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# EXPLORER

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**On the cover:** Pharmacist and amateur photographer Robert Goodell was on Captain Don's Whale Watching Tour off Coal Point in the Santa Barbara Channel when he snapped this photo of a humpback whale breaching near Platform Holly. Humpbacks and Blue whales are prolific in the area during the summer months, feasting on the krill that thrive near the platforms. A series of articles beginning on page 10 notes how the industry tries to live as peacefully with activists as whales do with oil production.

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## New Officers Announced

Dallas independent geologist Patrick J.F. Gratton has been voted president-elect by the AAPG membership.

He will serve as AAPG president in 2004-05.

Also elected were:

Vice president – Erik P. Mason, Shell Team Leader, Gulf of Mexico New Ventures, Houston.

Secretary – Robert L. Countryman, geological advisor, Occidental Petroleum, Bakersfield, Calif.

The new officers will take on their duties on July 1, when Stephen A. Sonnenberg, manager of the DJ Sub-Business Unit for EnCana Energy Resources in Denver, assumes the presidency.

Remaining on the Executive Committee are Paul Weimer, of the University of Colorado, Boulder, and consultant, treasurer; and John Lorenz, of Sandia Laboratories in Albuquerque, N.M., editor.

George Eynon, with GEOS Energy Consulting in Calgary, Canada, will serve on the Executive Committee as chairman of the House of Delegates. □

## PRESIDENT'S COLUMN

# Geology Is Where The Contentment Is

By DAN L. SMITH

My commute to the office from my house in Houston takes 30-45 minutes to travel five miles during rush hour traffic. As I sat in "gridlock" recently, I recalled a very interesting conversation with Bob (not his real name) whom I met on the North Slope of Alaska at Kupark Field (adjacent to Prudhoe Bay).

I was fortunate to attend the North Slope field trip held in conjunction with the Anchorage joint meeting of the AAPG/SPE Pacific Sections last year. Bob is a safety officer who was recruited to shuffle us around the oil field.

Bob lives in a small town, population 400, some miles south of Fairbanks, Alaska. The town water supply is a single well. The water is trucked to homes and stored in containers.

Heating and cooking is mostly wood obtained from dead trees in the surrounding vast forest. He noted that they don't cut down live trees.

Much of the food comes from hunting.

Light comes from oil lamps. His family is very happy. His children are getting a good education, although I'm not sure how.

Here was my surprise: This guy is well-educated, lived in my neighborhood for years and fought the same freeway as I do every day. He abandoned life on the "fast track" and moved his family to the wilds of Alaska.

\* \* \*

Now, I ask you, what is your reaction to this?

Mine is somewhat garbled, but certain.



Smith

It sounds really romantic with the apparent simple life style, back to nature stuff and lack of pressure and hassle. But would I miss modern medical facilities, theater productions, professional sports, the golf course and all

other modern conveniences?

Maybe not.

However, there is one thing I couldn't do without. After I finally get to the office, I can be completely immersed in the fascinating pursuit of petroleum exploration and geoscience. Your pursuit may be coal resources, environmental work, teaching geology, etc. You get the idea.

A lawyer friend observed that "geologists are usually well-adjusted people who are in harmony with life and the world around them."

There are very few endeavors as exciting as earth science. As Bob warms his cold feet by the wood fire, I am perfectly content to lay in my comfortable bed in my centrally heated home, reading my EXPLORER and the BULLETIN. We are not really nerds, as the public often perceives (this has gotta change). Well, maybe a few of us are.

*Dan L. Smith*

## Registration Begins for Barcelona

Online registration for the AAPG International Conference and Exhibition in Barcelona is up and running for the Sept. 21-24 meeting.

"Crossroads of Geology, Energy and Cultures" is the meeting's theme, and a diverse, heavyweight technical program has been planned that includes 300 poster sessions, over 200 oral sessions and two continuing education workshops.

All sessions plus the extensive exhibits hall will be held in the Catalonia

Palace of Congresses.

Thirteen field trips to the country's many spectacular outcrops studied as subsurface analogs are offered. Six of the scientific field trips also offer coinciding "guest field trips," which focus on the area's culture and history.

Attendees are advised to register early to ensure hotel reservations in the AAPG hotel block of rooms.

