upthrown trace, the -8000-ft contour is projected across the fault gap perpendicular to the trace or the strike of the fault. At the intersection of the projected -8000-ft contour with the downthrown fault trace the contour is assigned the value of -9200-ft = -8000-ft + (1200 ft of missing section). The -9200-ft contour is then drawn in to honor the well control in the downthrown block. We have just applied the missing section as if it is throw.

The correct method for applying log data in mapping across faults is to map the vertical separation across the fault. Vertical separation is the vertical drop across the fault in the strike direction of the contour, as shown in Figure 5. In Figure 5 the -8000-ft contour in the upthrown block becomes the -9200-ft contour in the downthrown block. This vertical drop or the amount that the bed has been vertically displaced is the vertical separation.

Quickly Checking Maps For Errors.

How do you check a map to determine if it is constructed using missing section as vertical separation and not throw? First we must know the value of the missing section, as observed in the wellbore. Again assume that the missing section is 1200 ft. Take a completed structure map and project a contour across a fault gap along its strike vector from the upthrown block to the downthrown block as shown in Figure 5. In Figure 5 the

-8000-ft contour in the upthrown block is projected across the fault gap to the -9200-ft contour in the downthrown block. The amount that the bed is vertically separated is 1200 ft, which corresponds to a missing section of 1200 ft. The map has been correctly contoured using missing section as vertical separation.

References

Tearpock, D. J., and R. E. Bischke, 1991, *Applied Subsurface Geological Mapping*, Prentice Hall, Englewood Cliffs, N.J., 648 p.

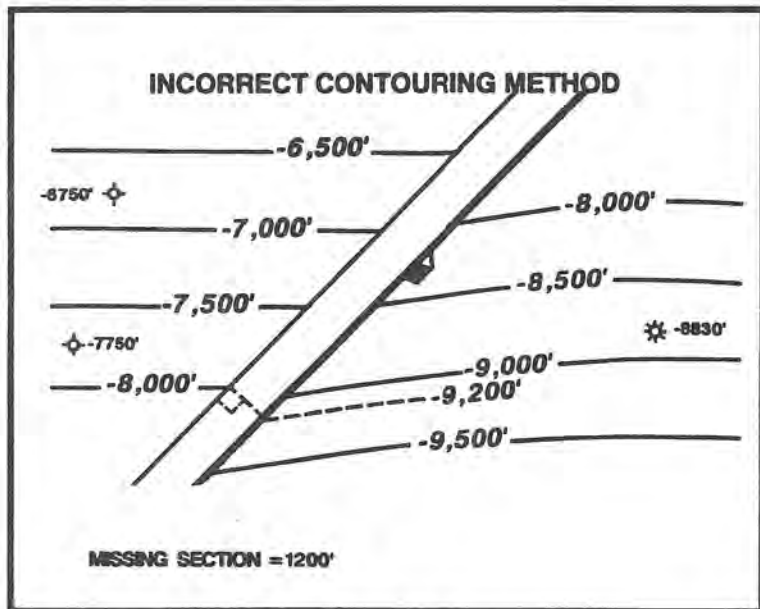


Figure 4

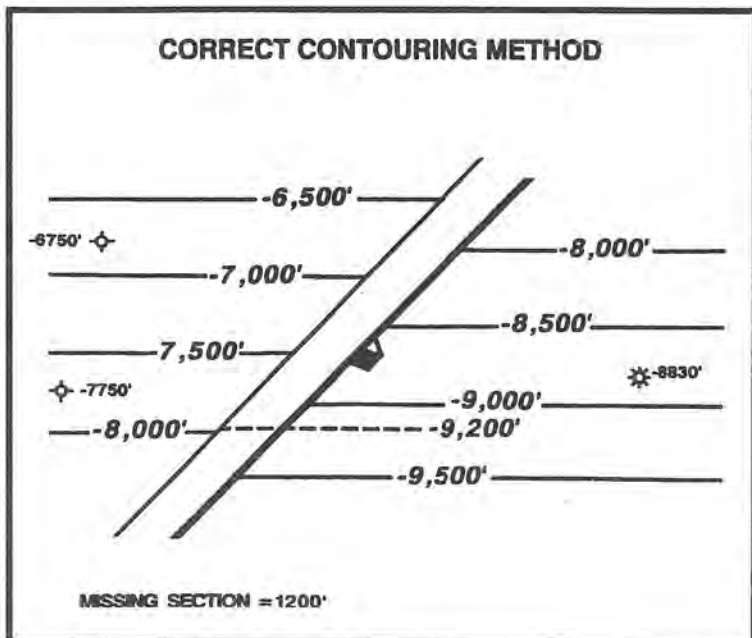


Figure 5

QUICK LOOK TECHNIQUES ODD NUMBER OF CONTOURS

by Subsurface Consultants & Associates, Inc.

A basic rule of contouring is that ALL construction is wrong. This may be a error on one map, it may be wise to ques-contours on a continuous surface must minor mapping bust, but if you find sev- tion the accuracy of the map.

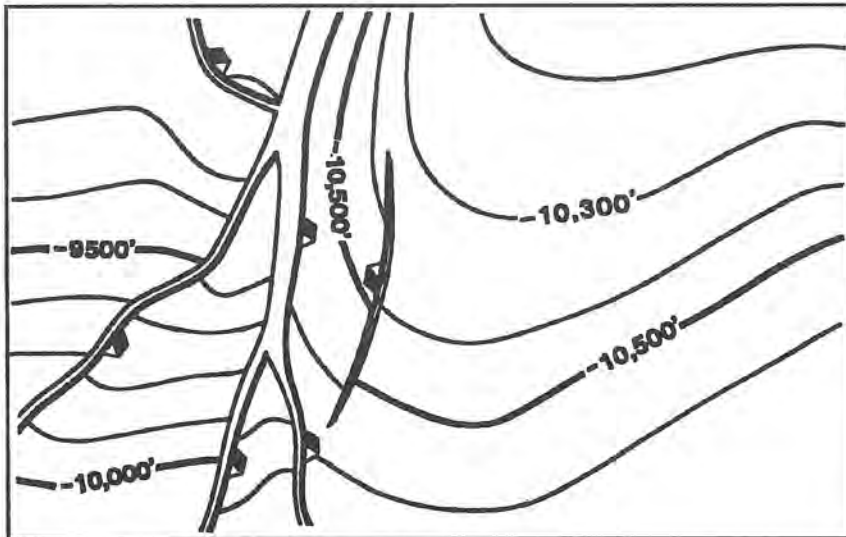
close or end at the edge of the map. This rule seems so obvious and simple that no one could break this rule of contouring.

Figure 1 is a relatively simple structure map with a few faults. Consider the area to the right of the major down-to-the-east fault. Is there a contouring problem?

Starting at the -10,300 foot contour, try to go around the small finite fault and return to the -10,300 foot contour. Can it be done? The answer is no. Five contours terminate against the finite fault; therefore, a contour is dangling. In other words, one contour does not close. One contour is missing.

All contours must close. There must be an even number of contours around a finite fault such as the

one shown in Figure 1. This type error is very common. A quick way to check a map with a small fault which dies in both directions is to count the number of contours intersecting or terminating against the fault. If there is an odd number of contours, the construction is wrong. This may be a minor mapping bust, but if you find several on one map, it may be wise to question the accuracy of the map.



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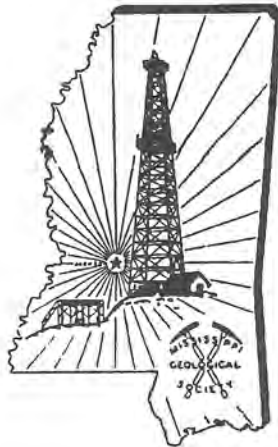
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VOLUME XLIII

NUMBER 3

NOVEMBER 1994

PRESIDENT'S LETTER _____

Dear Friends:

As I mentioned in the last column, Les Aultman will be heading up the Red Book Supplement effort. The fields he will try to include are: Frisco City, North Frisco City, Trimble, Independence, Freedom, Thanksgiving, Northwest Dauphin Island, and Chaparral (Smackover). If you have any other fields you believe should be included, please contact Les. Also, and especially, if Les asks for your help, PLEASE be helpful. I appreciate Les taking on this job.

Now that you have all figured out the equation from last month, let me tell you what I hope we, together, can do. The equation was the Borisov equation to predict the steady state flow rate in horizontal wells. (Please understand that I don't REALLY understand the whole equation.) The point I want to make is this: the inputs to the reservoir engineering models used to determine things as simple as volumetric determinations and as complicated as a reservoir simulation are for the most part GEOLOGIC attributes.

I attended a horizontal drilling short course at the annual SPE conference in 1990. I was the only geologist. At the end of the day I still did not understand the intricacies of the equations I had seen (most for the first time). But the reason I went was to see what data was critical. At the end of the day I asked the instructor if he could buy one more reliable input, what would it be. He said GEOLOGIC CONTROL.

Geologic controls are those geologic attributes that affect reservoir distribution and quality. Look at the equations used in the most high powered engineering models. Great precision can be calculated, but at it's most basic core, if the geologic model is invalid or worse yet, someone has casually made an assumption, that precision is wasted. Geologists have no need to back away from parity with engineers. We need to lead the charge in squeezing all the oil and gas and pennies out of the rocks we can get.

The validity and significance of reservoir evaluations are imminently a function of the most UNRELIABLE input variable value. As geologists we have a wealth of data about the rocks and reservoirs we have found and worked. I propose that the Society begin work on a publication which will catalog rock and reservoir properties of the fields in our area. This work will be of tremendous value to us as working geologists as we lead the effort to squeeze economic hydrocarbons out of reservoirs. It will be a service to our state

and industry, too.

Call me and tell me what you think of this proposal. Next month I hope to provide a plan of attack for this project. Please be thinking about what data you might have that could be of assistance. Also, PLEASE be willing to participate in this work. If we don't all get behind it, it won't get very far.

Sincerely,
Neil

THE NATIONAL ENERGY RESOURCE SURVEYS OF THE USGS

Dr. David W. Houseknecht
Associate Chief for the Energy Program

For those who attended the last two luncheons you will recall that Dale Davis of Halliburton gave us the big picture on world oil and gas prices. In his talk he felt the real wild card in world future pricing was the former Soviet Union. Oxy's Allen Stephens came to our second luncheon and showed us the general international outlook for exploration, and then zoomed in on the "Wildcard". Allen is Oxy's V.P. in charge of operations in the former Soviet Union; he had a lot to say.

This month's speaker will begin to focus us a little closer to home. David Houseknecht is in charge of the USGS energy program. In such a position, David has a good overview of the current U.S. energy situation, as well as insights to possible future trends. The USGS is just completing its national assessment of petroleum exploration plays and resource estimates. Under David's direction the USGS worked closely with industry and state surveys in order to make this assessment as credible as possible. Perhaps David will share a sneak preview with us of individual trends that lie close to the hearts of MGS members.

I've had the pleasure of visiting with David on several occasions, and feel sure your attendance will be a worthwhile effort. I hope to see you there.

Jack Moody

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Division of Professional Affairs (DPA) was formed by AAPG in 1965 to certify (not register) Petroleum Geologists as to education and experience. Mining Geologists now can be certified, to the same high standards. DPA now has 3700 members - 12% of AAPG - about as many as AIPG. DPA committee functions and issues include voluntary geological registration, petroleum resource base estimation, exploration and production policy, voluntary continuing education, and liaison with other professional geological organizations. Recent activities include:

1. Publication in 1994 of *Guiding your Career as a Professional Geologist* (five chapters guiding students to retirees), mailed free to all DPA members, including new ones
2. Uniform state registration bill (voluntary for Petroleum Geologists), drafted jointly with AIPG, AEG, SIPES, and AAPG

3. Jointly with SIPES, a Model Form Confidentiality Agreement, Consulting Agreement soon to follow, possibly others later

4. Governmental Affairs Committee: political watchdog with rapid written response network

In short, DPA is looking after your interests. Membership requirements are 8 years' experience for BS, 7 for MS, 5 for PhD, and very low dues. For more information, call Sam Peppiatt, Membership Chairman 713-623-4400. For application materials, write Donna Riggs, DPA / AAPG, P.O. Box 979, Tulsa OK 74101.

ERRATA.

The first paragraph of last month's article Quick Look Techniques Odd Number of Contours, p.6, should read:

A basic rule of contouring is that ALL contours on a continuous surface must close or end at the edge of the map. This rule seems so obvious and simple that no one could break this rule of contouring.

**BUSINESS MEETING
LUNCHEON**

11:30 A.M. NOVEMBER 8, 1994

Capitol City Petroleum Club, Smackover Room

Dr. David W. Housknecht

U.S. Geological Survey

**BUSINESS MEETING
LUNCHEON SCHEDULE**

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Great discoveries were made through new concepts, such as the anticlinal theory, gravity, magnetic, seismic, and stratigraphy. Tomorrow's wealth is in the minds and technology of today.

ORAL SESSIONS

Twenty minutes are allotted for oral presentations starting Monday morning, June 5, and lasting through the afternoon of June 6. You may include a few minutes of your time for questions and answers at your discretion. Concurrent sessions are possible.

Two standard 35-mm slide projectors, two screens, a lighted lectern and a pointer will be available at each session. Speakers should follow the guidelines described in the AAPG slide preparation manual for slide composition, clarity and effectiveness. Further instruction and suggestions will be included in the abstract acceptance notification.

POSTER SESSIONS

Posters offer an alternative presentation opportunity, one which

facilitates display of materials and copies not easily displayed in slide format. Papers presented in poster format will be scheduled during half day sessions on June 5th and 6th, and authors must be in their booths from 10:00 to 12:00 noon or 2:00 to 4:00. Display boards, tables and chairs will be provided as requested, although authors are encouraged to enhance their presentations with computers or microscopes and heed suggestions in the AAPG "poster kit". For further information, contact Valary Schulz, (214)530-5681.

ABSTRACT INFORMATION

Authors are invited to submit new and original work for either oral or poster sessions. Please use the form on the reverse, answer all questions, and include a typed abstract in 250 words or less. Selections of abstracts will be based on geological significance, application, and relevance to convention theme.

Authors will receive notice of acceptance or rejection after February 1, 1995. All abstracts are due December 1, 1994 and must be sent to:

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Type abstract (250 words or less) on this form (use additional paper if required) using the IBM Selectric in Letter Gothic, Courier, or Prestige Elite, if possible, for computer scanning. Please double-space with only one space after periods. Manuscripts printed out by word processors should not be justified. Any editorial marks must be made in red.

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ABSTRACT DEADLINE: DECEMBER 1, 1994

QUICK LOOK TECHNIQUES

Screw Faults Quick Look Technique

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508

(318) 981-7496

A screw fault is a fault that laterally reverses its direction of dip. This is a mapping contrariety that cannot exist in extensional areas and has only a questionable possibility in compressional areas.

Consider Fault B in Figure 1 which is a completed structure map on the AA Sand. Follow the fault trace from West to East. Notice to the West that the contours indicate a fault downthrown to the South. Consider the area between the -8,400-ft and -8,350-ft contours downthrown to the fault in the eastern region. At this position the map indicates that the fault changed its direction of dip from South to North. Observe all the contours placed downthrown to the fault from Location A to B as in contrast to only one contour (-8,400-ft) upthrown. *Fault B is a screw fault.*

Also, consider Location D (Figure 1) on Fault A. Notice that Fault A has reduced in size (Vertical Separation) from 300 ft at Location C to approximately 50 ft at Location D. Fault A is working toward becoming a screw fault.

A screw fault is indicative of an incorrect fault interpretation. Figure 2 is the correct interpretation for the area mapped and is significantly different. The prospective areas are totally different.

A map with a recognized screw fault in an area of interest should be rejected until the problem can be resolved.

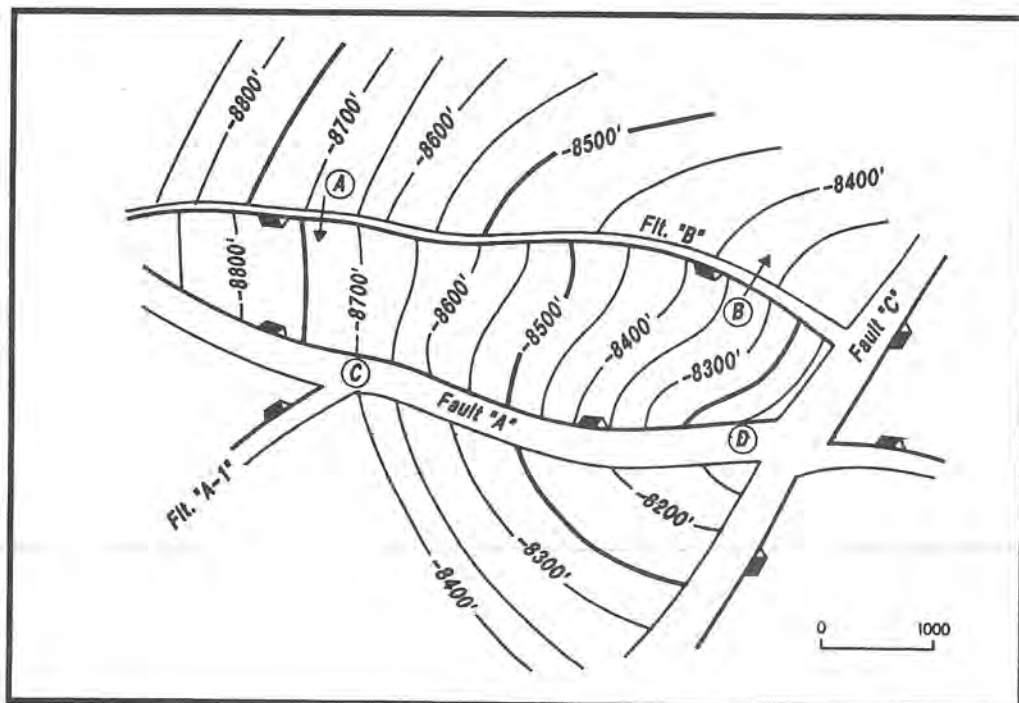


Figure 1

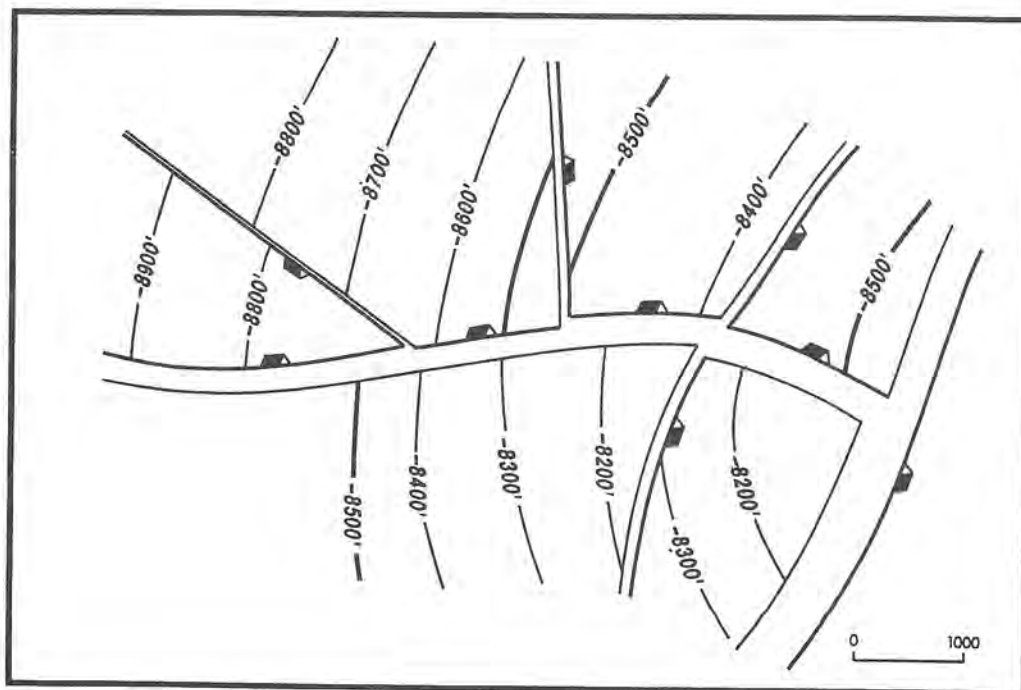


Figure 2

QUICK LOOK TECHNIQUES

Implied Fault Analysis On Structure Maps

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508

(318) 981-7496

Structure maps in faulted areas are often prepared without the use of fault surface maps (Tearpock and Bischke, 1991). Instead, isolated fault cut data from well logs or seismic lines are used to draw a fault trace on a completed structure map. If a prospect map you are reviewing has been prepared in this manner, there are two primary concerns regarding the map: (1) are the faults mapped correctly? and (2) are the fault traces positioned correctly? The position of fault traces on a completed structure map is directly related to five (5) factors: the amount of missing section or vertical separation, the strike and dip of the fault, and the strike and dip of the formation.