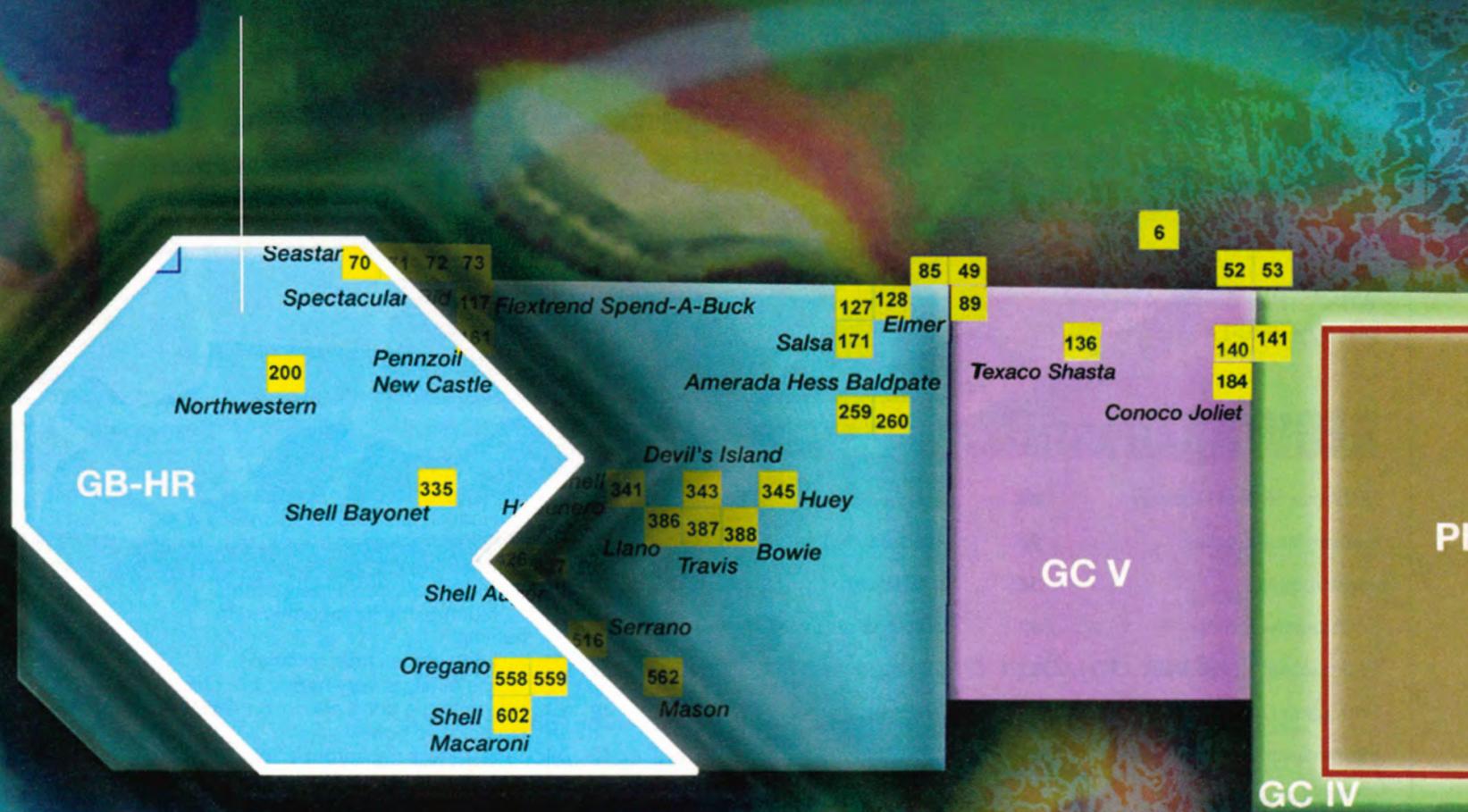
And remember, all activities including hotel reservations can be made online at [www.aapg.org](http://www.aapg.org).