To check a completed structure map for accuracy we use a quick look technique called "Implied Fault Analysis". If an implied fault surface is geologically

unreasonable either with regard to fault dip or strike, it follows that the fault trace representation on a completed structure map will also be unreasonable. This may lead to the conclusion that the faults are not interpreted correctly or that the traces of the fault, are positioned incorrectly on the completed map. Either problem can greatly impact a prospect.

An implied fault surface map is constructed by recording where each structure contour, of a given elevation, intersects the fault trace on a completed structure map. Where the structure contour intersects the fault trace, the elevation of the fault surface is implied at that point. The elevation of the surface of the fault at each intersecting location is equal to the elevation of the intersecting structure contour.

Figure 1A is a two-dimensional map view of the top of a horizon. The map

shows two fault traces and a fault gap. On Figure 1A we see that at Point A the 7000-ft structure map contour in the downthrown block intersects the 7000-ft contour on the fault surface. The same contour on the fault surface intersects the 7000-ft structure map contour on the upthrown block at Point B. It is obvious from Figure 1B that the intersection of the structure contours with the fault surface contours of the same elevation define the position of the upthrown and downthrown fault traces. The upthrown and downthrown intersections also delineate the width of the fault gap (Fig. 1B).

Figure 2 shows a structure map in a faulted area. Let us apply Implied Fault Analysis to this map. In the south, the 4100-ft contour on the upthrown block can be connected to the 4100-ft contour in the downthrown block. Based on the implied fault analysis, the fault strikes

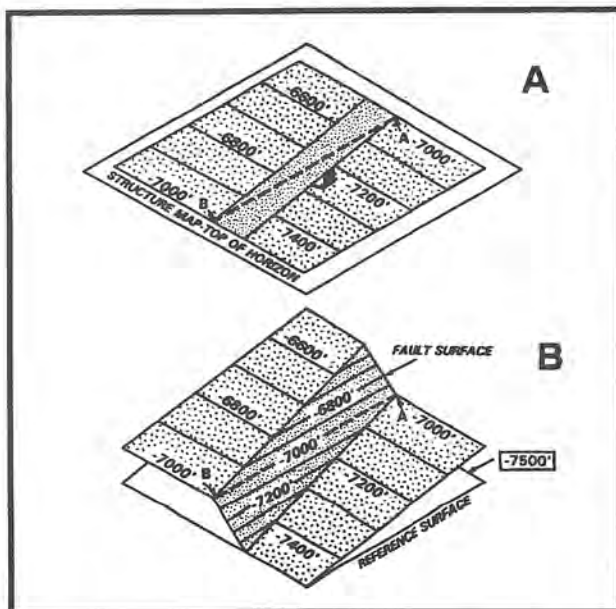


Figure 1

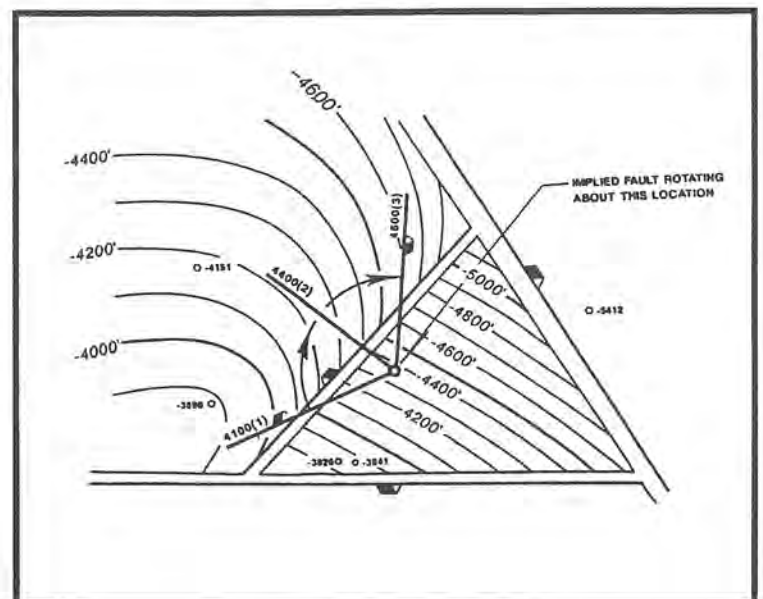


Figure 2

east-northeast and dips to the north-northwest. If the same method is applied to the 4400-ft contour in the central portion of the map the implied fault strike direction changes to the northwest. And in the north, if the 4600-ft upthrown and downthrown contours are connected, the same fault now strikes north-south and dips to the east. This fault is a Screw Fault as described in the April issue of the Houston Geological Society Bulletin. Therefore, the map is geologically impossible.

Figure 3 is an exercise for you to try. Can you justify the fault as presented on the structure map.

Implied fault analysis is a powerful Quick Look Technique (QLT) that can

be employed very rapidly to evaluate a fault on a completed structure map. The structure and fault surface contours of the same elevations must intersect at a point located on the fault trace. Simply connect the upthrown and downthrown points of equal elevation to construct the implied fault surface map. The use of this technique to check a fault interpretation on a completed structure map is a must when you know a fault surface map was not prepared and integrated with the final structure map.

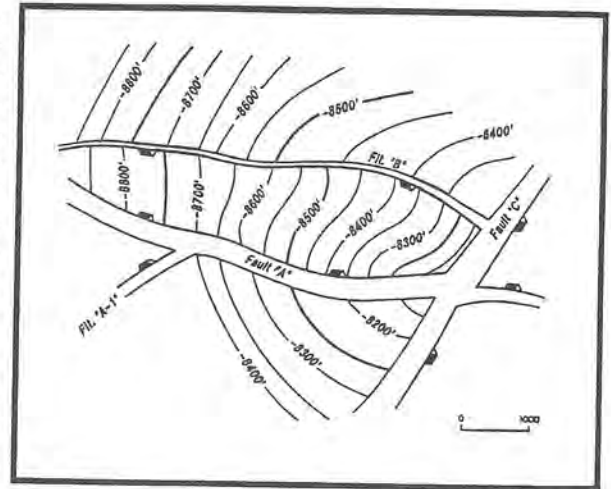


Figure 3

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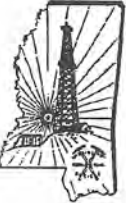
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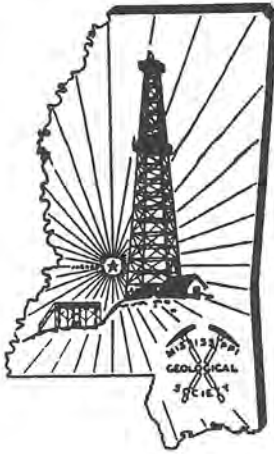
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MISSISSIPPI GEOLOGICAL SOCIETY

VOLUME XLIII

NUMBER 4

DECEMBER 1994

PRESIDENT'S LETTER

Dear Friends:

Thanksgiving. A wise man (who might well be reading this letter) once recounted his past to me. He acknowledged financial success had come at long last. As he continued, however, he reminded me that wealth is denominated in various units. Money is one. Family another. Health. Friends. A right relationship with God. It is wise, he said, to count the cost in other "wealth-units" before pursuing financial wealth. He reminded me that I am already quite wealthy. He was right. Thanks, friend, for reminding me. As the Holidays are upon us, please, take time out to count your blessings. And be thankful.

At the last meeting I asked for nominations to House of Delegates from our Society. AAPG informs me that we will have two positions open for the upcoming three year terms (1995-98). Delegates "are pledged to represent their affiliated Societies." Meetings for this term are in San Diego, Dallas, and Orlando. It is important that we be represented. The first requirement is that you be willing to attend the meetings. Historically the Society has helped in sending its Delegates. Because sometimes Delegates cannot attend due to scheduling conflicts, alternates are often asked to go in their place. We need volunteers for these two positions as well as Alternates. Candidates names must be submitted to AAPG by January 13th so they can send out ballots. Don't wait to think about who you might nominate. January is right around the corner.

For those not at last month's meeting you missed Les Aultman briefly discuss the upcoming Red Book Supplement. When Les calls you for help, please agree to help. This is an important ongoing MGS endeavor. I have received some encouragement in the undertaking of a

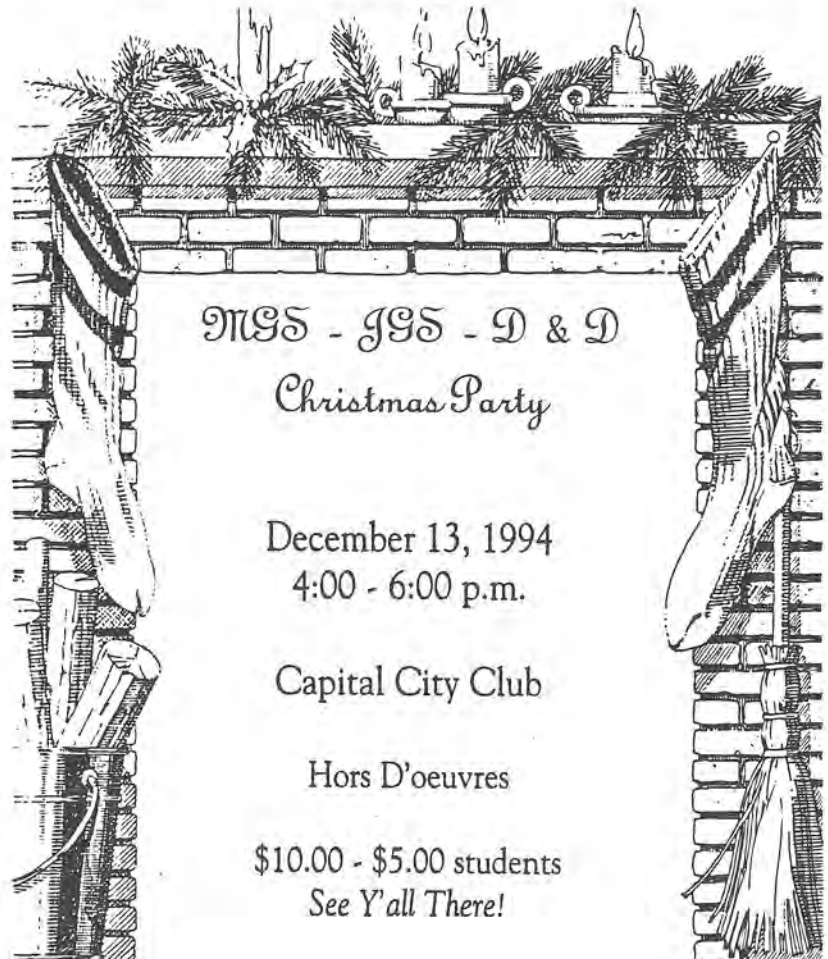
reservoir data atlas of fields in our area.

Finally, Jack Moody continues to provide excellent speakers for our noon luncheons. In December however, we will give Jack the month off for good (?) behavior. Our regular meeting will be our annual Christmas Social which we hold jointly with the Desk and Derrick Club and the Society of

Exploration Geophysicists. Each of the last several years has seen this function grow in popularity. Please plan to attend on Tuesday, December 13 from 4-6 p.m. at the Capital City (Petroleum) Club.

Until 1995, may you have a blessed holy-day season.

Sincerely, Neil



1994-95 DUES TO BE PAID

The following 1993-94 Society members have not yet paid their dues for 1994-95. It is important that you pay now in order to keep receiving the Bulletin and notices of meetings, as well as being kept on the annual membership list. (Otherwise, how can your friends keep track of your new address and phone number?)

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December 13, 1994

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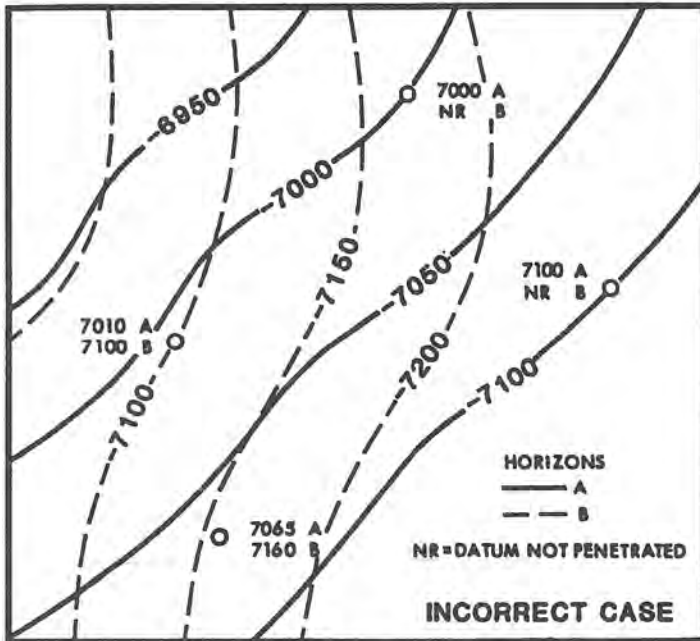


Figure 1

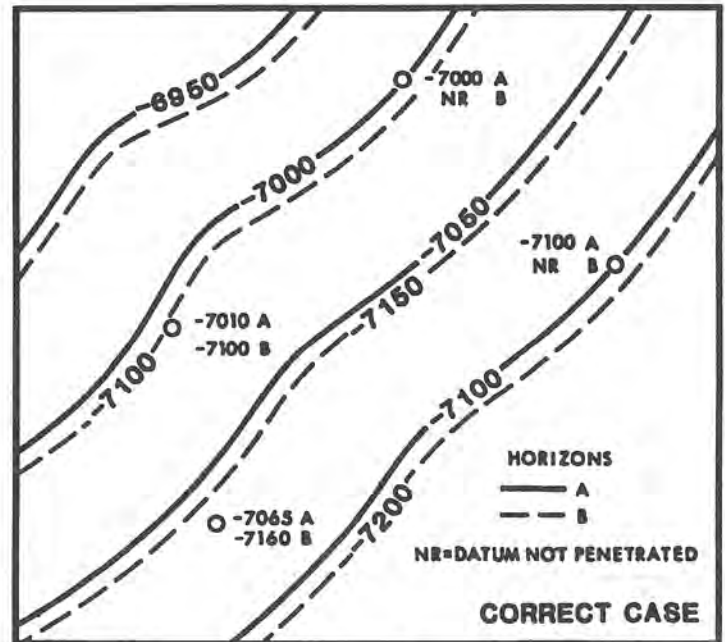


Figure 2

Structure maps on multiple horizons are often created without regard to the three dimensional validity of the interpretation as a whole. This can result in closely spaced structure maps that imply radical changes in strike, dip or thickness in very short intervals (Figure 1). The mapped horizons in Figure 1 are only 90-95 feet apart, but the -7100 foot contours on the two maps look like they may cross just south of the map. This would make the deeper horizon shallower than the shallow horizon. In areas of steep dip, structure maps that are hundreds of feet apart can be miscontoured so that separate horizons cross each other.

When reviewing maps, one excellent QLT is to overlay the maps and verify that any changes in structure are reasonable and compatible in three dimensions. In Figure 2, the closely spaced horizons have similar strikes and dips. In steeply dipping areas, a hand sketched cross section on the mapped horizons can quickly show contouring problems (Figure 3).

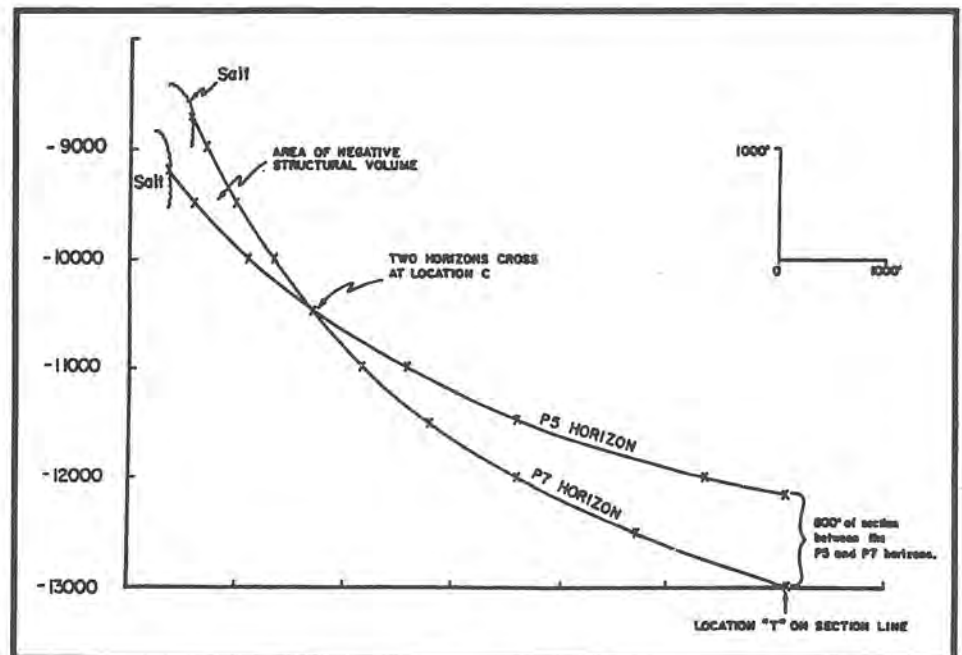


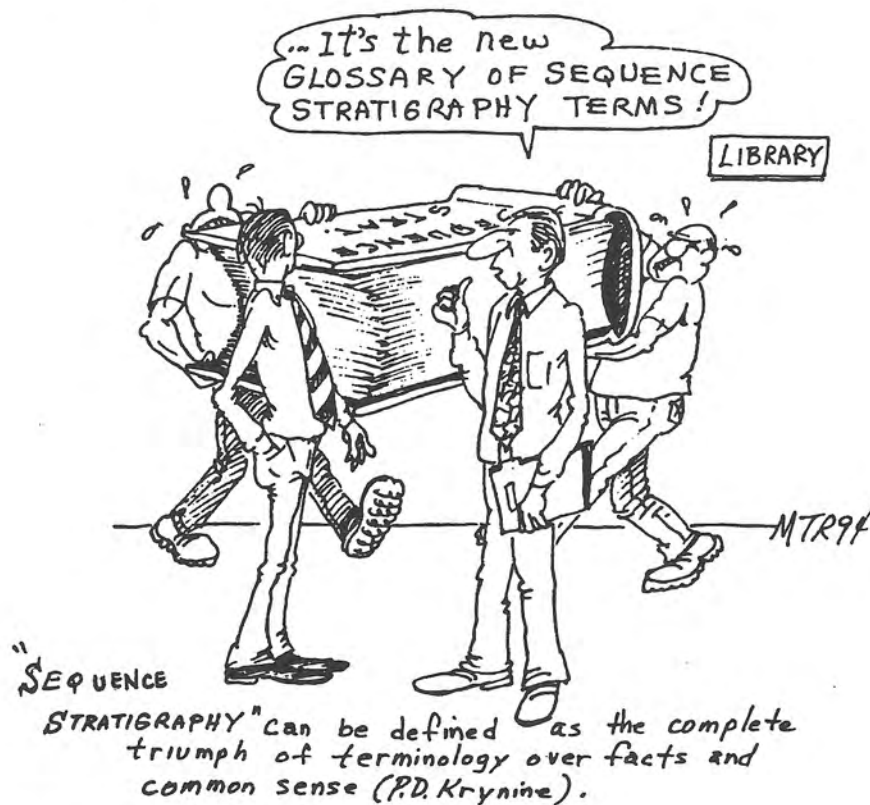
Figure 3



THE 1994-95 BOLAND SCHOLARSHIP WINNERS were recognized at the November Business Meeting. They are: (left to right) Barbara Bean, MSU; Bryan Ladner, USM; Heath Franklin, University of Mississippi; Scott Henderson, Millsaps. congratulations to a very deserving group.

Lipalian Studies

by Mike Roberts



QUICK LOOK TECHNIQUES

Equal-Spaced Contouring Method

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508

(318) 981-7496

One of the first Quick Look Techniques to apply when evaluating a prospect is the method used to contour the map (mechanical, equal-spaced, parallel or interpretive). Many prospect maps are prepared using an equal-spaced contouring method. Of all the contouring methods available (Bishop 1960; Tearpock and Bischke 1991), the equal-spaced method results in the most optimistic structural interpretation. This method assumes a slope of uniform dip over a general area mapped.

The use of the equal-spaced method often results in unrealistic structure maps (Figure 1) with highs looking like bubble shaped structures and lows portrayed as having sharp cusps. Compare the maps shown in Figures 2a and 2b. Figure 2a is a prospect map showing three proposed locations updip of existing wells. Notice that the map has been prepared using the equal-spaced contouring method which shows untested highs adjacent to existing wells (the elusive high that always escapes penetration of the drillbit).

Are the three prospective highs shown in Figure 2a real or the result of the mapping technique? Figure 2b is an alternate interpretation using the same

well data, but an interpretive contouring method which allows the mapper to incorporate his or her experience, understanding of the structural and depositional geology of the area, three dimensional geometry, imagination and skill to prepare a geologically reasonable interpretation. Notice that in Figure 2b, there is one, not three prospective locations.

No one can really develop a correct interpretation of the subsurface with the same accuracy as a topographic map. What is more important is to develop the most reasonable and realistic interpretation of the subsurface with the available data.

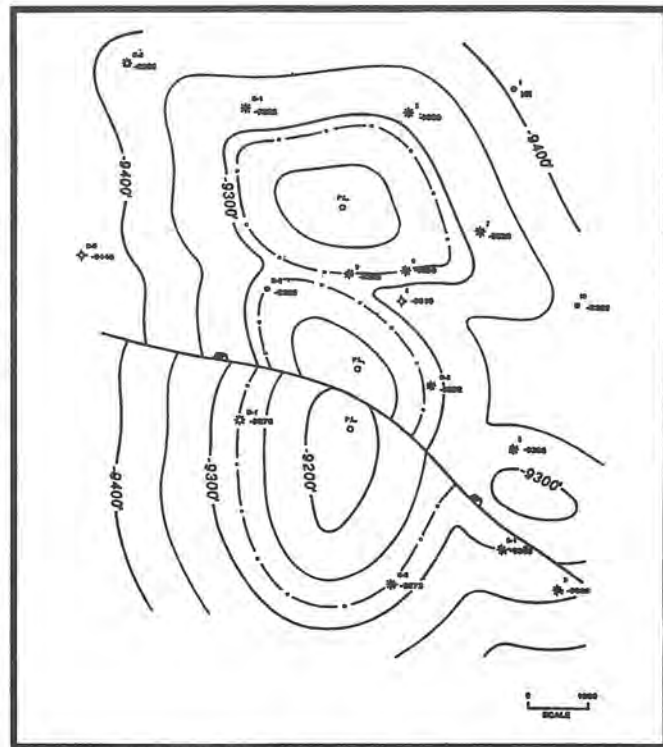


Figure 2a

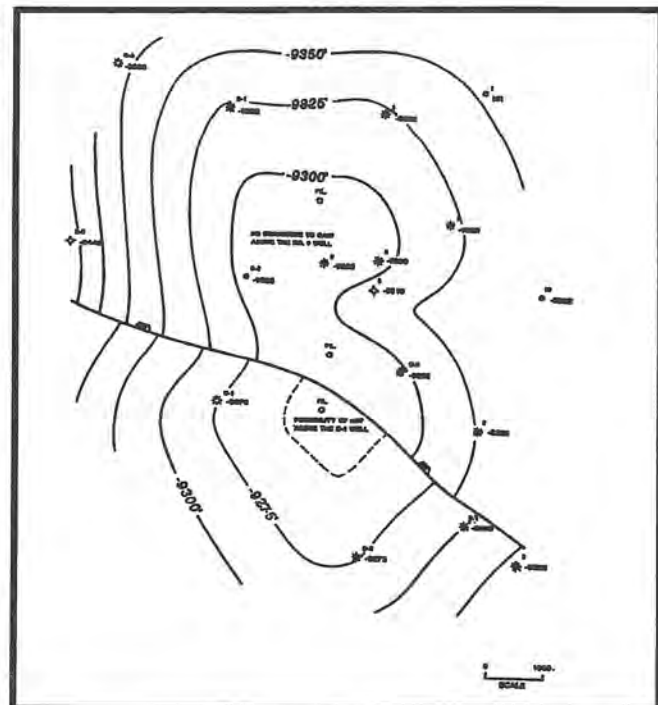


Figure 2b

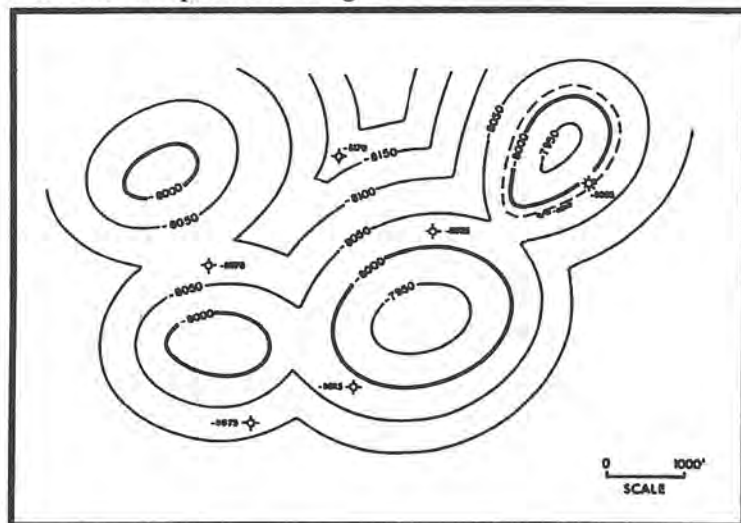
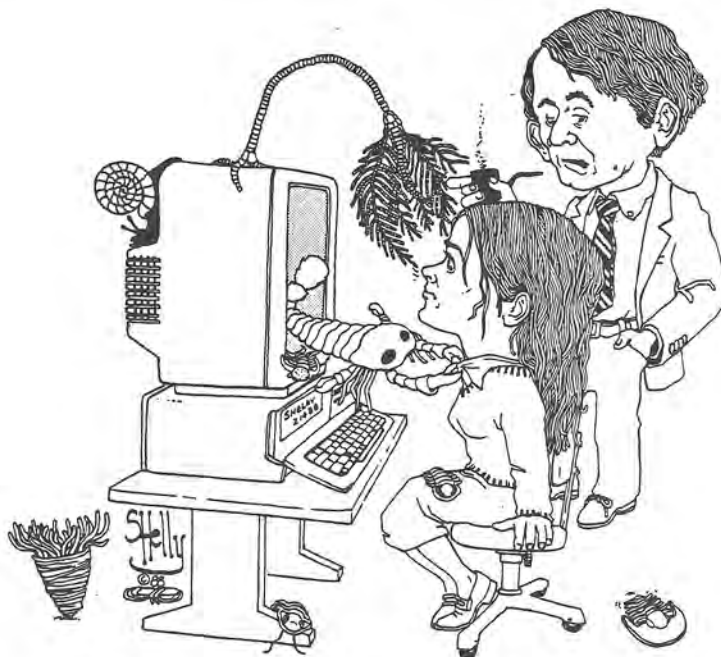


Figure 1



"I SAY, MS. FACKELMANN, THAT'S QUITE A REALISTIC SILURIAN SOFTWARE PACKAGE YOU'VE GOT THERE!"

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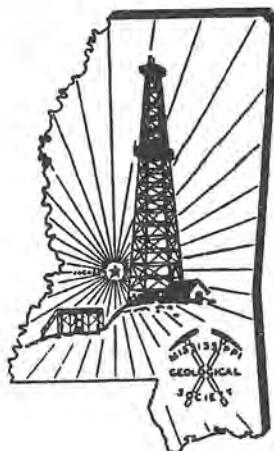
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MISSISSIPPI GEOLOGICAL SOCIETY

VOLUME XLIII

NUMBER 5

JANUARY 1995

PRESIDENT'S LETTER

Dear Friends;

Before we get too far into the new year's activity let's pause and talk about learning. Fear was a wonderful motivator for me to learn when I was in school. The good news about that kind of stress is it does stimulate the learning process. A lot of us have had the opportunity to be so stimulated in recent years.

I recently read the article "The Way They Learn" by Cynthia Ulrich Tobias (October 1995, Focus on the Family Magazine.) The article identifies two ways the mind perceives and two ways the mind orders that

which it has perceived. once understood, you're better able to understand how to effectively communicate with others (and finally understand why it's been so hard to communicate in the past.) People perceive either concretely or abstractly. The concrete perceiver is like Sergeant Friday, "The facts, ma'am, just the facts." The abstract perceiver looks under the facts for underlying issues. Once perceived, people either order process sequentially or randomly. The sequential processor starts at point A and step by step ends at point Z.

Each step is linked to the previous step. The random processor starts "at the beginning" and finishes at "The end". Often with no explanation of how they got there.

I am an abstract sequential learner. One of the "costs" of the sequential side is that I have often discounted random processors' conclusions because they could not explain how they arrived at that conclusion. BUT, as slow as I am, I can still learn...if forced to. God in His grace (and good humor!) has blessed me with a wonderful wife who is a Concrete Random

learner! We had been married for quite a few years before I finally accepted because of the overwhelming weight of empirical evidence that she was usually right even if it made no sense to me or she could not explain her answer. The point? Whichever type of learner you may be, and it will take extra effort in communication and patience, it is important to learn from the other types of learners. If you are fortunate, somewhere the evidence is so strong as to not allow you to miss the other person being right.

Continued on page 2

JANUARY MEETING

Just suppose you were a small independent who would like to make a living in the oil and gas business. Reason could dictate that you become as familiar as possible with the market forces that will press and push you to wherever you end up.

Anyone interested in hearing about the latest innovations in financing available for gas development and exploration? Yes, I did say exploration! Are there any survivors out there who would love to ride the next wave of success in the exploration business? Then you just might like to hear what William Lemmons of the Enron Corporation has to say at our January meeting. You are going to hear about price volatility and how that can be somewhat managed. Mr. Lemmons will spend a little time addressing some of the brighter aspects of future gas demand as related to power generation. Having

convinced his attentive audience that gas is good, that its price moves but can be moderated, and the future demand looks promising, he will address near and dear to all, how to arrange financing to go get those reserves

out of the ground. He will show how Enron is working with operators in the areas of development and exploration. He will also suggest what financing opportunities might be coming down the pike as one

considers the future demand and the very real limitations of such a small surviving industry.

I hope to see you there.
Jack Moody

WILLIAM R. LEMMONS, JR.

Director - Enron Capital & Trade Resources

Mr. Lemmons joined Enron in July 1992 as an Account Representative for Enron Capital & Trade Resources ("ECT"). As part of an ECT origination team, his responsibilities include the origination, structuring, and closing of financings for independent oil and gas companies. During the past two and a half years his team has successfully closed transactions involving volumetric production payments, net profits interests and development limited partnerships.

Prior to joining Enron, Mr. Lemmons was with Texas Oil & Gas Corporation. From May 1984 through July 1987 he worked for the company's TXO Production Corp. subsidiary where he held a variety of engineering-related positions in drilling, production, and acquisitions. From July 1987 through December 1988, Mr. Lemmons took a leave of absence to pursue his graduate business degree. After rejoining the company, he held positions in corporate planning, project development and gas supply with the Delhi Gas Pipeline Corp. subsidiary. In 1991, he was coordinator of the corporation's 1992 business plan and capital budget.

Mr. Lemmons graduated with a B.S. in Petroleum Engineering from Texas A&M University in May 1984, and is a Registered Professional Engineer in the state of Texas. He received his M.B.A from Texas A&M University in December 1988, and was elected to Phi Kappa Phi and Beta Gamma Sigma. He is a member of the Society of Petroleum Engineers and the Houston Producers Forum.

1994-95 DUES TO BE PAID

The following 1993-94 Society members have not yet paid their dues for 1994-95. It is important that you pay now in order to keep receiving the Bulletin and notices of meetings, as well as being kept on the annual membership list. (Otherwise, how can your friends keep track of your new address and phone number?)

Adams, Kenneth R.
Bowen, Christopher L.
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Bush, John D.
Calhoun, S. Pittman
Cameron, Christopher P.
Champlin, Charles D.
Chastain, David L.
Dickerson, Roger L.
Grice, Donna Hill

Heidke, Howard W.
Hersch, James B.
Holverson, John W.
James, Louis "Max"
Jeffreys, E. Geoffrey
Katzenmeyer, Fredrick L.
King, Stanley
Krotzer, Chris J.
Ladner, Hilton L.
Lasker, Arron

Laswell, Troy L.
Lee, Richard E.
Lybrand, Mike S.
Maliga, Jody V.
McCardle, Guy Daryl
Mixon, Beau A.
Musgrove, James W.
Niemi, William Jr.
Pace, Michael C.

Sticker, Edwin E.
Upchurch, E. Wayne
Walkinshaw, Steve
Warner, A. John
White, Harold Richard
Williams, R. Scott
Williamson, Shawn C.
Yoste, Jesse J.
Zirkle, Robert G.

PRESIDENT'S LETTER

Continued from page 1

What does all of this have to do with the Mississippi GEOLOGICAL Society? First, it was FUN for me to reflect upon. But more seriously, learning

must be an ongoing process (sequential or random!). As has been said, "the only sustainable competitive advantage is a company's ability to learn better and faster than its competitors". If you are enjoying success in a play at the present time I

challenge you with the question, "What are you going to do for an encore?" How are you going to find the next play? If you're too late in the current wave of plays, how are you going to get there first on the next one? Learning is a critical part of survival.

Next month I would like to challenge our industry's historic measurement of prospect economics. Be ready for a brawl!

Yours for fruitful learning,
Neil Barnes

BUSINESS MEETING LUNCHEON

11:30 A.M. JANUARY 10

Capitol City Club, Smackover Room

William R. Lemmons, Jr.

Enron Capital & Trade Resources

BUSINESS MEETING LUNCHEON SCHEDULE

1995

February 14

March 14

April 11

May 9

Spring Fling-May 11

Mississippi Geological Society – 1994-1995

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45TH ANNUAL CONVENTION OF THE GULF COAST ASSOCIATION FOR GEOLOGICAL SOCIETIES AND THE GULF COAST SECTION OF SEPM PLANNED OCTOBER 25-27, 1995

The 45th Annual Convention of the Gulf Coast Association of Geological Societies and the Gulf Coast Section of SEPM will be held in Baton Rouge Louisiana October 25-27, 1995.

TECHNICAL PROGRAM

The Theme of the meeting, "Gulf Coast Geology - A Global Resource" will be highlighted in a number of sessions. In addition to the standard GCAGS and GCS-SEPM sessions, we plan to have one environmental geology and a student session.

You are invited to submit abstracts for oral presentation, poster session, or core display. Suggested, but not exclusive, topical themes, together with the names and telephone numbers of persons who can be contacted for additional information are

1. Hydrocarbons (Energy)

- A. Technology and Transfer -
 1. 3D Seismic Studies
 2. Horizontal Drilling
 3. Subsalt Imaging
 4. Geochemical Prospecting
 5. New Approaches to Oil and Gas Exploration in Old and New Fields
 6. International Applications
 7. Reservoir Plays. Northern Gulf of Mexico
 8. Technology Transfer Methods
 9. Geopressure and Hydrocarbon Exploration

Ron Zimmerman - 504/388-8302

B. Case Studies -

Doug Cook - 713/961-8352

C. New Concepts -

1. Sedimentology
2. Geochemistry (e.g., diagenesis, prospecting, etc.)
3. Stratigraphy (e.g., sequence-biostratigraphy, etc.)
4. Structure
5. Modeling

Arnold Bouma - 504/388-6186

Don Goddard - 504/388-8503

D. Business and Economic Aspects -

1. Role of the Independent in the changing US and Foreign Industry

Bill Marsalis - 504/388-8385

II. Water

- A. Technology and Transfer -
 1. New Drilling Techniques
 2. Water Quality Testing
 3. Technology Transfer MethodsGeorge Cardwell - 504/766-0788

- B. Case Studies -
Ray Kazmann - 504/766-0694

- C. New Concepts and Modeling -
 1. Aquifer Architecture
 2. Geochemical InfluencesJeff Hanor - 504/388-3418

- D. Business and Economic Aspects -
Ray Kazmann 504/766-0694

III. Environment

- A. Technology and Transfer -
 1. Application of Hydrocarbon Technology (seismic, logging, drilling, etc..)
 2. Regulatory Management
 3. Remediation
 4. Assessment
 5. Technology Transfer MethodsBill Schramm-504/765-0585

- B. Case Studies -
Eric Myer- 504/922-4650

- C. New Concepts -
 1. Integrated Approaches
 2. Socio-Economic ConsiderationsRich Kiser- 504/765-0585

- D. Quaternary Studies -
Harry Roberts - 504/388-2964

IV. Student Session

In order to encourage student participation in GCAGS meetings and foster high-quality presentations by student scientists in a competitive but congenial environment. We intend to organize a special student session on Thursday (10/26/95). The session will consist of 20-minute oral presentations. Official judging will result in the award of three prizes.

Every student interested should complete the speaker data form and submit an abstract. A short paper (3 or 4 printed pages) will be required for each presentation. Details will be

provided with the acceptance letters. For information contact Barun Sen Gupta (e-mail: glbarun@lsuvm.sncc.lsu.edu) (504/388-5984) or Chad McCabe (504/388-2497) (Fax for both: 504/388-2302).

SUBMISSION OF ABSTRACTS AND MANUSCRIPTS

Abstracts and manuscripts must be prepared in accordance with provided guidelines. Three types of presentations will be on the program:

Oral presentations including Student presentations – the complete manuscript (max. 8 printed pages), or a short paper of 3 - 4 pages, including illustrations, will be published in the *Transactions*.

Poster presentations – a short paper with illustrations, not exceeding 4 printed pages, will be published in the *Transactions*.

Core displays – a short paper with black and white photographs; and/or other illustrations; not exceeding 4 printed pages, will be published in the *Transactions*.

Abstracts of 250 words or less must be submitted for any of the three types of presentations. Guidelines and an example are provided herein. An Editorial Board will evaluate acceptability based on geological significance, applicability, information content, and general interest.

Initial acceptance will be based on the abstracts. The editor has the right to refuse a manuscript if it is not up to acceptable standards.

SUBMITTAL DEADLINES

Abstracts should be submitted no later than **January 17, 1995** to:

Arnold H. Bouma,
Program Chairman
1995 GCAGS / GCSSEPM
Convention
Dept. of Geology & Geophysics
Louisiana State University
Corner Tower and Stadium
(for express mail)
Baton Rouge, LA 70803-4101
Fax (for information only) 504/388-2302

Written notification of acceptance; will be sent by **February 17, 1995**.

Final manuscripts (including short papers) will be required by **April 20**. A Review Board will evaluate manuscripts for technical content and format. Manuscripts will be returned to the authors for revision and final submittal.

Final revised manuscripts will be due by **June 9, 1995**.

ORAL AND POSTER/CORE SESSIONS

Each speaker will be allowed 20 minutes for oral presentations. Two standard 35 mm slide projectors, two screens, a lighted podium, and a pointer will be provided. Please prepare slides per AAPG guidelines.

A slide preview room will be available. A speakers kit will be sent to authors prior to the meeting. Full manuscripts or short papers will be required for all oral presentations.

Each poster or core presentation will be provided with a three-panel poster booth.

ABSTRACT FORMAT

The abstract is a very important part of the final document. It should (1) support the short title and cover the general purpose of the contribution, (2) advertise the topic to the reader, (3) briefly introduce the topic, and (4) report the main conclusions.

Each abstract must be submitted camera-ready according to the guidelines printed in the "sample

abstract". Accepted abstracts will appear in the AAPG Bulletin as submitted. Corrections for these cannot be made after submittal.

Abstracts and Author Data Sheets must be mailed unfolded before January 17, 1995 to the GCAGS Program Chairman. Faxes will not be accepted. The contact person on the Author Data Sheet will receive all mail, including the reviewed manuscripts.

We request that all authors fully cooperate with the editorial team in order to keep the cost of typesetting, layout, etc., within our budget. We can return submitted material only once.

1995 GCAGS - GCSSEPM CONVENTION AUTHOR DATA SHEET

Submit Before January 17, 1995. Together With Abstract To GCAGS Program Chairman

Contact Person (family name first): _____ Office Telephone: (Area Code) _____
 Affiliation (employer): _____ Office Fax: (Area Code) _____
 Complete mailing address (incl. affiliation): _____

 Author(s) (family name first): _____
 Affiliation (employer) of each author, incl. City & State: _____

 Place an asterisk * behind the family name of the speaker if it is not the first person listed
 Title of Abstract: _____

For: Oral Poster Core Student Session
 Would you consider a change of presentation type if necessary? Yes No
 If you have a preference or suggestion indicate the session the oral presentation should fall under (letter and number): _____

SAMPLE ABSTRACT AND INSTRUCTIONS

GOULD, PETER N., The University of Houston, Houston, TX; and WANLO, JOHN P., Jr., Amoco Producing Company, Houston, TX

Guidelines and Example of a Camera-Ready Abstract for the 1995 GCAGS - GCSSEPM Annual Convention

Your abstract should not be longer than 250 words, the width should be 5 3/4 inches to fit a box 6 inches wide. The height, including author names and title of the abstract, should not exceed 5 1/2 inches. Your abstract will appear EXACTLY the way it is submitted. If it does not conform to the instructions, it cannot be accepted. No illustrations, abbreviations or references will be permitted. DO NOT draw the outline of this field unless very light blue is used. Center the abstract on high-quality white paper. Submit it, together with the Author Data Sheet to the GCAGS Program Chairman. It must be mailed flat (not folded). Faxes are not acceptable.

Capitalize the family name, first name and initial (or initial and middle name). Give affiliation and city of employment. If the first author is not the speaker, place an asterisk (*) after the speaker's name.

Skip a line to start the title. It should be typed in upper and lower case (see lines 3 and 4 of these instructions). Skip another line and start the abstract. Indent 3 spaces of each line of a new paragraph. DO NOT justify the right hand margin. The body of the abstract is to be single spaced. Abstracts will be reduced to fit the publication, therefore use 10 point type to ensure clarity of the final printed version. (Times or a similar serif font is recommended).