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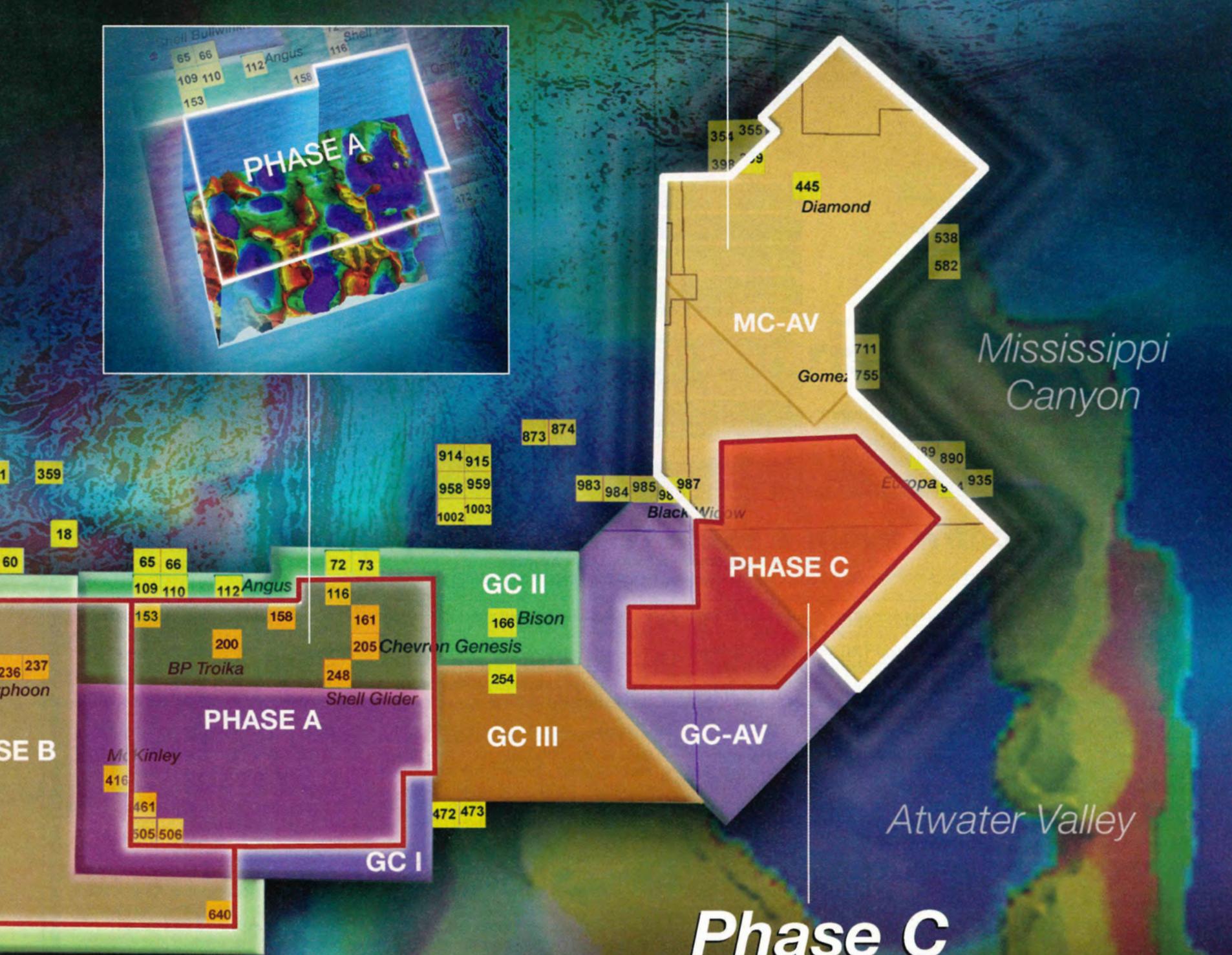
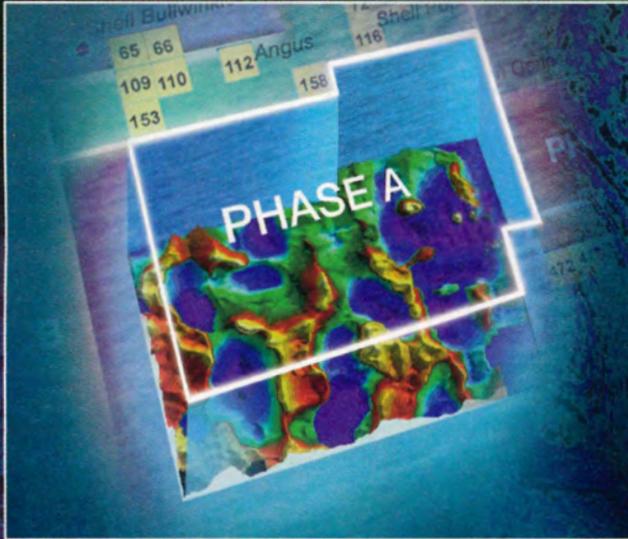
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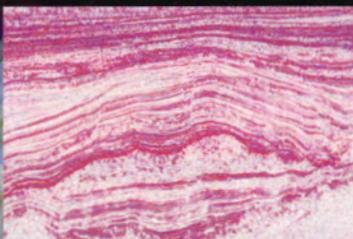
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Survey Tallied Opinions

# Members Positive About AAPG

By LARRY NATION

*AAPG Communications Director*

An all-member survey of attitudes concerning AAPG products and services showed an overwhelmingly positive result across the board.

A whopping 93.38 percent stated positive "overall satisfaction" with AAPG member services, with 72.53 percent giving "satisfied" or "extremely satisfied" marks.

David Anderson, of Anderson Marketing Services, the firm that conducted the survey, pointed out this extremely positive response was among the highest he's experienced.

The survey was distributed in the February EXPLORER and also was available to members on the AAPG Web site.

Of the 28,450 four-page, 95-question surveys distributed, 1,461, or 5.14 percent of the total distribution, were fully or partially completed and returned.

Of that total, 1,233 were tallied from the printed forms and 228 were collected and tabulated via the Internet.

Anderson noted the responses tracked very close to the age and geographic distribution of the membership at large.

Findings included:

**Overall Satisfaction** – Overall, members are "very satisfied" or "extremely satisfied" with their AAPG membership. Less than seven percent of members reported low satisfaction rating.

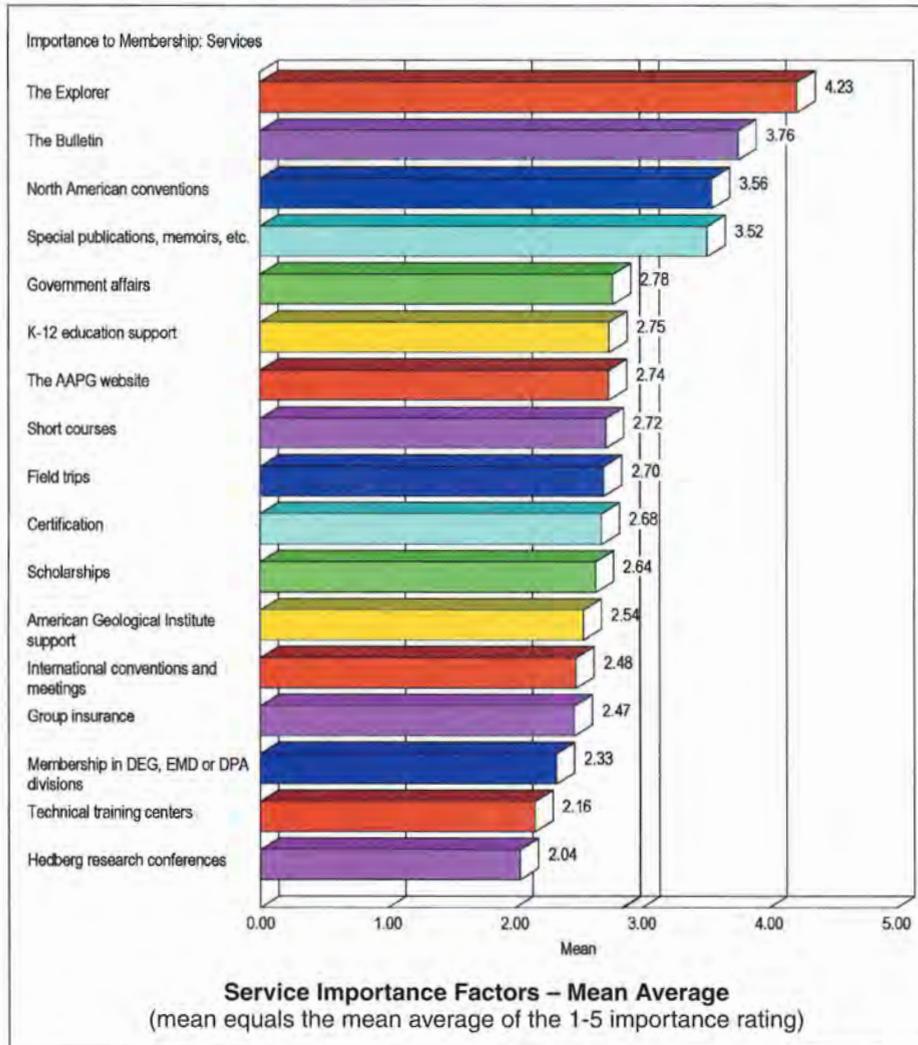
**Membership Importance** – Members were asked to report the perceived level of importance to their membership in two areas: general factors and services.

✓ In the area of general factors, professional responsibility and networking were deemed the most important factors.

✓ The EXPLORER, BULLETIN and North American conventions were the most important factors in terms of services (see chart at right).

**Three-Member Rule** – When asked if the "three-member sponsorship rule" should be reduced, members overwhelmingly indicated "no," with a minority reporting they would like to see the ruling changed or are uncertain (see chart below, left).

**Fee Reduction** – Member responses were mixed concerning the question of a reduced dues option, with



33 percent indicating dues should be reduced in relation to services (receipt of the BULLETIN) reduction, with about 24 percent being uncertain and the remaining 43 percent indicating there should be no fee reduction option (see chart below, right).

**Headquarters Service** – Of the 40 percent responding who had contacted headquarters in the past 12 months, most were satisfied with the services, especially from the bookstore, publications, membership and education.

Section support, distinguished lecture and committee support received the lowest rankings – however, no rankings fell below 2.7 on a scale of 5.

**BULLETIN** – The BULLETIN received extremely high marks, including readership and content, with 89.24 percent responding the BULLETIN quality as good or excellent.