You will receive special guidelines for the preparation of the manuscript that will be printed in the Transactions. It is not necessary to have the abstract that accompanies the final manuscript precisely the same as the one originally submitted. Some rewording is acceptable.

Do not draw this outline unless very light blue is used.

NOTE: This outline not to true scale for the MGS Bulletin

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The prospect map in Figure 1 was drawn without taking into account the restored tops for wells near the fault. The control for this interpretation is primarily downdip from the crest of the structure. In Figure 1, two drilling locations were proposed - one in the upthrown and the other in the downthrown fault block. The faulted out wells are the only wells that can provide additional data near the fault for the preparation of the map. Figure 2 was drawn after restoring the tops for those wells.

Notice that the interpretation changes significantly with the restored tops for Wells Nos. 3 and 11. The reserves for Reservoir C-3 are reduced by 46 percent and the reserves for Reservoir C-5 are reduced by 42 percent. In addition, the proposed well for Reservoir C-5 will be a dry hole.

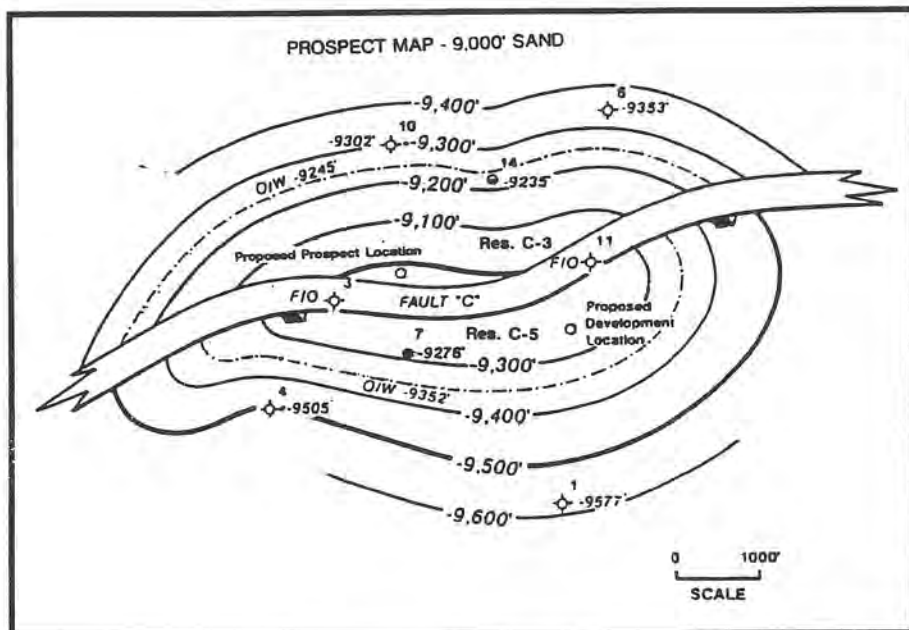


Figure 1

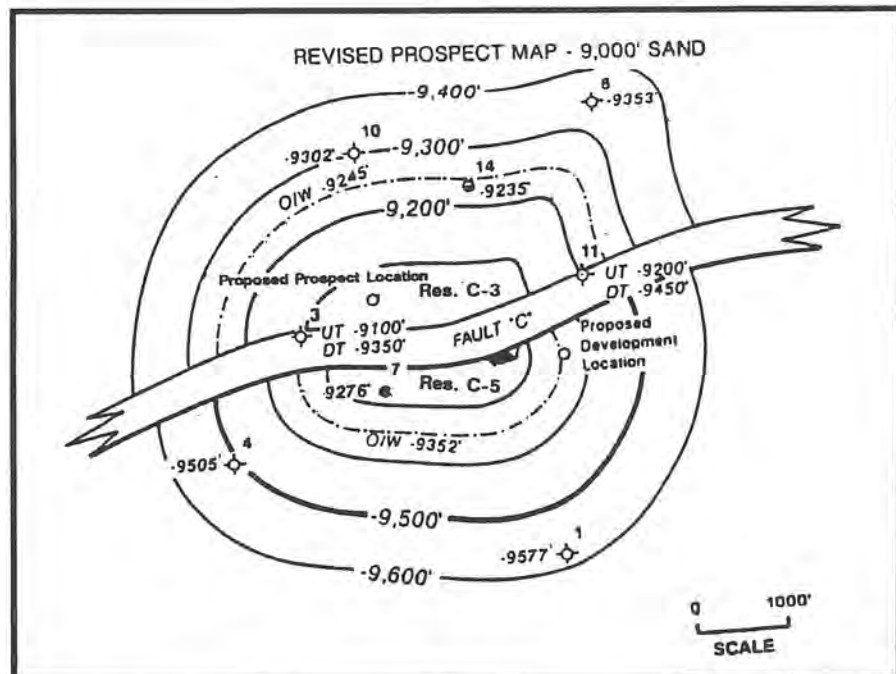


Figure 2

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November 28, 1994

Mr. Stanley C. Thieling
129 Firecrest Drive
Brandon, Mississippi 39042

Re: Mississippi Geological Society

Dear Mr. Thieling:

This firm represents Union Oil Company of California.

At its April 1993 meeting, the Mississippi Geological Society had, as speakers, representatives of the law firm of Pearson & Olsen, P.C. of Houston, Texas. Their presentation, entitled "Theft of Geological Concepts," was based on the outcome, at the trial level, of a lawsuit styled "Dickinson Resources, Inc. v. Union Oil Company of California, et al."

That suit has now made its way through the Fourteenth Court of Appeals in Texas. The appellate court reversed the verdict reached in the trial court and entered judgment in favor of Union Oil Company of California, et al.

We are enclosing a copy of the Court's decision as further enlightenment to the members of the Mississippi Geological Society regarding the subject of "Theft of Geological Concepts." We would appreciate your causing it to be distributed.

Kindest regards,

Yours very truly,

THOMPSON, ALEXANDER & CREWS


Mary Ann Parks

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Enclosure

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VOLUME XLIII

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FEBRUARY 1995

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PRESIDENT'S LETTER

As I threatened last month, I will begin to share my opinion about traditional prospect economics. What I hope to accomplish by sharing them is to stimulate healthy discussion so we can all learn something useful. This discussion could be long and excruciatingly cumbersome. And those who know me might offer that I am inclined in that direction. I will attempt to pick only key points. If you believe I am being too simplistic, I am. If you want "cumbersome and realistic", let's talk. I'll begin with the big picture" this month."

RISK - WHO KNOWS AND WHO CARES?

Prospect generating geologists/geophysicists have two primary roles in the economic discovery and development of oil and gas.

Coordinating Committee

The Engineering / Environmental coordinating committee will meet on a bi-monthly basis beginning March 21. Meetings will be held on the 3rd Tuesday of the month at the Department of Environmental Quality Commission Hearing Room, Highway 80 and Ellis Avenue, Jackson, MS at 11:45 a.m.

Obviously, they must generate attractive prospects. Secondly, and equally important, the Generator should provide the capital investor with a fair and accurate description of the risks as well as potential of each investment opportunity. No one should know the risks of a prospect better than the generator. Who knows? - The Generator knows.

Investors should care and be influenced by the risks inherent in each investment opportunity. If an investor

chooses to remain ignorant of the risks or chooses to ignore them, he is gambling and not making prudent business decisions. He is certainly free to gamble this way but put his SIC code under gaming, not oil and gas production.

In today's business climate the economic watchword is "increase productivity". This is the rationale for everything from automation to downsizing. Several years ago I read about the results of "many" waterflood projects in

the U.K. North Sea. Capital cost overruns averaged 95%. Operation and maintenance costs averaged 140% higher than expected. First production was 1-3 years behind schedule. And the production plateau was only 65% of the expected. Results like that over "many projects strongly suggest that there was a pattern of underestimation of significant risks.

What happens when

continued on page 10

THE PETROLEUM GEOLOGY OF INDEPENDENCE FIELD (FRIO) WILKINSON AND AMITE COUNTIES, SOUTHWESTERN MISSISSIPPI

by STEPHEN D. CHAMPLIN

Through the spring and summer of 1994, the most active oil and gas trend in Mississippi for drilling and completing wells was the shallow Frio gas trend of southwestern Mississippi. The largest field in the trend is Independence Field which is located in Wilkinson and Amite counties. Discovered in 1988 by Arkla Exploration Company, the field (actually a group of nine small gas producing areas) has produced over 8.5 billion cubic feet of gas, as of 12/31/93, from ten different Frio sands between 2830 feet and 4044 feet in depth.

The Frio at Independence Field is Upper Oligocene in age and consists of between 1200 feet and 1300 feet of alternating sands, shales

and siltstones. Porosities, and permeabilities are generally very high with porosities up to 35% and permeabilities often measured in darcies. Depositional environments are believed to be shallow marine to deltaic and possibly alluvial.

The field was discovered when Arkla Exploration Company decided to test shallow seismic amplitude anomalies or "bright spots" seen on their seismic data in the area. Twenty-one of twenty-eight wells drilled by Arkla in Independence Field were completed as gas wells.

Structure at the base of the Frio is monoclonal dip of approximately 100 feet per mile to the south-southwest. More complex structural

nosing and closure can be mapped in the shallower Frio section. These features are a result of differential compaction when the thick Basal Frio Sand shales-out laterally. These compaction features have a direct influence in the trapping of gas in the shallower Frio, primarily by a combination of these structures and the stratigraphic changes seen in the Frio sands draped across these features.

Cumulative gas production data for the field is reviewed on a per well completion basis and for each producing sand. Additionally, a quick look at basic drilling / completion costs and economics are provided.

Morton M. Phillips

Morton M. Phillips, 64, of Highland Terrace, a retired businessman, died of lung cancer Saturday, January 7 at St. Dominic / Jackson Memorial Hospital.

Services were held at Ford-Wulf-Bruns Funeral Home/Edgewood in Coffeyville, Kan., with burial in Restlawn Memorial Park in Coffeyville. Memorial services will be held later in Jackson.

Mr. Phillips, a Coffeyville native, attended public schools there and graduated from Coffeyville Community Junior College. He graduated from Tulsa

University in 1952 with a degree in geology and went to work for Gulf Oil Co. He was a Korean War Army veteran. After his military discharge, he returned to work for Gulf. After several years, he established his own independent exploration and drilling company in Jackson. He retired in the mid 1980's.

Mr. Phillips was a member of Beth Israel Congregation and B'nai B'rith. He was a member of the American Association of Petroleum Geologists, the Associates Having Oil Leasing Experience Society and the Capital City

Petroleum Club.

Survivors include: wife, Effie; daughter, Jodie Phillips Robinson of Metairie, La.; and brothers, Leland Phillips and Larry Phillips, both of Coffeyville.

Memorials may be made to the American Heart Association, Mississippi Affiliate, P.O. Box 16808, Jackson, MS 39236, or the American Cancer Society, Mississippi Division, 1380 Livingston Lane, Jackson, MS 39213.

PETROLEUM TECHNOLOGY OF THE WORLD CONVENTION TO BE HELD

"Petroleum Technology of the World," the 1995 AAPG Annual Convention, will be held in Houston, Texas, March 5-8, hosted by the Houston Geological Society along with SEPM.

This year's program includes approximately 600 papers in technical and poster sessions, and offers you an excellent opportunity to acquire up-to-date information on our ever-changing

industry. The annual meeting of AAPG's Divisions -- EMD, DPA, and DEG will be held in conjunction with the meeting.

BUSINESS MEETING LUNCHEON

11:30 A.M. FEBRUARY 14

Capitol City Club, Smackover Room

Stephen D. Champlin

Mississippi Office of Geology

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1995

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"CORE PARTY" planned

As many of you are aware, the Mississippi Office of Geology operates the largest core and sample storage facility in the state. The staff has been engaged in an ongoing effort to get operators to contribute to the collection, especially cores. We are also interested in developing useable data from this resource. To that end, there will be two ongoing efforts regarding the cores. The first will be that staff members will begin describing these cores and producing digital files for each core. This long term project will enable interested parties to obtain printed or digital core descriptions. The second effort will be a periodic core display at the North West Street facility. This was a suggestion that Vaughn Watkins made at one of the MGS luncheons

this year, and it seems like a good idea. The Office of Geology will host the first such "Core Party" on February 21, 1995, from 3 P.M. to 5 P.M. If cores can be classified as exciting, you'll love this one. It is the Pan Am #1 USA Rubie Bell, in section 18-T5N-R8E, Scott County. This well was continuously cored for 945 feet, beginning in the Haynesville and ending in the Smackover. With all the Haynesville production in Mississippi and Alabama, I think everyone will enjoy seeing this core. We hope that with your help this activity can be enjoyable and informative to the geologic community.

Hope to see you there! - Jack Moody

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continued from pg. 3

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VICKSBURG, MS 39180
USM/BS-MS

HARRIS, JIM B.
MIDROC OPERATING CO.
333 TEXAS ST., STE. 1414
SHREVEPORT, LA 71101-3679
318/221-6201

HAYMANS III, GEORGE STOUTON
TRI-QUEST RESOURCES, INC.
P.O. BOX 848
NATCHEZ, MS 39121
601/445-5868
MILLSAPS/BS

HEFFNER, RICHARD E.
ATWATER CONSULTANTS LTD.
318 CAMP STREET
504/581-6527
NEW ORLEANS, LA 70130
1 TENNYSON PLACE
NEW ORLEANS, LA 70131
504/392-7622
LA TECH-WY-CENTENARY/
GEOL/BS

HENDERSON, JACK
JACK HENDERSON CONSLT. CO.
43 CROSSWOODS ROAD
BRANDON, MS 39042
601/825-7116

HENDERSON, SCOTT D.
STUDENT
MILLSAPS COLLEGE
1701 N. STATE STREET
JACKSON, MS 39210
601/974-1340
1506 SHERMAN AVENUE
JACKSON, MS 39211
601/956-5900

MOON & HINES

1804 Capital Towers
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MORTON M. PHILLIPS, *Petroleum Geologist*

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Jackson, MS 39236-3865
(601) 355-3364 or (601) 366-9660

WILBUR H. KNIGHT, *Consulting Geologist*

L100B Capital Towers
Jackson, MS 39201
(601) 355-1528

H. VAUGHAN WATKINS, JR., *Oil & Gas Exploration*

1710 Capital Towers
Jackson, MS 39201
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JAMES B. FURRH, JR., INC., *Oil & Gas Exploration*

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(601) 948-7242 Fax (601) 948-7249

COPELAND, COOK, TAYLOR & BUSH

125 S. Congress, Suite 1700
Jackson, MS 39201
(601) 354-0123

MORROW OIL & GAS CO.

1330 Capital Towers
Jackson, MS 39201

PARAMOUNT
PETROLEUM CO., INC.
a Subsidiary of Nuevo Energy Company


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Jackson, Mississippi 39201
(601) 988-9100

1221 Lamar, Suite 1800
Houston, Texas 77010-3039
(713) 850-1248

BRUXOIL, INC.

DAVID K. BROOKS - PRESIDENT
JOE C. BRADLEY - GEOLOGIST
DOROTHY JAUBERT, COMPTROLLER

4735 Old Canton Road
Jackson, MS 39211
(601) 981-5722
FAX: (601) 366-9490



1995 DIRECTORY *continued from page 5*

HERLIHY, DANIEL E.
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P.O. BOX 5086
JACKSON, MS 39296
601/366-8806
250 RIDGE DRIVE
JACKSON, MS 39216
601/981-1507
GA TECH/CIV ENG/BS

HEWITT, C. REX
P.O. BOX 4530
JACKSON, MS 39295-4530
601/982-0737
NM/GEOL/BS

HOLMAN, BERNARD A.
INDEPENDENT
P.O. BOX 4672
JACKSON, MS 39296-4672
601/948-2056
NM/CIEM/BS-MA

HOLVERSON, JOHN W
LOCATION SAMPLE SERVICE
135 OLD FANNIN ROAD
BRANDON, MS 39042
601/992-1104
107 WILDWOOD CT.
BRANDON, MS 39042
601/992-0386

HINES, RALPH TODD
MOON & HINES
125 S. CONGRESS, STE. 1804
JACKSON, MS 39201-3381
601/944-4700
MILLSAPS/GEOL/BS

HINES, ERWIN RALPH
MOON & HINES
125 S. CONGRESS, STE. 1804
JACKSON, MS 39201-3381
601/944-4700
TX TECH/PETR GEOL/BS

HOLLINGSWORTH, EDWARD "ED"
MOON & HINES
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JACKSON, MS 39201
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AL/GEOL/BS

HORTON, SIMEON KING
INDEPENDENT
2140 E. TEXAS STREET
BOSSIER CITY, LA 71111
318/742-7733
USM/GEOL/BS

HOWARD, RALPH
INDEPENDENT
2445 N. CHERYL DRIVE
JACKSON, MS 39211
601/366-7144
TCU/GEOL/BA

HUGHES, DUDLEY
HUGHES-RAWLS CORPORATION
SECURITY CENTER S., STE. 800
JACKSON, MS 39201
601/969-7474
4050 CRANE BOULEVARD
JACKSON, MS 39216
601/981-2246
TX A&M/GEOL/BS
XX HONORARY LIFE MEMBER XX

INGRAM, STEPHEN L., SR.
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JACKSON, MS 39289-1307
601/354-6328
4228 HANOVER PLACE
JACKSON, MS 39211
601/981-5534
MILLSAPS/GEOL/BS

JACKSON, ALAN
CONSULTING GEOLOGIST
503 MANDALAY DRIVE
HATTIESBURG, MS 39402
601/264-9755
LSU/GEOL/BS-MS

JACKSON, ROBERT L.
R. L. JACKSON ASSOC., INC.
7127 BOB O LINK DRIVE
DALLAS, TX 75214
214/827-9822
ST LOUIS-AR/PETR GEOL

JACOBS, ROBERT ROSS
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JACKSON, MS 39236
601/362-4846
2332 E. NORTHSIDE DR.
JACKSON, MS 39211
601/366-0579
MI ST/GEOL/BS

JENNINGS, STEPHEN P.
117 BENTLEY DRIVE
BRANDON, MS 39042
601/825-4622
VA POLY INST-KY-MS/GEOL/BS-MS

JENSEN, ERIC B.
SEISMIC OIL CO.
P.O. BOX 31158
JACKSON, MS 39206
601/362-5827
376 REED AVE.
JACKSON, MS 39206
NOTRE DAME/GEOL

JINKINS, RON
D & D EXPLORATION
P.O. BOX 1028
NATCHEZ, MS 39120
318/442-5820
7 SUN COURT
NATCHEZ, MS 39120
601/446-8818
AL/GEOL/MS

JOHNSON, LARS
570 LAKE CAVALIER ROAD
JACKSON, MS 39213
601/856-711G
TX A&M/BS-MS

KARGES, HAROLD E.
CONSULTANT
P.O. BOX 1635
JACKSON, MS 39215
601/352-0972
22 CLUB OAKS CIRCLE
PEARL, MS 39208
TCU/GEOL/BS

KAUFMANN, KARL J.
VALIOSO PETROLEUM
106 SOUTH PRESIDENT ST.
JACKSON, MS 39201
601/352-3501
360 WICKLOW COVE
JACKSON, MS 39208
601/992-2027

KEBERT, DEAN
KEBERT ENERGY, INC.
234 E. CAPITOL ST. ROOM 302
JACKSON, MS 39201
601/353-3761
9 DOGWOOD HILL DRIVE
JACKSON, MS 39211
601/957-8511

KEMP, PETER E.
2474 N. CHERYL DR.
JACKSON, MS 39211
601/362-0248
USM-TN/GEOL/BS-MS

KENDRICK, F. "ED"
LOG ANALYST
5403 RIDGEWOOD ROAD
JACKSON, MS 39211
601/977-5232
5403 RIDGEWOOD RD
JACKSON MS 39211
601/956-1783

KNIGHT, WILBUR H.
CONSULTING GEOLOGIST
L-100 B, CAPITAL TOWERS
JACKSON, MS 39201
601/355-1528
2030 SOUTHWOOD ROAD
JACKSON, MS 39211
601/366-5432
WY/GEOL/BA-MA
XX HONORARY LIFE MEMBER XX

KNOX, S. CRAGIN
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JACKSON, MS 39289-1307
601/961-5501
4028 REDWING AVENUE
JACKSON, MS 39216
601/981-4698
MILLSAPS-MS/BS(GEOL-MATH)/MS
GEOL

LASTER, ARRON
LOCATION SAMPLE SERVICE
135 OLD FANNIN ROAD
BRANDON, MS 39042
601/992/1104
744 W. POPLAR BLVD.
JACKSON, MS 39202
601/352/9808
MSU/GEOL/BS

LEWAND, RAY
LEWEXCO, INC.
317 E. CAPITOL ST., STE 103
JACKSON, MS 39201
601/949-3181

LITTLE, DAVID
CALLON PETROLEUM COMPANY
200 NORTH CANAL STREET
NATCHEZ, MS 39121
601/442-1601
201 N. TEMPLE ROAD
NATCHEZ, MS 39120
601/446-5085
USM/GEOL/BS