**Special Publications** – 86.7 percent have purchased special publications; cost is the primary reason reported for non-purchase. About half of the respondents indicated an interest in less-expensive publication formats.

**EXPLORER** – Ranking as the number one service to members, the majority (86.61 percent) felt the articles are either "good" or "excellent." Readers also felt the length of EXPLORER articles is "about right."

**Continuing Education** – Most respondents (77 percent) have not participated in a continuing education offering. Overall, two-three days and \$100-\$200 appear to be the desired length and cost of a course, with a large group indicating a preference for online course offerings. Location and cost are the primary factors for members, outside of topic and instructor, for attending a course and most preferred weekday courses.

**Distinguished Lecture** – The majority of respondents had not attended a Distinguished Lecture in the past year. Of those who have attended, most offered very positive ratings regarding their experiences. In terms of content, they preferred either half science and half industry, or more industry than science.

**Web Site** – About 70 percent of the respondents have visited the AAPG Web site and most felt it easy to navigate.

**Government Affairs** – While the majority of respondents are in favor of AAPG actively pursuing government affairs in the United States and, to a lesser extent internationally, Anderson said "AAPG should note that there is not a 'core message' or 'value statement' that is evident from the membership."

Anderson suggested that "prior to undertaking any accelerated activities in this area, AAPG should expose its platform to the membership for comment and obtain a consensus of opinion."

**Conventions** – More than half of the respondents have attended a convention in the past three years and indicated that location, short courses, cost of registration and travel costs were the most important factors when considering attendance.

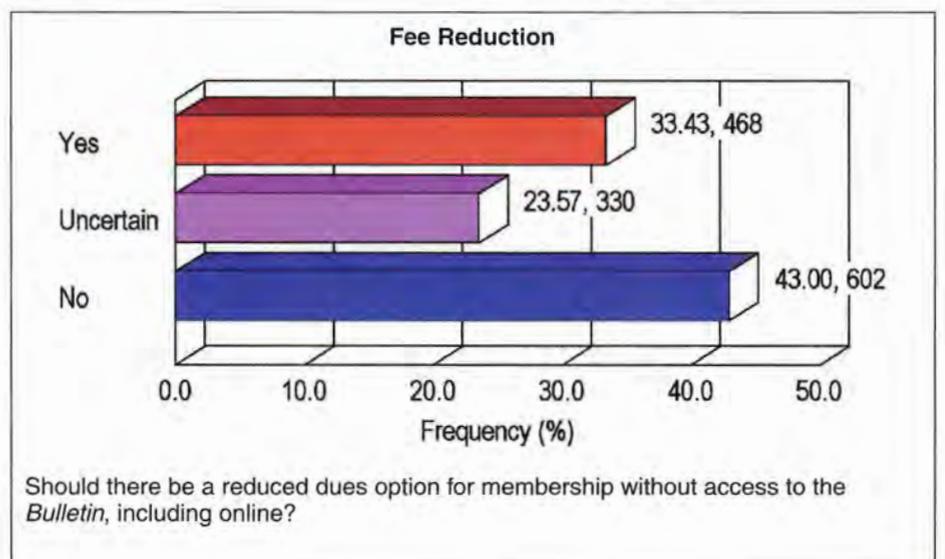
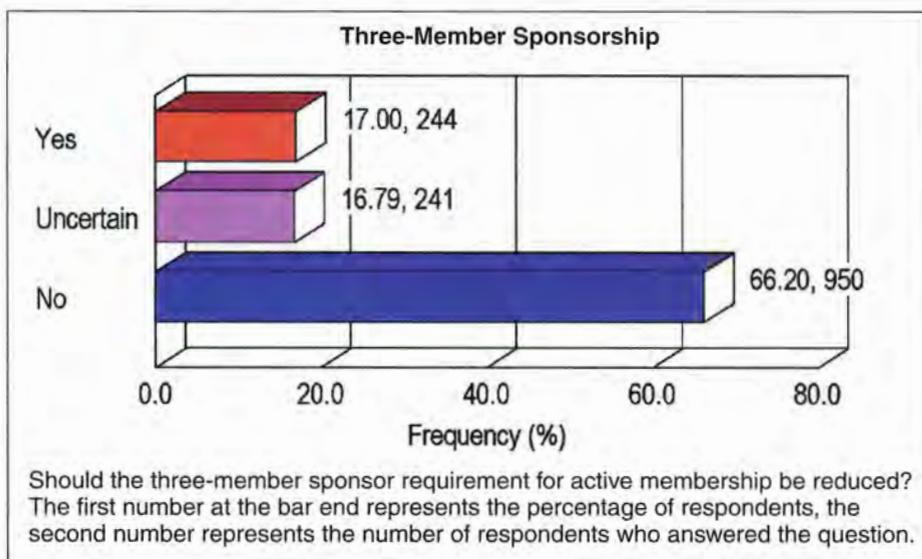
**Age & Tenure** – Anderson observed that "in 10 years, about 50 percent of the membership will be over 65 years of age. New member recruitment must be a major focus of AAPG as well as retention of older members if present member levels are to be maintained."

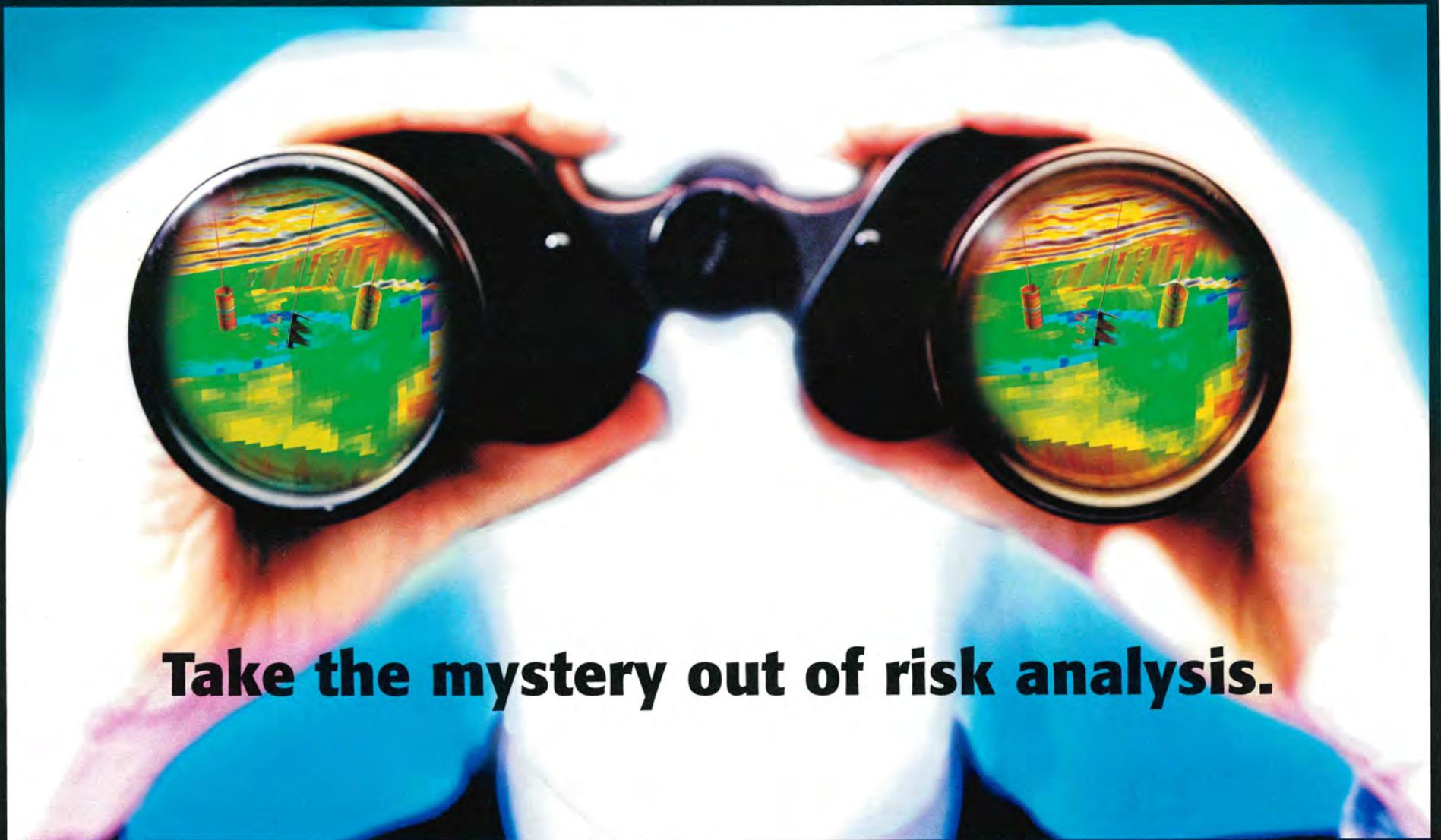
The survey was the result of a process that originated in 1997. The scope of the proposed survey grew through the process and evolved from a focus on the BULLETIN to include a broad spectrum of AAPG activities.

Don Lewis, AAPG vice president in 2001-02, was named chairman of the ad hoc Survey Committee in August 2001. The committee formulated the topic areas to be surveyed and gave guidance to the wording and question structure.