LYONS, TIM H.
VICTOR P. SMITH
P.O. BOX 6177
JACKSON, MS 39208
601/932-2223
5325 KAYWOOD DRIVE
JACKSON, MS 39211
601/957-6483
MSU-USL/GEOL/BS

MAGEE, KEN R.
SPOONER PETROLEUM CO.
210 E. CAPITOL ST., STE. 956
JACKSON, MS 39201
601/969-1831
5495 BRIARFIELD ROAD
JACKSON, MS 39211
601/956-6536
MSU/MECH ENG/BS

MALIN, WILLIAM J.
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1515 POYDRAS STREET
NEW ORLEANS, LA 70112
5524 SUTTON PLACE
NEW ORLEANS, LA 70131
504/581-3424
MI/GEOL

LAYMAN, DEE W.
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601/354-7898
323 SUNDIAL ROAD
MADISON, MS 39110
TCU/GEOL/BA

MALLORY, MICHAEL J.
U.S. GEOLOGICAL SURVEY
100 W. CAPITOL, STE. 710
JACKSON, MS 39269
601/965-4600
253 MAGNOLIA TR.
BRANDON, MS 39042
601/992-9831
BROWN-VANDERBILT/GEOL

MARBLE, JOHN C.
MISS. OFFICE OF GEOLOGY
2525 N. WEST STREET
JACKSON, MS 39216
601/354-6328
4283 KIMBELL RD.
TERRY, MS 39170
601/371-0174
MSU/GEOL/BS

MAYFIELD, BEN D.
HALLIBURTON LOGGING
SERVICES
217 W. CAPITOL STREET
JACKSON, MS 39201
601/352-7923
DEVRY TECH/ELECTRONICS

McCARDLE, GUY DARYL
LOCATION SAMPLE SERVICE
135 OLD FANNIN ROAD
BRANDON, MS 39042
601/992-1104
601/856-3631
TX A & M/GEOL./BS

McDUFF, JOE H.
McDUFF EXPLORATION
12812 COURSEY BLVD., STE. B-1
BATON ROUGE, LA 70816
504/751-7900
6046 ARBORWOOD CT.
BATON ROUGE, LA 70817
USL/GEOL/BS

McELROY, JAMES R.
CONSULTANT
106 REDBUD TRAIL
BRANDON, MS 39042
601/992-9943
CO/GEOL/BA-MS

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JACKSON, MS
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JACKSON, MS 39205
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1441 ROSWELL DRIVE
JACKSON, MS
601/366-6240
LSU/GEOL

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HATTIESBURG, MS 39406
601/266-4525
SUNY-FL ST-HA/GEOL/BS-MS-PhD

MILLER, DAVID W.
INDEPENDENT
974 E. FORTIFICATION STREET
JACKSON, MS 39202
601/969-1160
MSU/GEOL/BS

MILLER, DEAN M.
ENERGY THREE, INC.
P.O. BOX 1387
JACKSON, MS 39215
601/969-4122
231 ASHCOT CIRCLE
JACKSON, MISS 39211
601/362-3593
KS/GEOL

MOHON, ANNETTE LESHE
DALE EXPLORATION CO.
29 CEDAR LANE
NATCHEZ, MS 39120
601/442-2974
1039 CEDAR LANE
NATCHEZ, MS 39120
601/442-2974
MILLSAPS/GEOL/BS

MONSOUR, EMIL
360 COMET DRIVE, STE. B
JACKSON, MS 39206
601/366-8802
1448 DOUGLAS DRIVE
JACKSON, MS 39211
601/366-1596
XX HONORARY LIFE MEMBER XX

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P.O. BOX 20307
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601/961-5522
STAR RT., BOX 122A
BRAXTON, MS 39044
601/847-4353
E CAROLINA-LSU/GEOL/BS

MOORE, WILLIAM H.
1902 SCENIC DR.
BRANDON, MS 39042
MILLSAPS-EMORY/GEOL/BS-MS
XX HONORARY LIFE MEMBER XX

MORROW, WILLIAM E.
MORROW OIL & GAS CO.
P.O. BOX 1368
JACKSON, MS 39205
601/355-4523
VANDERBILT/GEOL

MYERS, JOHN D.
INDEPENDENT GEOLOGIST
625-B LAKELAND EAST DR.
JACKSON, MS 39208
601/939-8151
101 RIVERBEND
BRANDON, MS 39042
601/825-3376
MSU/GEOL/BS-MS

MYERS, M. D.
EXPLORATION, INC.
P.O. BOX 955
RIDGELAND MS 39157
601/956-5052
49 WINTERGEEN
MADISON, MS 39110
601/856-3423
WICHITA ST/GEOL/BA

NIX JAMES M.
JONES AND NIX
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NOONE, MICHAEL ALAN
318 ROLLINGWOOD
JACKSON, MS 39211
601/956-5434
MILLSAPS-USM/GEOL/BUS/AS-BS

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PENNZOIL
P.O. BOX 2967
HOUSTON, TX 77252-2967
713/546-6883
5222 APPEVALE COURT
KINGWOOD, TX 77345
713/361-5981
MSU/GEOL/BS

NUNNELEY, JEFFREY E.
ENSERCH EXPLORATION, INC.
4849 GREENVILLE AVE., STE. 1200
DALLAS, TX 75206
214/987-6457
TXA&M-U DALLAS/GEOL-
BUS/BS-MBA

OIVANK, STEPHEN M.
MS OFFICE OF GEOLOGY
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JACKSON, MS 39289
601/961-5518
416 TRAILWOOD DR.
CLINTON, MS 39056
601/924-4101
LSU/GEOL/BS

O'KOREN, MARK EMERSON
JOHN H. YOUNG, INC.
815 WALKER, STE. 940
HOUSTON, TX 77002
713/236-8303
46 SUNNY SLOPE CIRCLE
HOUSTON, TX 77381
409/321-4655
MSU/GEOL/BS

OXLEY, MARVIN L.
PETROLEUM GEOLOGIST
178-B GRIFFITH STREET
JACKSON, MS 39201
601/354-4019
1432 WOODSHIRE DRIVE
JACKSON, MS 39211
601/956-6446
PHILLIPS-OK/GEOL/BS-MS

PATTON, HOWARD K.
SEISMIC EXCHANGE, INC.
201 ST. CHARLES AVE., STE. 4300
NEW ORLEANS, LA 70170-4300
504/581-7153
30351 ST. JOHN DRIVE
LACOMBE, LA 70445
504/882-6615
USM/HISTORY/BS

PHILLIPS, PATRICIA A.
MISS. OFFICE OF LAND & WATER
P.O. BOX 10631
JACKSON, MS 39289
601/961-5213
708 WOODRIDGE PL.
CLINTON, MS 39056
601/924-1909

POLK, GARLAND C.
INDEPENDENT MUDLOGGER
RT. 3, BOX 94
MONTICELLO, MS 39654
601/587-7265
SW MS JR COL/PETR GEOL

POWELL, BILLY R.
POWELL PETROLEUM, INC.
1050 DEPOSIT GUARANTY PLAZA
JACKSON, MS 39201
601/354-5599
201 E. LAKE DRIVE
BRANDON, MS
601/992-2398
TX A&M/PETR ENG/BS

RADER, THURSTON CONNELL
P.O. BOX 753
JACKSON, MS 39205
601/352-3340
SW LA/PETR ENG-GEOL
XX HONORARY LIFE MEMBER XX

RAWLS, JAMES H.
HUGHES-RAWLS CORPORATION
200 S. LAMAR ST., STE. 800
JACKSON, MS 39201
601/969-7474
47 AVERY CIRCLE
JACKSON, MS 39211
601/956-8328
MSU/PETR ENG/BS

REESE, DONALD M.
3973 DOGWOOD DRIVE
JACKSON, MS 39211
601/366-8083
UNO/GEOL/MS

REEVES, PHILIP R.
INDEPENDENT
14 AVERY CIRCLE
JACKSON, MS 39211
601/355-5531
14 AVERY CIRCLE
JACKSON, MS 39211
601/956-5303
LA TECH/GEOL

RICCI, ARMANDO T., JR.
RICCI - JONES OIL CO.
P.O. BOX 2031
NATCHEZ, MS 39120
601/442-1671
200 GLOUCESTER ROAD
NATCHEZ, MS 39120
601/445-8401
TRINITY-KS ST/GEOL/BS-MS

RICHARDS, BRYAN K.
HOWELL PETROLEUM CORP.
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713/658-4106
4110 FAWN CREEK DR.
KINGWOOD TX 77339
713/358-2069

RIDGWAY, JULIUS M.
COASTAL EXPLORATION, INC.
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JACKSON, MS 39236-6667
601/362-0502
MS/GEOL

RUHL, ELWOOD M.
92 COTTONWOOD DRIVE
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601/856-9450
MI ST/GEOL/BA-MS

RUSSELL, DAVID B.
JOHN McGOWAN
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JACKSON, MS 39296-5809
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MILLSAPS/GEOL-BIO/BS

RUSSELL, WINSTON C.
133 E. LAKESIDE DRIVE
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601 264-5009

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601/829-2010
1206 BAY VISTA
BRANDON, MS 39042
601/829-2010
UCLA/GEOL/MS

SCHMITZ, DARREL W.
MISS. STATE UNIVERSITY
DRAWER 5167
MISSISSIPPI STATE, MS 39762
601/325-3915
101 BALTZEGAR
STARKVILLE, MS 39759
601/323-1405
MSU-UM-TX A&M/GEOL/BS-MS-
PHD

SCHNEEFLOCK, ROBERT D.
SCHNEEFLOCK CORPORATION
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204 DUCK COVE
MADISON, MS 39110
USM-AL-CAL ST/GEOL/BS-MS-BA
SELF, GEORGE W., JR.
11210 FORKED BOUGH
HOUSTON, TX 77042
713/952-7526
MILLSAPS-TCU/GEOL/BS-MS

SHEPPARD, BRENT E.
STUDENT,
MILLSAPS COLLEGE
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106 HAMPTON ROAD
LAFAYETTE, LA 70503
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OK/GEOL/BS

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601/736-7541
MSU-TN-USM/BS

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234 LOYOLA BLDG., STE. 921
NEW ORLEANS, LA 70112-2016
504/523-4536
4508 S. TONTI STREET
NEW ORLEANS, LA 70125
HAMILTON/GEOL/AB

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SHREVEPORT, LA 71101
318/227-1330
LSU-UNO/HISTORY-GEOL

SIMS, BRIAN J.
CONSULTANT
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JACKSON, MS 39201
601/352-7736
803 ANNANDALE ROAD
MADISON, MS 39110
601/853-1445

SMITH, CHARLES
752 BENWICK DR.
BRANDON, MS 39042
601/992-0734

SMITH, GEORGE T.
203 PATRICIAN STREET
FAIRHOPE, AL 36532
205/928-7803
MEMPHIS ST-S AL/GEOL/BS-MS

SPOONER, HARRY
SPOONER ENERGY, INC.
954 DGB PLAZA
JACKSON, MS 39201
601/969-1831
OK/GEOL/BS-MS

STEWART, LINDSEY
621 MERGANSER TRAIL
CLINTON, MS 39056
601/924-1866

STREETS, EDWARD C
SCHLUMBERGER WELL SERVICES
125 S. CONGRESS, STE. 1206
JACKSON, MS 39201
601/948-5802
104 HOLLY COURT
BRANDON, MS 39042
601/992-1655
DENVER/BS

STRICKLIN, LEE A.
P.O. BOX 23485
JACKSON, MS 39225
601/969-1568
601/362-3254
MILLSAPS/POLY SCI/BA

STRIPLING, JAMES R.
BLUE QUILL EXPLORATION, INC.
5165 GALAXIE DRIVE
JACKSON, MS 39206
601/362-2289
601/856-8260
HOUSTON/BS

STUART, TONY R.
INDEPENDENT
P.O. BOX 16712
HATTIESBURG, MS 39402-6712
601/268-1908
110 ROARK CIRCLE
HATTIESBURG, MS 39401
601/268-1375
USM/GEOL/BS

SUNDEEN, DANIEL A.
USM DEPT. OF GEOLOGY
P.O. BOX 8196, S. STATION
HATTIESBURG, MS 39406
601/266-4532
2914 JAMESTOWN ROAD
HATTIESBURG, MS 39402
601/268-6121
UNH-IND/GEOL/BA-MA PhD

SYLTE, ANDREW THOMAS
111 E. CAPITAL ST., STE. 345
JACKSON, MS 39201
601/354-2766
151 TRACE RIDGE DR.
RIDGELAND, MS 39157
601/853-1541
FL ST/GEOL/BS

SYLTE, THOMAS W.
KELTON CO.
P.O. BOX 230
PENSACOLA, FL 32591
904/434-6830

TAYLOR, W. E. "GENE"
117 PARADISE POINT DRIVE
BRANDON, MS 39042-6541
601/992-2822

THIELING, STANLEY C.
MISS. OFFICE OF GEOLOGY
P.O. BOX 20307
JACKSON, MS 39289-1307
601/961-5506
129 FIRECREST DRIVE
BRANDON, MS 39042
601/825-8723
MACALESTER-IOWA/GEOL/BA-MS

TIERNEY, MICHAEL MINTER
TIERNEY & ASSOCIATES, INC.
59 BRIAR COURT
BRANDON, MS 39042
601/969-8205
601/825-6343
LSU/PE-GEOL/BS

TISDALE, RONALD M.
TAURUS EXPL.
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BIRMINGHAM, AL 35203
205/326-2730
FL-TN/GEOL/BS-MS

TSIMORTOS, PAUL
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601/353-7252
601/982-5199

TWINER, JAMES W.
P.O. BOX 970
BRANDON, MS 39042
601/825-0156
695 COUNTRY PLACE DRIVE
PEARL, MS 39208
601/939-9462
MSU/PETR GEOL/BS

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P.O. BOX 367
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VOCKROTH, GEORGE BYROM
VANTAGE OIL COMPANY
L-154 CAPITAL TOWERS
JACKSON, MS 39201
601/948-3351
6221 FERNCREEK DRIVE
JACKSON, MS 39211
601/956-9359
HARVARD/GEOL/BS-AM

WADE, WILLIAM J.
LSS, INC.
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504/767-4027
VANDERBILT/GEOL/MS

DIRECTORY *Continued from page 8*

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P.O. BOX 151430
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THE ENERGY & COASTAL SECTION *by Jack S. Moody*

In an attempt to inform our oil and gas customers about what is going on at the Office of Geology I would like to present this overview of our present research projects. In future bulletins I'll elaborate on individual studies. To begin with, you need to know that the Energy & Coastal section consists of a director, 3 oil and gas geologists, 2 coastal geologist, one computer specialist, and a technician at the sample and core facility.

At the present time, the following studies are on our active list from our energy people:

1. Cretaceous reservoir quality of rocks, under the coastal counties and the state owned offshore - in edit.
2. Rw's and water chemistries of produced waters from oil and gas fields - in edit
3. A study of the Frio Independence Field in S.W. Mississippi - final edit
4. A study of Mississippi's shallow salt domes - this large study is very near editing
5. Geochemical exploration field trials are continuing with new techniques
6. A map project to show the distribution and quantity of H₂S

in the Jurassic

7. A joint NASA project to use hyperspectral airborne imagery to locate undiscovered oil and gas fields.

8. Jurassic reservoir quality of rocks of the coastal counties and state owned offshore.

The coastal section is now completing a 4 year USGS sponsored coastal erosion study. Numerous publications have been completed. Jackson County's new beach is the brain child of this section, and they are involved in an oil spill response study of the gulf coast states. In the future, some of the section's time and talents will shift into our oil and gas efforts. They bring them considerable technical expertise including GPS (global positioning system), and GIS (geographical information system).

Our future plans will include trend studies, computer support for local independents, and numerous GIS applications.

Your comments and inquiries are welcomed.

PRESIDENT'S LETTER *Continued from page 1*

investigators consistently fail to properly assess risk? They become noncompetitive. When they become noncompetitive they ... RESTRUCTURE! ... DOWNSIZE! ... look for black box methods of lowering finding costs! Generators' career longevity and upstream oil and gas investment capital availability is directly related to investment success. Who Cares? Generators Care.

Generators, can have a significant impact on the vitality of the industry by helping to drive down finding costs. And I'm not talking about new technology. By

providing fair and accurate risk and potential descriptions to investment decision makers productivity will increase. It just makes good business sense. Whether you're on a payroll or on your own ... take care of your investors. Help them make good decisions by providing the risk descriptions they need.

Before I quit, I want to acknowledge a serious conflict in this risk description and use relationship. The conflict is that often Generator's and Investor's "best interests" don't always seem to lie in parallel. And when you add additional layers between

the generator and the drilling investor, you add to this conflict.

Surely you have some opinions about this subject. Please, let me hear from you. (If you want to be anonymous, call after hours and leave a message on the answering machine.) Next month I'll offer a powerful tool for describing and using risk.

Until then. *Caveat emptor.*

Neil

Howard William Heidke, Jr.

Howard William Heidke Jr., 66, a retired geologist, died of pneumonia Monday at University of Mississippi Medical Center in Jackson.

Memorial services were held Thursday, January 26 at Broadmeadow United Methodist Church in Jackson with burial in Oak Hill Cemetery in Estherville, Iowa. Wright & Ferguson Funeral Home in Ridgeland handled the arrangements.

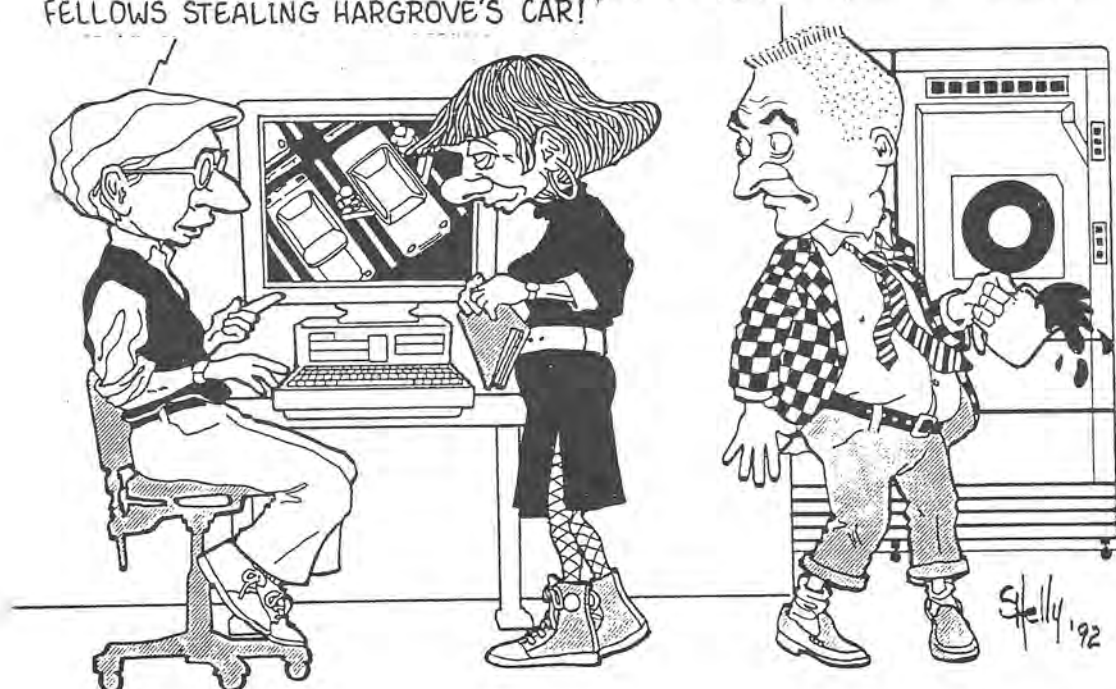
Mr. Heidke was an Estherville, Iowa, native. He was a graduate of Estherville High School and Iowa State University with a degree in geology. He served in the U.S. Army as sergeant first class in Tokyo and IX Corps Artillery in Korea. He worked 20 years for Amoco Oil Company as an exploration geologist.

Survivors include: wife, Ivadelle; daughters, Diana Hirsch of Sugar Land, Texas, and Ann Heidke of Madison;

mother Maree Heidke of Estherville, Iowa; sisters, Donna Bauer of Colorado Springs, Colo., and Johanna Colston of Roanoke, Va; brother, Jon Heidke of Carlisle, Iowa; and a grandchild.

Memorials may be made to the American Cancer Society, Mississippi Division, 1380 Livingston Lane, Jackson, MS 39213.

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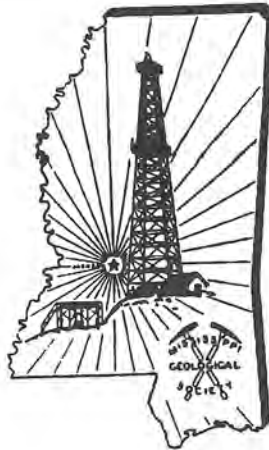
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VOLUME XLIII

NUMBER 7

MARCH 1995

PRESIDENT'S LETTER

Dear Friends,

I had the pleasure of attending the Prospect Expo last month in Houston. Jackson's oil and gas industry was by far better represented than at any other professional meeting I have attended. Wouldn't it be nice if professional geological conventions were as useful? The benefits I can attest to are similar to what I have heard about GCAGS conventions years ago. Times have changed.