Ad hoc Survey Committee members, who represented the major constituencies in AAPG, were:

See **Survey**, page 8





**Take the mystery out of risk analysis.**

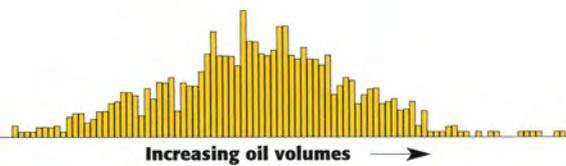
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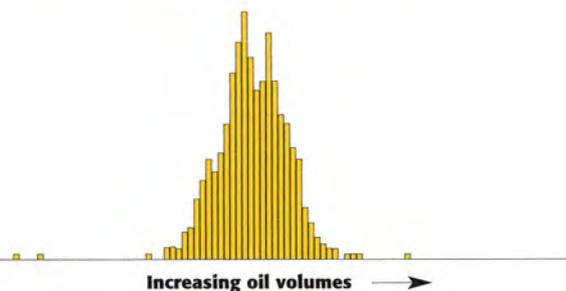
*Vivien de Feraudy, Senior Geologist  
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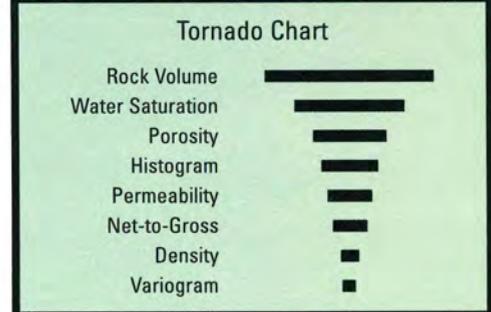
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## Member Drive Has Lots of Winners

AAPG's Membership Enhancement Drive is over.

And the winner is ... (Pause) everyone!

First, winners are the new members who joined AAPG and who can now participate in the "Pyramid" of member services.

Winners also are the current members of AAPG, who have 328 new colleagues with whom to share in the community of professional geologists.

Additionally, membership growth keeps the association strong by allowing for more programs, services and continued

professional development.

But more specifically, perhaps the biggest winner was Yusak Setiawan of Unocal Indonesia, who sponsored a whopping 48 new members in joining AAPG.

The second highest recruiter was Kamil Idris, of Talisman Energy in Canada, with 21 new members noting him as sponsor. Wow.

For his prodigious efforts, Setiawan will receive a voucher for travel, lodging and registration at the 2003 International Conference and Exhibition in Barcelona, Spain. Setiawan's efforts were applauded at the recent AAPG Annual Meeting

in Salt Lake City, where member drive results were announced by drive chairman David Campbell.

Congratulations – and "thank you" – also go to the members who sponsored new members and now sport an AAPG desk flag in their office. There also are seven who can wear a special pin denoting the recruiting of three or more new members, and three who can wear pins for recruiting six.

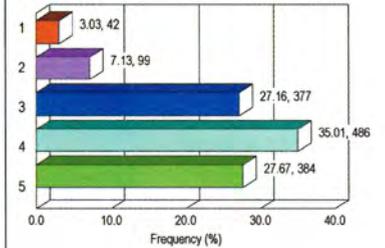
Everyone is a winner.

But wait – it's not all over yet.

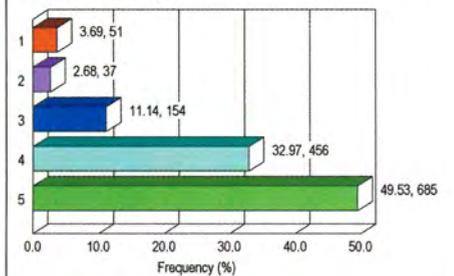
Watch future EXPLORERS for details. □

### Government Affairs Issues

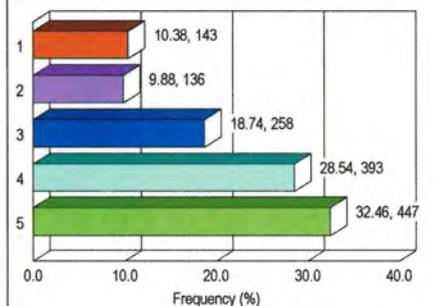
How active a role should AAPG take in informing the public concerning geoscience and energy issues?



How important do you feel it is for AAPG to inform governmental officials in the U.S. about technical policies and issues that may affect our membership?



How important do you feel it is for AAPG to take an active role in informing U.S. government officials about non-technical policies and issues (e.g. tax reform) that may affect our membership?



Responses: 1 – Not Active, 2 – Somewhat Active, 3 – Active, 4 – Very Active, 5 – Extremely Active

## Survey

from page 6

- ✓ Katharine Lee Avery, Division of Professional Affairs.
- ✓ George Bole, Committee on Committees.
- ✓ Ron Grubbs, Energy Minerals Division.
- ✓ William Harrison, Division of Environmental Geosciences.
- ✓ Don Lewis, chairman, Executive Committee.
- ✓ John Lorenz, Advisory Council, AAPG Editor.
- ✓ Dwight "Clint" Moore, Advisory Council.