The Red Book project is making progress. Chairman Les Aultman informs me that it is ready to begin the drafting phase. When you see Les and other contributors, thank them for their effort.

Continuing on with the issue of economics. I want to address single point versus distribution economics. Before I do so, and before many of you relegate this discussion to irrelevancy, let me say that 1) this example is admittedly a very simplified model but 2) nonetheless, the issues identified remain valid no

matter how complicated/realistic the actual economics are. As a final disclaimer, please remember, numeric precision is not the same thing as numeric significance.

I ran some simple economics using single point estimates and also distribution estimates for the following key input variables. (See table on right)

The power of the distribution's outcomes is largely lost in the above tally of expected results. The power is better exhibited in a cumulative probability distribution curve. Below is the cumulative probability curve for the Net Present Value outcome. From this curve you can see the expected value. You could also

INPUTS	POINT ESTIMATES	DISTRIBUTION ESTIMATE
Total Costs	\$700,000	Triangular (\$500K, 700K, 900K)
Gas Price	\$1.65	Uniform (\$1.40, 2.10)
Gas Rate	2,000 MCFG/D	Triangular (0.75, 2000, 3000)
Decline	Straight line	Triangular (0, 100, 100 than exponential @15%)
Reserves	7 BCFG	Triangular (1, 7, 12)
Operating costs	\$2,000/month	Triangular (1500, 2000, 4000)

The results as measured by several standards are given below:

PERFORMANCE MEASURE	POINT ESTIMATE	DISTRIBUTION ESTIMATE (Expected Values)
Total investment	\$700 M	733 M
Operating Income	\$8,084M	7,417 M
NPV (@ 15%)	\$3,688 M	3,259M
Payout	11 months	11.8 months
Turnover	11.5 times	10.1 times

continued on page 2

Coordinating Committee

The Engineering / Environmental coordinating committee will meet on a bi-monthly basis beginning March 21. Meetings will be held on the 3rd Tuesday of the month at the Department of Environmental Quality Commission Hearing Room, Highway 80 and Ellis Avenue, Jackson, MS at 11:45 a.m.

RAPID CLIMATE CHANGE - A NEW PARADIGM

by JOAN J. FITZPATRICK

New, high - resolution paleoclimate records from the Greenland ice sheet indicate that during the recent past (<120,000 years before present), climate has undergone major changes in periods of time as short as three to five years. The level of detail seen in the temperature, net annual accumulation, and electro-conductivity records from these ice cores indicates the potential for much greater variability in climate on much shorter timescales than previously thought possible. The rapidity with which the climate has changed over Greenland during this time requires different, faster mechanisms than those which we have previously held to be responsible for climate change.

Additionally, the extent to which the climate signals seen in the Greenland record propagate through the global record is now being examined. The current controversy over anthropogenically-induced global warming needs to be put into perspective in light of these new findings. Policymakers need to become aware of the broader implications of general climatic instability rather than focusing on the restricted issue of global warming.

Biographical info on Joan J. Fitzpatrick: Joan is employed with the U.S. Geological Survey in Denver, Colorado, appointment: Geologist, Branch of Sedimentary processes and Technical Director, U.S. National

Ice Core Laboratory. She has a B.A. from the Univ. of California, Berkeley, 1972, Geology; an M.A., University of California, Berkeley, 1974, Geology, Ph.D., University of California, Berkeley, 1976, Geology and Materials Science. Joan's area of research is Physical and crystallographic properties of ice and snow. Climate reconstruction from polar records with experience in Five polar seasons participating in intermediate and deep ice core recovery projects in Greenland, Antarctica, and Alaska. Chief Scientist and Principal Investigator on three of these projects. Mid-latitude field experience on glaciers in Washington and Montana.

determine that there is only a 5% probability of the NPV being greater than or equal to \$5 million. Potential buyers looking for upside would find this assessment interesting to say the least. High potential projects should distinguish themselves with this analysis. Other, similar uses of this analytical techniques for the other performance measures would point out that although there is a point estimated total investment outcome of \$700 M, there is a 66% chance of the actual investment being greater. There is a 63% probability of the operating income being below the point estimated value. There is a 38% chance of the turnover being greater than 11. Finally, if this were a production purchase and your banker wanted to give you a 15 month loan, you would want to know that there is an 83% probability of the payout being 15 months or less. (Surely your banker would want to know this!

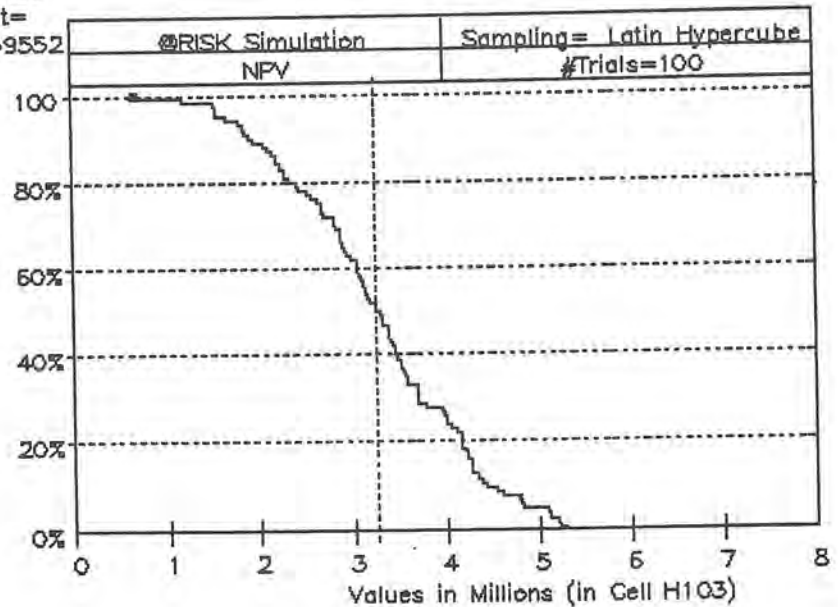
Next month, I'll spend a little time reviewing this subject. In the meantime...

Good Luck (or is it probability?...or point estimate?... or ...)

Neil

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QUICK LOOK TECHNIQUES

A Method for Predicting Thick Sand Intervals from Seismic Sections

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508

Did you ever drill a well that did not contain sand or encountered unexpectedly thin sands?

If so, then the following technique may help. The seismic technique presented here can be used to predict the presence of thick sands. We have learned that a few groups used a qualitative version of this method for years in prospecting, but the work seemed to have vanished during the boom of the late 70's.

Most geoscientists know that during deposition shale sections have a higher initial porosity than sand sections, and,

upon burial, shales compact more than sands. If a growth normal fault is present within a sand and shale section, then, upon burial, the fault will have a low angle of dip in the shale section and a higher angle of dip in the less compacted sand section as shown in Figure 1. Thus, a growth fault cutting through a shale interval and into a sand interval will steepen its dip within the sand interval. This change in fault angle can be seen in Growth Fault 1 on the depth corrected seismic section shown in Figure 2. This change in fault shape produces the antilistic or "sand indicator" fault bend

(Figs. 1 and 2.)

This technique can be used in a general, qualitative manner to obtain an indication of the presence of sand. A quantitative method for estimating gross sand percentage through a thin alternating sand-shale sequence is presented in Tearpock and Bischke (1991). Our work with the method suggests that synthetic fault dips can be used to predict sand percentages at shallow depth using vintage seismic data. The resolution of the method is primarily dependent on the ability of the interpreter to pick changes in fault dip on the seismic sections, and secondarily on the velocity versus depth functions required to depth correct the fault traces. At deeper depths, where synthetic faults sole or flatten out, crestal antithetic faults can be used to estimate sand percentage.

Many interpreters depict faults on seismic sections as smoothly curved surfaces, typically listric in shape. Most growth normal faults are typically not continuously listric in shape. Instead the faults change dip with depth. A fault may start out listric, then go antilistic (steepening downward), go listric again, etc. Many geoscientists have not correctly interpreted these changing fault dips. On seismic sections, this is partly so because most seismic sections are vertically exaggerated. These vertically extended sections have the effect of straightening out fault surfaces, therefore masking changes in fault dip. The interpretation work must be approached in a carefully observant manner, looking for these subtle changes in dip. Therefore, it is very useful to depth correct the sections in order to analyze fault geometry and to apply this technique. This can be simply done by digitizing and depth correcting a fault trace under study.

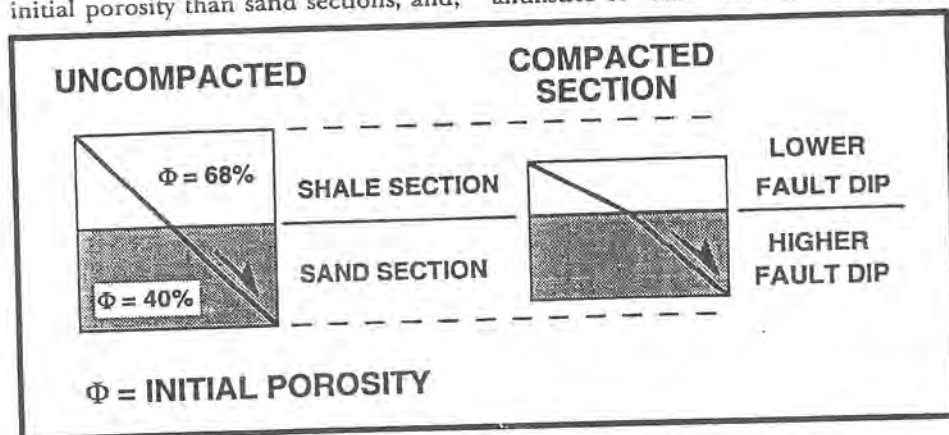


Figure 1

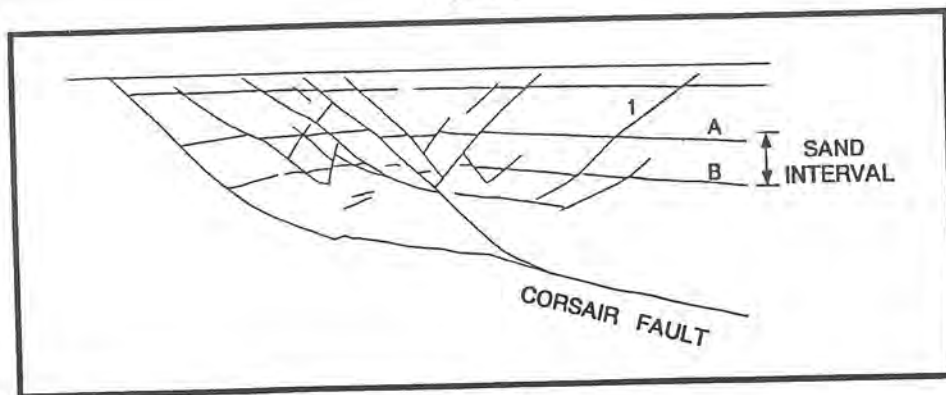


Figure 2

QUICK LOOK TECHNIQUE

ADDITIVE PROPERTY OF FAULTS

by Subsurface Consultants & Associates - Lafayette, LA 70508

In an area of intersecting faults, the vertical separation (the missing or repeated section) of the individual faults should be additive, or very close to additive, across the intersection where the two faults merge into one. Figure 1 shows two faults downthrown to the south that merge laterally to the east. The vertical separation for the eastern portion of the fault is equal to the sum of the vertical separations for the two smaller faults.

When checking the additive property, we are not referring to the fault gap or over lap widths being additive, but the vertical separations (the missing or repeated section seen in a well log). the vertical separation is checked by calculating the vertical difference in contour values across the fault in the strike direction of the contours (Figure 1). An easy way to review the additive property of faults is to go clockwise around a fault (see dashed circle on Figure 1) adding the vertical separations

for the faults dipping in a clockwise direction and subtracting the vertical separations for the faults dipping in a counter-clockwise direction. If the additive property of intersecting faults is honored correctly, the additions and subtractions should nearly equal after crossing all the faults. Be sure to check this property as close to the intersection as possible. Faults can change in size laterally; therefore, at some distance from the intersection the vertical separations may not be additive. Typically, the closest contours to the intersection are used to check this property.

Figure 2 shows a completed structure map prepared from seismic data with intersection faults that do not honor the additive property. This is a direct indication that the map is incorrect. There is a 1500 foot bust on this map. Because of the magnitude of this error, it is likely that the problem is the result of a seismic mistie across one or more faults. The data must be reviewed again and the map redone before any decisions can be made with regard to hydrocarbon potential.

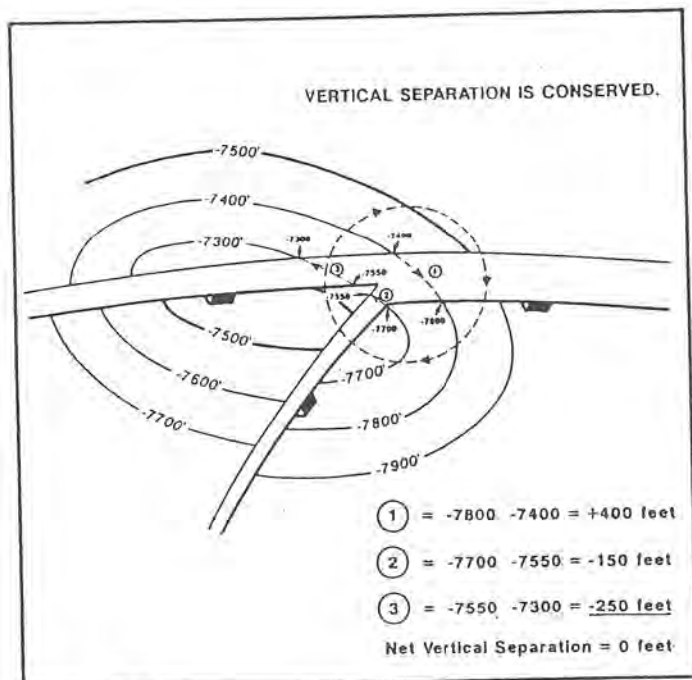


Figure 1

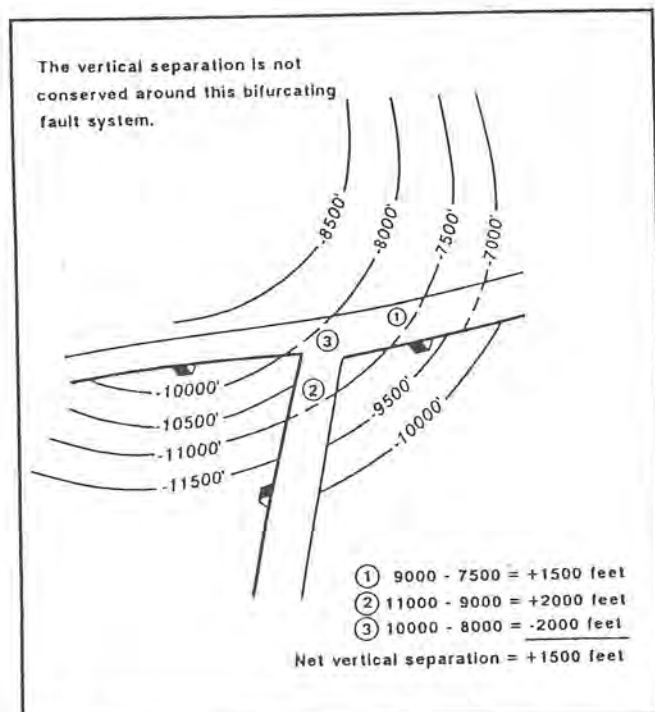


Figure 2

QUICK LOOK TECHNIQUES

Common Mapping Errors in Edge Water Isochore Map Construction

by Subsurface Consultants & Associates, Inc.
Lafayette, LA 70508

A common error made in the preparation of net pay isochore maps relates to the incorrect mapping of the water wedge zone in an edge water reservoir. This error is usually caused by incorrectly connecting the net pay isochore contours within the full sand thickness zone to those within the water wedge. An incorrectly constructed net pay isochore map can result in an unrealistic over or under estimation of reserves.

How can you check for this type of contouring error? Consider the two net oil isochore maps shown in Figure 1. Which of the two maps is correctly contoured?

In both maps, the interpreter identified the Inner Limit of Water (ILW). The ILW is defined as the intersection of the hydrocarbon water contact with the base of porosity. In Figure 1A, notice how the isochore contours in the full thickness

area make an abrupt turn at the ILW. The ILW controls the updip limit of water within the reservoir. The full thickness sand contours cannot continue unaffected past the ILW into the water wedge because the sand in the wedge contains both hydrocarbons and water. Therefore, the contours must make an abrupt turn at the ILW toward the thicker sand, and should often be subparallel to the structural contours between the ILW and the water contact. In Figure 1B, several net sand contours, which represent full sand thickness, extend past the ILW into the water wedge zone. Why is this incorrect and what is the effect of this mistake?

A cross-section of a net pay isochore map shows that the reserves are divided into two zones: the full thickness zone and the water wedge (Figure 2). These two zones are separated by the inner limit of water (oil/water contact on the base of

porosity). The entire net pay isochore map is bounded by the zero contour line, which represents the limits of the hydrocarbons in the reservoir. Within the full sand thickness zone, updip to the ILW, net pay is equal to net sand. Within the water wedge zone, the sand contains both hydrocarbons and water. Therefore, the net pay (net sand) contours in the full thickness area cannot continue unaffected into the wedge, but must turn abruptly at the ILW toward the thicker sand. The major elements used to contour the water wedge zone are the structural attitude of the formation and the sand shale distribution within the formation.

In order to correctly construct an edge water net pay isochore map, the interpreter must have the following information. A structure map on the top and base of porosity with the hydrocarbon contacts marked, a total net sand isochore

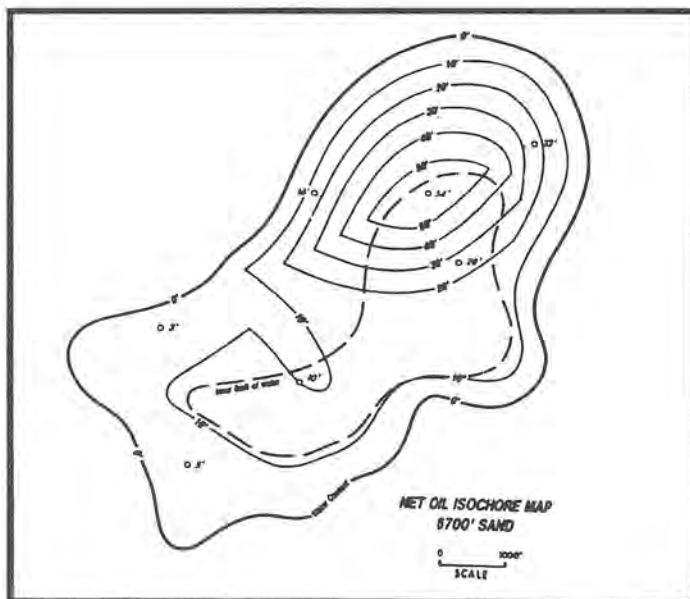


Figure 1A

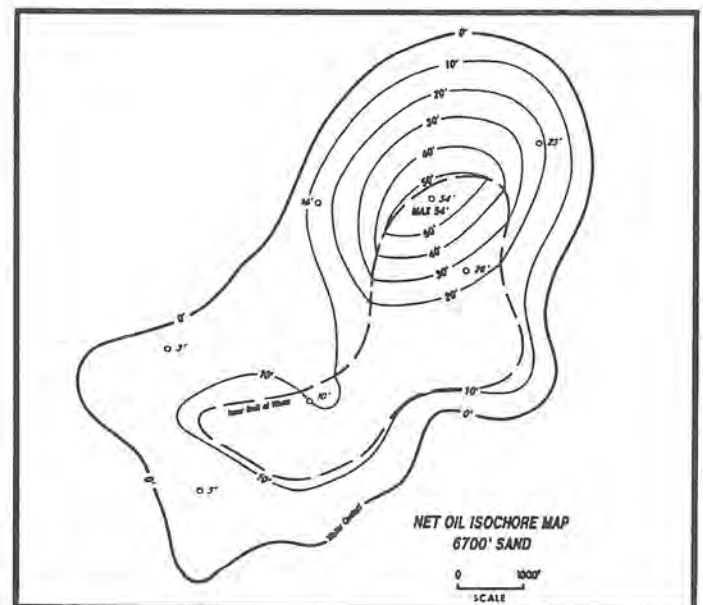


Figure 1B

map and net pay values for all wells within the reservoir. For correct net pay isochore mapping, the Wharton method must be used. Using this method and the above information, you can construct an accurate net pay isochore map. A detailed description of the method can be found in "APPLIED SUBSURFACE GEOLOGICAL MAPPING" by Tearpock and Bischke (1991).

The planimeted volume for Figure 1B is 13,937 AcFt in contrast to 12,401 AcFt for the correctly contoured map in Figure 1A. This results in a 1536 AcFt overestimation of reservoir volume. Considering a reasonable recovery factor, the overestimated reserves are approximately three quarters a million barrels of oil. How would you explain this volume discrepancy to an investor or supervisor after buying this property?

When evaluating a net pay isochore map for an edge water reservoir, always look for an abrupt turn of the net pay contours at the ILW. If the ILW is not marked on the map, simply overlay the base of sand map, trace the ILW onto the net pay isochore map and then review the map. By using this simple QLT, you can quickly verify the accuracy of the map and

estimate of reserves, thus avoiding the mistake of paying for more reserves than actually exist within the reservoir.

This article is the last in a ten (10) part series on Quick Look Techniques (QLT's). During this series we briefly reviewed pitfalls involving 1) an odd number of contours along a fault, 2) equal spaced contours, 3) contour compatibility, 4) throw versus vertical separation, 5) the additive property of faults, 6) restored tops, 7) normal fault dip as a sand indicator, 8) screw faults, 9) implied fault strike and 10) isochore reservoir mapping. These QLT's and many others are discussed thoroughly in a text by Tearpock, Bischke and Brewton (1994) entitled "QUICK LOOK TECHNIQUES AND PITFALLS OF PROSPECT EVALUATION."

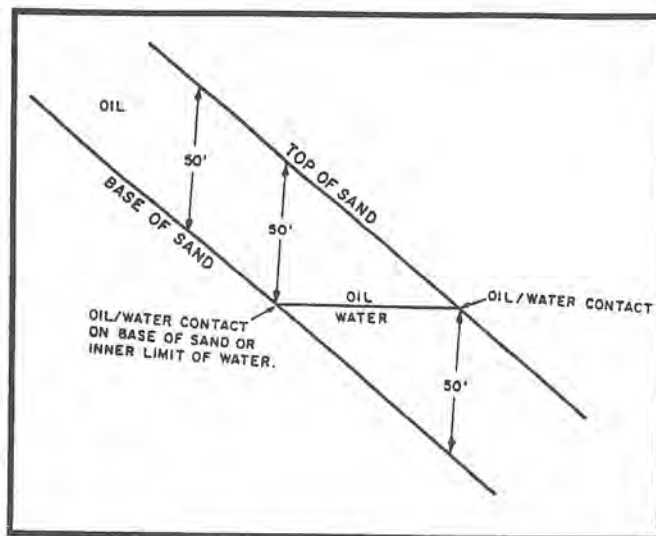


Figure 2

*Subsurface Consultants -
Thanks for a
worthwhile column!*

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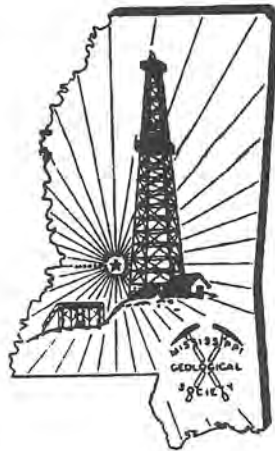
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MISSISSIPPI GEOLOGICAL SOCIETY

VOLUME XLIII

NUMBER 8

APRIL 1995

PRESIDENT'S LETTER

Dear Friends;

The flowers and pollen shout that spring is here. Which brings to mind the Society's spring schedule ... the Spring Fling to be held at the Reservoir Lodge on May 11th and ... the election of officers. Don't forget to put the Spring Fling on your schedule. AND, please be willing to serve if Brian Sims calls you about standing for officer elections. Other news ... Larry Baria and Steve Walkinshaw were elected at

the last luncheon to serve as AAPG delegates for 3 and 2 year terms, respectively. Thanks guys for being willing to serve us.

The Lafayette Geological Society is hosting a 1 and 1/2 day continuing education seminar on April 28 and 29. Day One's topic is "A Journeyman's Approach to Sequence Stratigraphy". Day Two's is "Seismic Methods in Sequence Stratigraphy". The charge? A whopping \$35 (including Friday lunch). I

commend it to you. For further information call John Fatheree at (318) 235-4582.

On to the topic du jour ... Last month's letter illustrated several key points. No point, however, is more important than using that column to illustrate the challenge of effectively communicating uncertainty. Indeed, communicating anything well can be a challenge. Uncertainty is particularly difficult because each participant has their

own terminology and biases. Uncertainty is hard to objectively quantify. And certainly ... buyers and sellers of deals very often have different economic motives. It IS easier to ignore uncertainty. As long as uncertainty is not discussed we are each free to use our own ideas as the standards. HOWEVER, avoiding the careful discussion of uncertainty at the beginning of the process sets up the BIG FALL on the other end. Investors, whether management or

BOB WOMACK

Bob Womack, Jr. was recently honored by the AAPG as a 50 year member. Bob was one of sixty-five members who joined AAGG in 1945. A 50-year member is in a very exclusive club. Congratulations Bob, from the MGS.

Coordinating Committee

The Engineering / Environmental coordinating committee will meet on a bi-monthly basis. Meetings will be held on the 3rd Tuesday of the month at the Department of Environmental Quality Commission Hearing Room, Highway 80 and Ellis Avenue, Jackson, MS at 11:45 a.m. The next meeting will be May 16.

REFLECTIONS ON THE ART OF EXPLORATION

by JOHN A. MASTERS

More is involved in exploration than mere technology. Line up 100 geologists and you will not find very much difference in their ability to do sequence stratigraphy, structure contouring, isopaching, electric log evaluation, etc. Why, then, is there such an enormous difference in exploration results? We all know that only a few people find oil.

Most geologists know how to look for oil. Only a few know where to look. If most geologists have equal technical qualifications, the one who is working in the best area has substantially more leverage. Choosing the best area is a function of regional understanding, sensible prioritization and creative imagination. Creativity is a right brain function. Relatively few people are gifted with the imaging, visionary, creative talents of a great

explorer.

The most important thing in the oil business is the idea. Wallace Pratt said "Oil is first found in the mind."

John Masters is the new President of Anschutz Exploration of Denver and past President of Canadian Hunter. He was educated in economics and Geology at Yale and Colorado U. John found the largest uranium deposit in the world in New Mexico, the largest oil field in Arizona, two salt dome fields in the Gulf of Mexico, and the largest gas field in Canada at Elmworth. He is presently leading an active exploration program in Canada and throughout the U.S. He is recognized for aggressive application of advanced technology to exploration.

Discoveries by John A. Masters include:

- Ambrosia Lake uranium deposit on South side of San Juan Basin. Morrison sandstone. Largest uranium deposit in the world. Discovered in 1955.

- Two salt dome fields in Ship Shoal area, offshore S. Louisiana. Blk. 214 and Blk. 230. 100 MM B.O. total. Discovered 1960.

- Dineh-Bi-Keyah, pronounced Dinay-bi-key-ya. Northeast Arizona. Diorite sill in Pennsylvanian black shale on the very large Lukachukai anticline on the Navajo Reservation. 25 MM B.O. Largest field in Arizona. Discovered in 1967.

- Elmworth, largest gas field in Canada. 150 miles long. Canadian Hunter 1 MM acres. Hunter is the 10th largest gas producer in Canada. Discovered 1976.

- Various other normal sized fields.

PRESIDENT'S LETTER *continued from page 1*

industry partners or individuals, have their own vision of the future. When reality does not match that picture something will give and most likely to the disadvantage of the geologist!

The other topic I want to discuss is the

Roger S. "Jack" Myers, Jr.

Roger S. "Jack" Myers, Jr., 66, a retired geologist, died of cancer February 9 at Mississippi Baptist Medical Center in Jackson.

Services were at 11 a.m. Saturday, February 11 in Ridgeland with burial in Parkway Memorial Cemetery in Ridgeland.

Jack, a native of Holly Springs, grew up in Oxford where he graduated from University High School. He attended the University of Mississippi where he was a member of Sigma Alpha Epsilon fraternity. He was a Korean War Air Force veteran. He returned to Ole Miss following his discharge and received a bachelor's degree in geology in 1967.

He began his career with the Mississippi State Oil and Gas Board as a draftsman and

difference between precision and significance. According to Webster's: *Precision is the quality of being minutely exact; Significance is the quality of being important.* Computers can calculate a value with a ridiculous number of decimal places.

was chief geologist at the time of his retirement. While with the Board, he developed the program that led to computerization of well production records.

An avid hunter and golfer, Jack was a former member of Colonial Country Club and a charter member of the Madison Lions Club. He was a member of Christ United Methodist Church in Jackson, a member of the Civil War Roundtable, the University of Mississippi Alumni Association, the University of Mississippi Loyalty Foundation, the Mississippi Geological Society and the Rebel Club.

Survivors include his wife, one son, one daughter, his father, a sister and four grandchildren.

Remember the rule you learned in arithmetic class: the precision of the product is only as large as the least precise input number. Don't expend energy or resources on inputs that are already more precise than other inputs. Work on the significance of the output by 1) identifying the necessary precision of the output; 2) identify the precision of the input values you already have; and 3) work at gaining precision in those numbers that keep the output value from being as legitimately precise as you decided you need. If you cannot attain the precision you would like, admit it and explain it.

This last point is one by which I am personally challenged. I tend to the insignificantly precise. If you see me working on meaningless precision, please, do me a favor and challenge me about it.

If you are interested in discussing the topic of uncertainty further, give me a call. I'd love to visit. I hope these several columns have been stimulating. Thank you for your kind attention.

NEIL

BUSINESS MEETING LUNCHEON

11:30 A.M. APRIL 11

Capitol City Club, Smackover Room

JOHN MASTERS

Anschutz Exploration

BUSINESS MEETING LUNCHEON SCHEDULE

1995

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GCAGS CONVENTION QUESTIONNAIRE

The Gulf Coast Association of Geological Societies is currently taking a hard look at its procedures. After a long series of successful annual conventions, the last few years have shown developing problems. The conventions in Shreveport (1993) and Jackson (1992) both lost quite large sums of money. The 1994 meeting, in Austin, was financially sound but had considerable support from the Bureau of Economic Geology for the *Transactions*, normally a major part of the budget. Please help the Board of Directors of the GCAGS (which includes the presidents of the member societies) by completing the following questionnaire. We would appreciate your help. You can mail the questionnaire to the society or bring it with you to the April meeting.

Please circle your answer to each of the following questions:

- Does the host city location affect your decision to attend?
Yes / No
- Circle each of the following locations at which you would attend a convention if it were held this year. Number those you have circled, in order of preference (1 - most likely to attend);
Houston _____ Corpus Christi _____ Austin _____
Lafayette _____ Baton Rouge _____ Jackson _____ New Orleans _____
- To which of the locations (circle them) would you be likely to take your spouse? Again, number them in order of preference.
Houston _____ Corpus Christi _____ Austin _____
Lafayette _____ Baton Rouge _____ Jackson _____ New Orleans _____
- If the normal rotation is maintained, Lafayette will be host city in 1999. Should Lafayette continue to host GCAGS conventions?
Yes / No / Don't care
- Would you be prepared to serve on a committee at the next convention in Lafayette if it were held in the next two or three years?
Yes / No / Don't know
- Would you be prepared to serve as chair of a committee at the next convention in Lafayette if it were held in the next two or three years?
Yes / No / Don't know
- Do you think the conventions should continue as present, with a full rotation of cities?
Yes / No / Don't know
- Should the conventions be held
 - Only in Houston, each year?
 - Only in Houston and New Orleans, on annual rotation?
 - Only in cities that can break even financially?
- Should conventions be scaled back to alternate years?
Yes / No / Don't know
- Circle each of the following recent GCAGS conventions you attended
Austin '94 Shreveport '93 Jackson '92 Houston '91
- Would you attend a convention in any (please circle) of the following cities:
Biloxi Pensacola Natchez Galveston

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This is the ninth triennial seminar. Wide spread efforts are underway to bring in participants from across the country. Your support is critical to the success of this event.

On Thursday from 5:30 to 7:30 p.m., there will be a reception with hors d'oeuvres and an open bar. On Friday, the Seminar Program will consist of nine industry related topics and a special luncheon address by Honorable Kirk Fordice, Governor of the State of Mississippi.

There will be a 3-D Seismic exhibition with demonstrations of the latest computer technology in this area - beginning Thursday afternoon and continuing Friday - more details later.

Call (601) 982-0363 for more information or contact: Theresa Moody, P. O. Box 55614, Jackson, MS 9296

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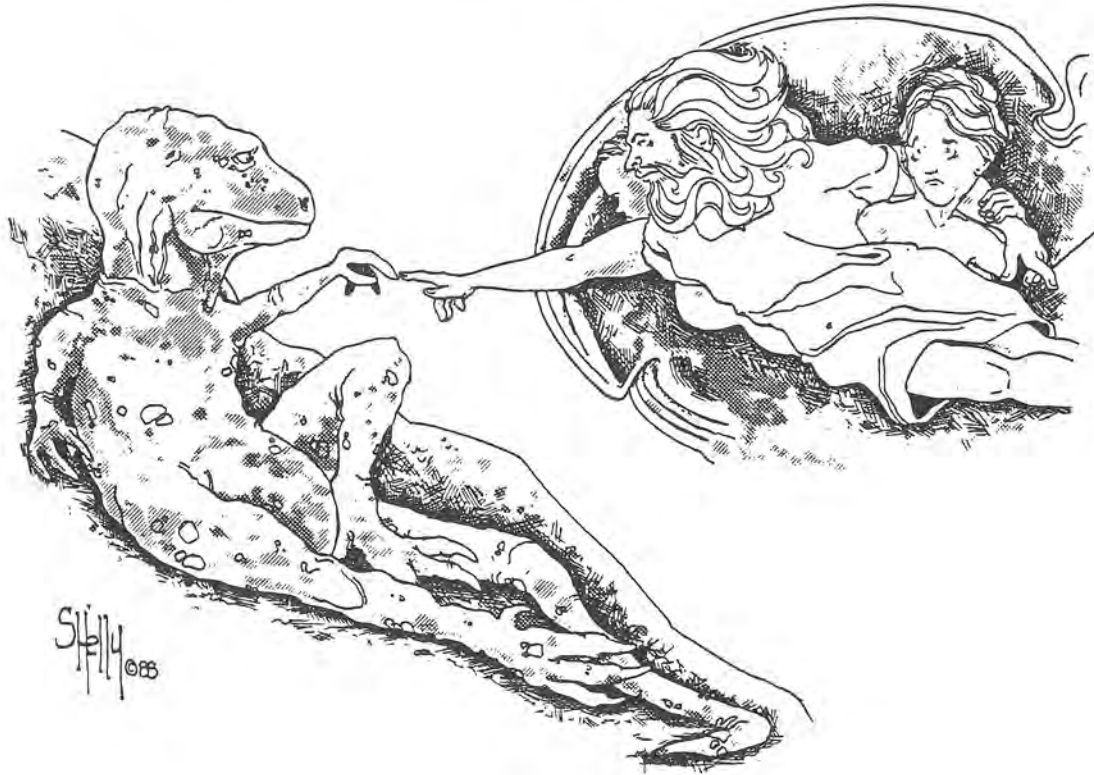
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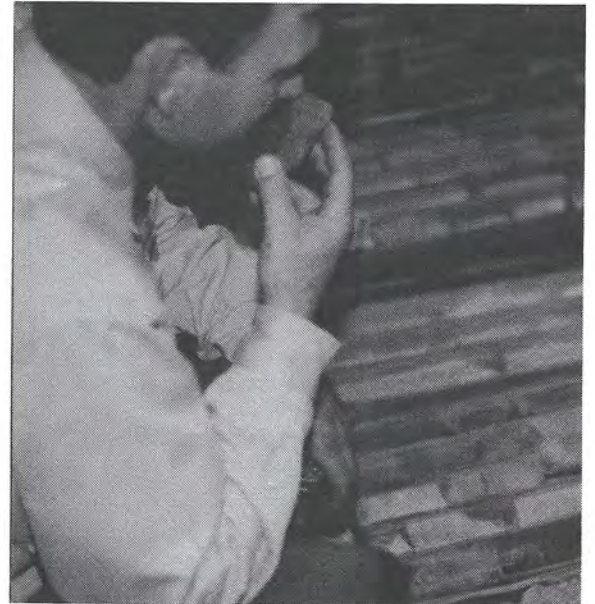


OFFICE OF GEOLOGY "CORE PARTY"

At the office of Geology "core party" on February 21 participants inspected over 1,100 of nearly continuous core from the Pan Am #1 USA-Rubie Bell. This was the discovery well for Barber Creek Field, and has produced over 624,000 B.O.



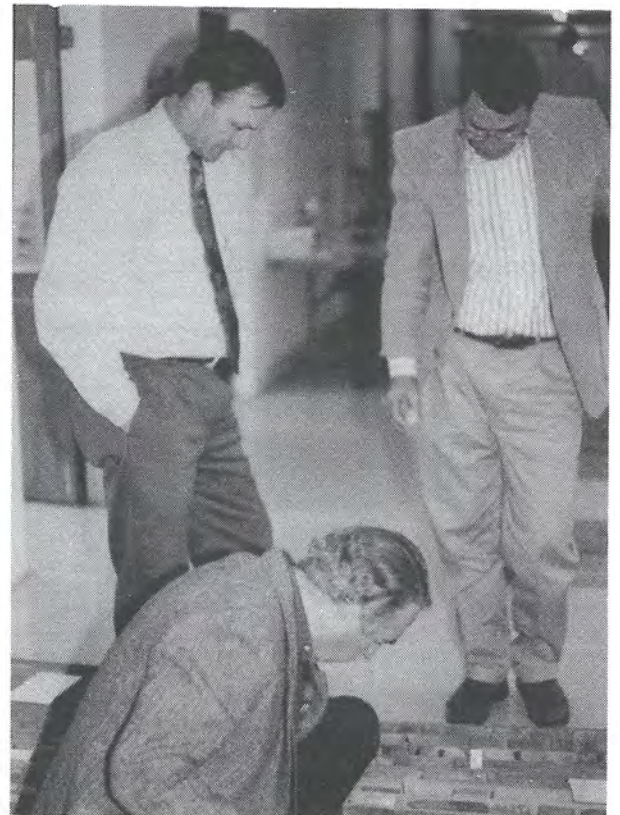
Participants had ample core from a variety of depositional environments to inspect and discuss.



"Smells like over 624,000 bbls to me". Jack Moody checks the pay zone at the recent Office of Geology "core party"



Looking at the structure map it's hard to believe it took so long to successfully offset such a good well. There must be more like it in an area with so much room.



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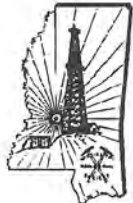
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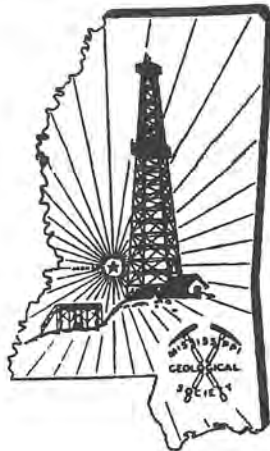
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VOLUME XLIII

NUMBER 9

MAY 1995

PRESIDENT'S LETTER

Dear Friends;

I hope you had an opportunity to attend last month's luncheon. John Masters gave a very provocative presentation. I would gauge the weightiness of what he had to say by the lack of questions raised from the floor followed by the number of folks who approached him personally after the meeting. As I have reflected on his comments two things stand out most for me. First, according to Mr. Masters, what makes an outstanding explorationist is the ability to (1) accumulate information and data from many, disparate sources, 2) distill this mess of information into some sort of reasonable but perhaps unconventional, working model, and 3) act forcefully upon it. This process seems to require a measure of disorder.

The second point that most

Coordinating Committee

The Engineering / Environmental coordinating committee will meet on a bi-monthly basis. Meetings will be held on the 3rd Tuesday of the month at the Department of Environmental Quality Commission Hearing Room, Highway 80 and Ellis Avenue, Jackson, MS at 11:45 a.m. The next meeting will be May 16.

impressed me was John's call to "do it quicker rather than better". This was not a call to poor science, rather it was the acknowledgement that getting all of the information you would want takes time. Time spent waiting allows the competition to catch up. The other side of that quickness is that the project should be abandoned if the last 25% of the information does not confirm the working model. And, of course, if it doesn't turn out it's the geologist's fault! John showed a photograph from the discovery well site of East Texas Field. Hundreds of folks were there. But, as John pointed out, only two of that number acted swiftly upon the information, Wallace Pratt and H.L. Hunt. (H.L. Hunt's only professional qualification was as a gambler!)

John's talk was directed at exploration, but the same processes hold true for any wealth-creating entrepreneurial endeavor. Take the same themes and see how they have transformed the computer, retail, and telecommunications industries. John didn't say a word about depositional systems or sequence stratigraphy. But, if you missed the presentation you may have missed the most relevant career advice you will ever get.

NOW ... The Spring Fling is scheduled for Thursday, May 11, at the Reservoir Lodge. Please put it on your calendar. This is an important event in the life of the society since officer elections will be held then. Officer candidates are announced elsewhere in the bulletin. Please review the list and

come prepared to vote.

In closing, I have enjoyed the year as your president. Les Aultman will assume the mantle at the Spring Fling. I want to give particular recognition to Stan Thieling. Stan has served the society faithfully as editor for several years. He says he is resigning that post. Stan has worked hard to trim Bulletin costs, keep our mailing rates down, and nagged, as necessary, to get out a timely bulletin. More than that, however, Stan has provided continuity from year to year AND faithfully reminded this president of upcoming deadlines and logistical issues. Thanks Stan!

Thank you for the opportunity to serve you,

Neil

SPEAKER CHANGE FOR MONTHLY MEETING

We originally had scheduled Dr. Chris Schenk with USGS in Denver to come and discuss the recently completed oil and gas assessment with emphasis on our back yard. The USGS is being forced to lay off a number of geologists and of course a very disproportional number are coming out of, where else, the oil and gas group. All this is to say Chris felt he had to cancel.

Early this year, I tried in vain to have an engineering type speaker come and discuss the most

advanced technologies in the areas of drilling and completion with the emphasis on what can help the small independent. My early efforts failed but Brian Johnson has agreed to give such a talk at our next meeting. His company has world expertise in advanced drilling techniques and we're hoping to work together in order that his talk will focus on what might help folks in our area. We also hope to make everyone aware of some of the high-tech applications coming down the pike. As always we hope

to see you there

Brian Johnson works for Anadrill, a drilling services division of Schlumberger. Anadrill provides MWD, LWD and DD services to the industry.

Brian has 15 years with Schlumberger. When with the Wireline group he held positions as a Field Engineer, Staff Engineer, Service Manager and Log Analyst, all in the Gulf of Mexico. He joined Anadrill as an LWD Field Engineer in 1991 and has since opened an LWD district in Canada, operated the LWD district in Lafayette and is now in sales in New Orleans.

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W. Lester Aultman

Education: USM, BS & MS in Geology

Experience: Gulf Oil Company - 1973-1974

Pruet & Hughes - 1974-1977

Midroc & Watkins - 1977-1980

Independent Geologist - 1980-present

MGS Experience: Treasurer 1976-1977, Vice President

1977-1978, President 1979-1980,

Chairman Continuing Education

Committee 1990-1991, GCAGS /

Convention Secretary 1992, 1st Vice

president 1994-1995

Professional

Memberships: MGS, AAPG, IPAA

FIRST VICE PRESIDENT

Jack Moody

Education: East Carolina U. BS Geology

LSU, Graduate Work Geology

Experience: High School Teacher 1972-1973

Shenandoah Oil Corp. 1973-1979

Western Reserves Oil Co. 1979-86

M & P Exploration 1976-1989

Mississippi Office of Geology 1989-

present

MGS Experience: 2nd Vice President - 1992-1993

2nd Vice President - 1994-1995

Professional

Membership: AAPG, MGS

SECOND VICE PRESIDENT

George B. Vockroth

Education: VPI BS Geology, Harvard

AM Geology

Experience: Chevron 1951-1977

Vantage Oil 1977-present (owner)

Professional

Memberships: SPE, SPWLA, AAPG, AIPG, SIPES,

AAPL, MAPL, Assoc. Desk & Derrick

Clubs.

SECRETARY

Rick L. Ericksen

Education: BS Geology, N. Ill. Univ.

MS Geology - Geochem, N. Ill. Univ.

Experience: Chevron 1975-1977

Skelly (Getty) 1977-1978

Pruet Oil Co. 1978-1983

TXD Prod. Co. 1983-1985

Consultant 1985-1991

Office of Geology 1991-present

MGS Experience: Secretary 1990-1991

Professional

Memberships: AAPG, MGS, JGS

TREASURER

David Hancock

Education: BS Geology, USM

Experience: Hunt Energy / Placid & Affiliates

1979-1989

Coastal Oil & Gas 1989-1992

Petro Hunt Corp. 1992-1994

Roundtree & Associates 1994-present

MGS Experience: Redbook Committee, 1985

Memberships: MGS, AAPG

BUSINESS MEETING LUNCHEON

11:30 A.M. - MAY 9

Capitol City Club, Smackover Room

BRIAN JOHNSON

Anadrill / Schlumberger

BUSINESS MEETING LUNCHEON SCHEDULE

1995

May 9

Spring Fling-May 11

Mississippi Geological Society - 1994-1995

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SPRING FLING

Thursday, May 11, 1995

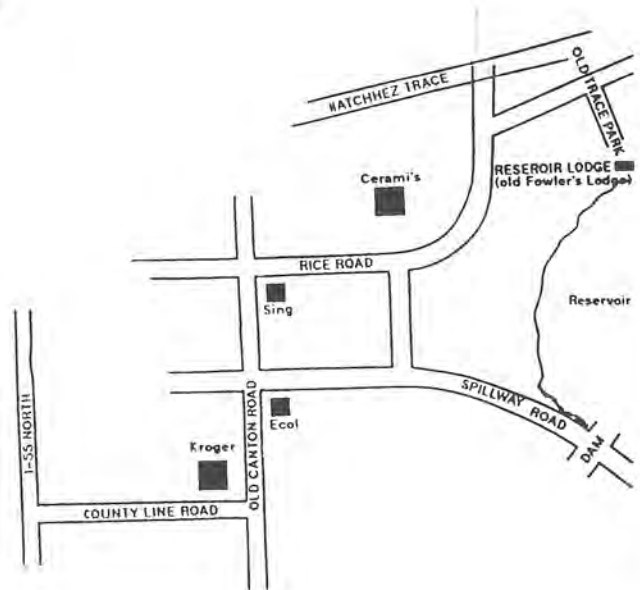
Reservoir Lodge

Festivities 4:30 p.m.

Dinner: 6:00 p.m.

\$10.00 per person

\$5.00 per student



NEW PUBLICATION AVAILABLE FROM THE OFFICE OF GEOLOGY

THE PETROLEUM GEOLOGY OF INDEPENDENCE FIELD (FRIO), WILKINSON AND AMITE COUNTIES, SOUTHWESTERN MISSISSIPPI

The Mississippi Office of Geology announces the availability of Open-File Report 40, "The Petroleum Geology of Independence Field (Frio), Wilkinson and Amite Counties, Southwestern Mississippi," by Stephen D. Champlin.

Open-File Report 40 is a study of the history, stratigraphy, structure, hydrocarbon trapping mechanisms, reservoir parameters, and gas production of Independence Field, which is centrally located in the shallow Frio gas trend of southwestern Mississippi. In addition to discussions of the listed topics the report includes three structure maps, a sand isopach map, a type log for the field, annual gas production data on individual wells in the field, and two structural cross sections. The report, with 36 pages and 2 plates in the back pocket, was completed as a research project by the Energy Section of the Mississippi Office of Geology.

Open-File Report 40 may be purchased from the Office of Geology at Southport Center, 2380 Highway 80 West, for \$10.00 per copy. Mail orders will be accepted when accompanied by payment (\$10.00 per copy, plus \$3.00 postage and handling for the first copy and \$1.00 for each additional copy). Send mail orders (with check or money order) to:

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TUPELO'S CONVERSION FROM A GROUND-WATER SUPPLY SOURCE TO SURFACE WATER - EFFECTS ON GROUND-WATER LEVELS, MAY 1991 TO OCTOBER 1994

by Stephen P. Jennings

INTRODUCTION

In September, 1991, the City of Tupelo, Lee County, converted its water supply from ground water to a surface-water source. This action came after years of significant decline in the potentiometric levels in the Eutaw-McShan aquifer and the underlying Gordo (Tuscaloosa) aquifer, the principal sources of water for the area. Tupelo has experienced significant population and industrial growth in recent decades with concomitant increase in total water use. Total ground-water withdrawal in Lee County increased from about 8 million gallons per day (MGD) in 1967 to 9.5 MGD in 1980 to over 11 MGD in 1990, with most of the increase centered in the Tupelo area. As a result of the heavy demand placed upon the Eutaw-McShan and Gordo aquifers for many years, a large and deep cone of depression in the potentiometric surface had developed. At the turn of the century, wells located at topographically low elevations at Tupelo flowed above land surface. By the late 1980's, however, static water levels near the central area of the cone of depression had probably reached sands in the upper part of the Eutaw Formation. Concerns about the long-term viability of the water supply for Tupelo led to the construction of a water treatment plant, a pumping facility, and an 18-mile pipeline to transport water to the city from the Tombigbee River at Peppertown in Itawamba County.

An investigation was undertaken

by Office of Land and Water Resources (OLWR) of the Department of Environmental Quality to monitor the anticipated recovery in potentiometric levels in the Eutaw-McShan and Gordo aquifers in the Tupelo/Lee County area resulting from the cessation of pumpage from Tupelo's wells and from wells at two industrial parks north and south of the city. By the fall of 1992, a reduction of about 6 to 7 MGD in the total pumpage rate in Lee County had been made. This report presents the data concerning the water-level changes observed during the first three years of this study.

METHODS

During the course of this on-going study, 38 wells have been utilized to provide water-level measurements (Figure 1). The wells include a variety of sizes (diameters) and depths owned by municipalities, water associations, government agencies, and private homeowners. Water-level measurements were made with either a chalked steel tape or an electric tape. Ground-level elevations (altitudes) were approximated from U.S. Geological Survey 7 1/2 minute topographic maps. It should be noted that whereas Tupelo's wells and wells at the industrial parks north and south of the city were shut off, many wells in the surrounding area continue to pump. The shut-off wells are pumped briefly each month maintain a standby system for the city.

Water levels were measured in May, 1991, in anticipation of the

City of Tupelo shutting off most of its wells in June; however, delays in the completion of the new surface-water supply system resulted in the wells being shut off in September, 1991. The May, 1991, measurements (Figure 1) constitute the "baseline" water levels for comparative purposes in this study. Water-level data for previous years are available, however, for selected wells in the area. Twelve wells were measured monthly from October, 1991, until April, 1992; the remaining wells were measured quarterly during that period. All the wells were measured in May and July, 1992. Beginning in October, 1992, and continuing to the present time, all wells in the study have been measured on a semi-annual basis in October and April. The monitoring of water levels on a semi-annual basis is planned to continue until 1997, though conditions may dictate a modification of this schedule or changes in the network of wells used in the study.

HYDROGEOLOGY

Loosely consolidated Upper Cretaceous sediments unconformably overlie Paleozoic sedimentary rocks in the area. The Cretaceous strata dip to the west at about 30 feet per mile (Figure 2). The principal aquifers in the area are composed of sand beds in the Eutaw and McShan formations and sand and gravel beds in the Gordo Formation of the Tuscaloosa Group. All of the wells used in this study are screened in the Eutaw-McShan or the Gordo or both. Some wells have split-screen intervals and others have screens that overlap the contact between the two aquifers. The degree of hydraulic separation

Tupelo's Conversion *continued from page 4*

(clay thickness) between the Eutaw-McShan and Gordo is highly variable but is generally not significant in the northern two thirds of the study area. As a result, potentiometric levels in the two aquifers commonly show only small differences in the central and northern parts of Lee County.

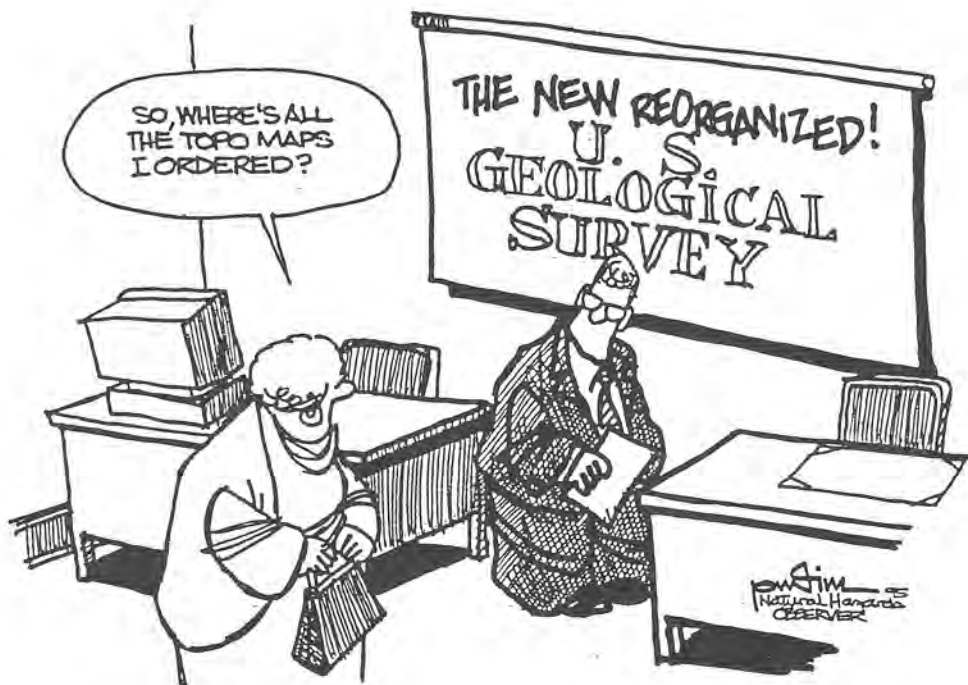
DATA AND RESULTS

Monitoring of water levels in the Eutaw-McShan and Gordo aquifers in the Tupelo/Lee County area for more than three years following the conversion by Tupelo to surface

water has thus far documented a significant rise in the potentiometric surface. This recovery has occurred in spite of the continued pumpage of other (non-city) wells in the study area that could adversely affect the overall recovery of water levels. The general recovery of water levels is shown by comparing the May, 1991, potentiometric map (Figure 1) with the potentiometric map of October, 1994 (Figure 3). (Note that the contour interval for the May, 1991 map is 20 feet, whereas the contour interval for the October, 1994 map is 10 feet). An east-west profile (Figure

4) also illustrates the recovery that has occurred. Water levels of the 17 City of Tupelo wells have recovered approximately 107 feet per well on average to date.

(SEE FIGURES - NEXT PAGE)



Transforming the U.S. Geological Survey

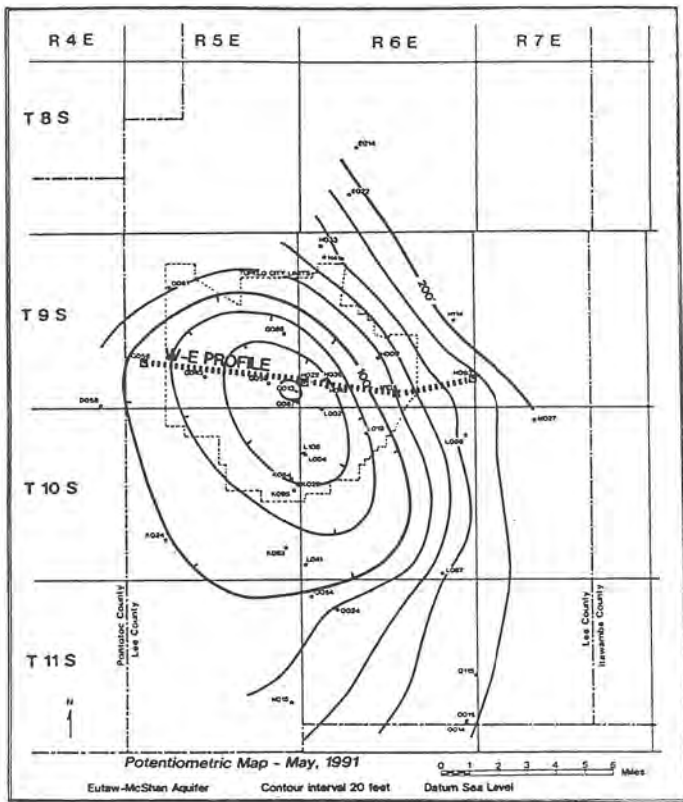


Figure 1: Potentiometric map of May, 1991, water levels.
 17 Tupelo wells have been used in the study along with 21 wells from the surrounding area. West-east profile is shown in Figure 4.

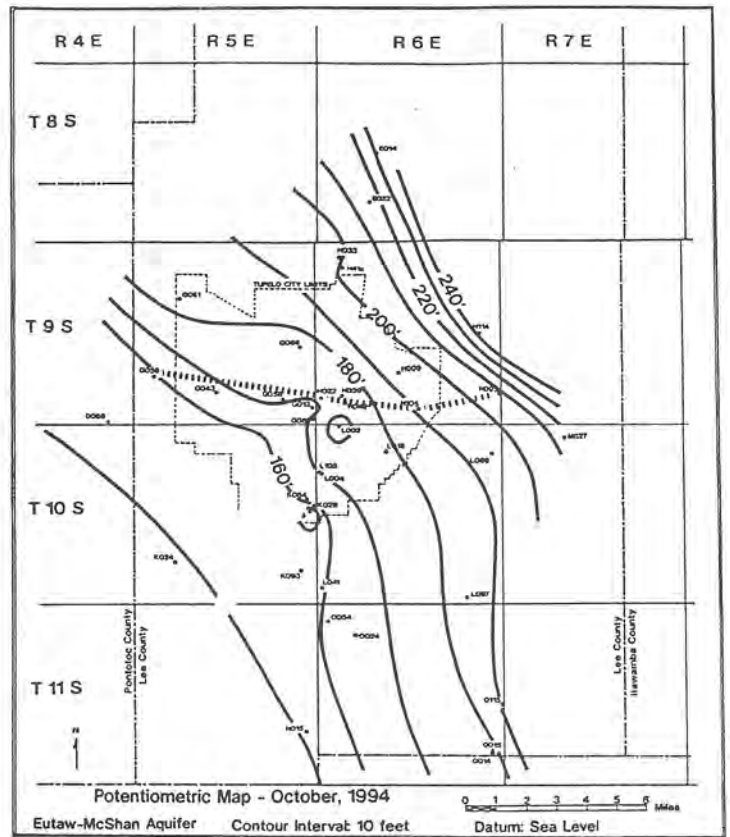


Figure 3: Potentiometric map of October, 1994, water levels.

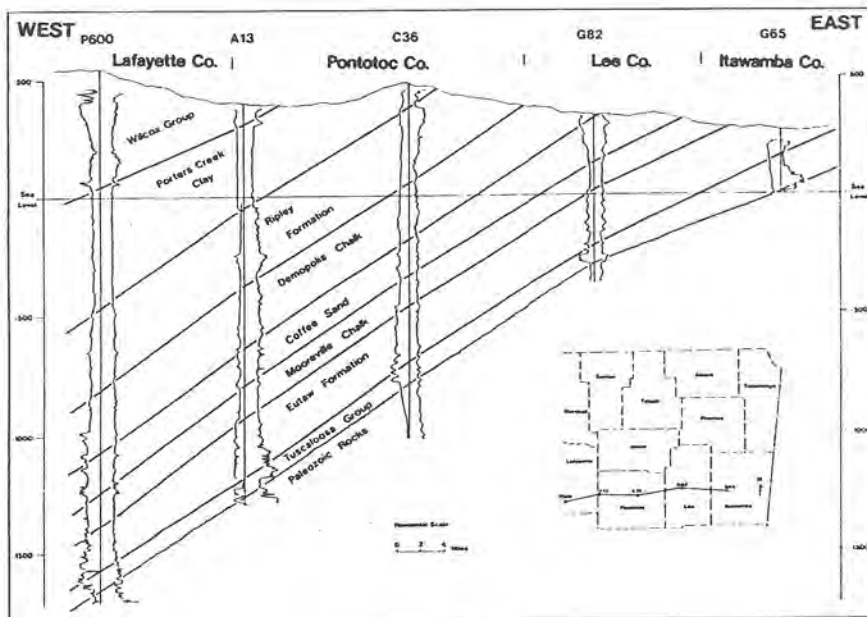


Figure 2: Structural cross section

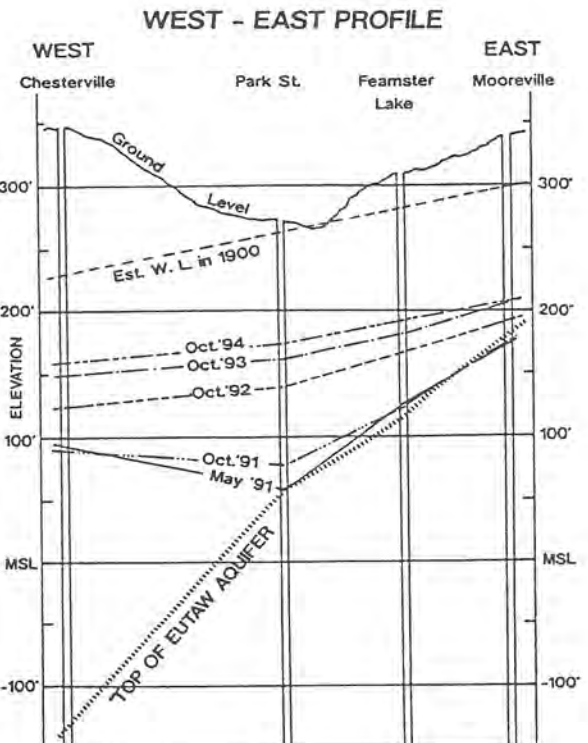


Figure 4

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