Lewis said the committee recognized that a statistical sampling would suffice mathematically, but felt strongly that giving every member an opportunity to respond would maximize interest and usefulness of the result.

The responses to this survey were very much in-line with the responses from a Member Satisfaction Survey by the Council of Engineering and Scientific Society Executives in 1999, in which AAPG products and services were ranked in the top 25 percentile in every category as compared to other professional organizations.

The Membership Survey report is available on the AAPG Web site – [www.aapg.org](http://www.aapg.org). □

For more information on this subject, visit the AAPG Web site.



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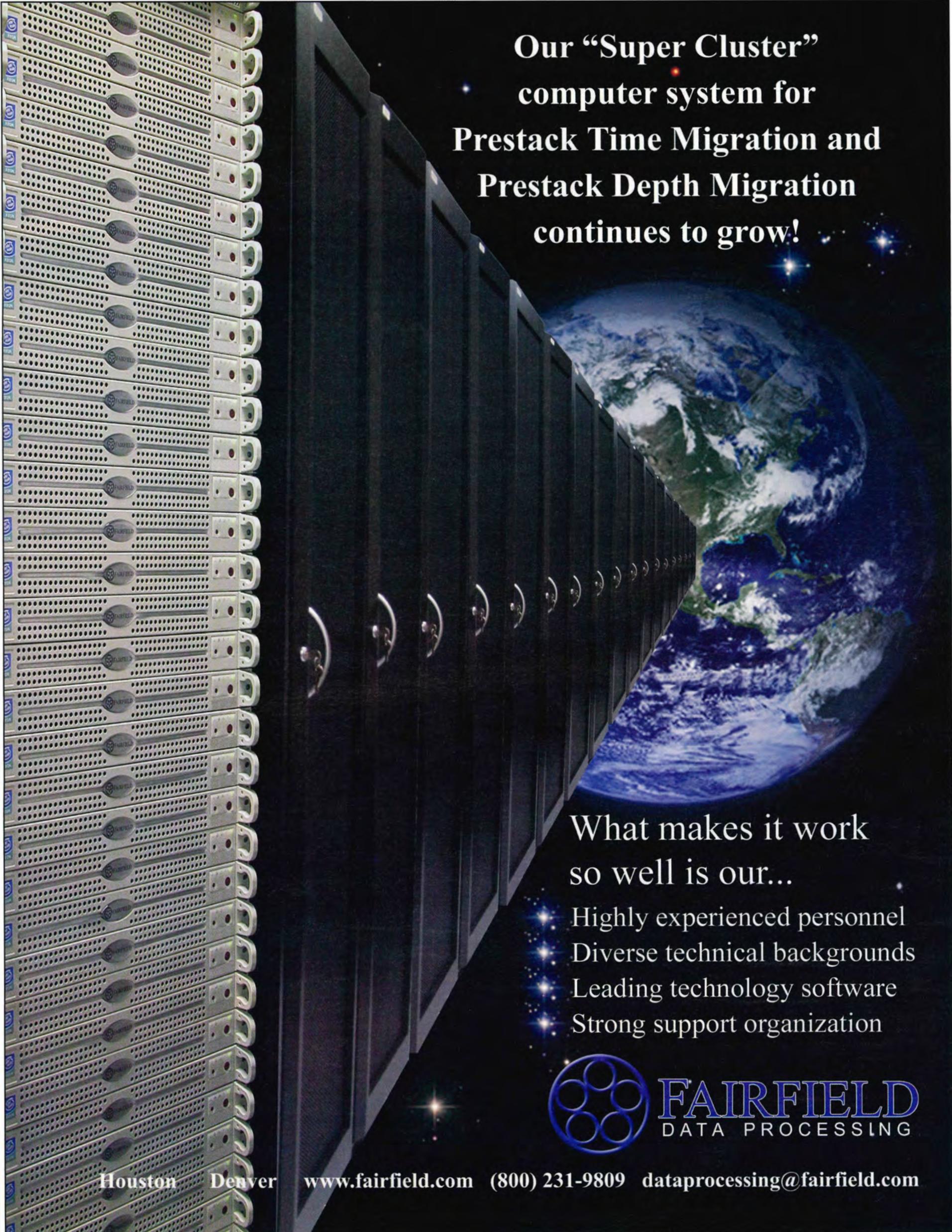
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*California Producer Makes a Difference*

# Winning Minds by Winning Hearts

By JIM HENDON

*EXPLORER Correspondent*

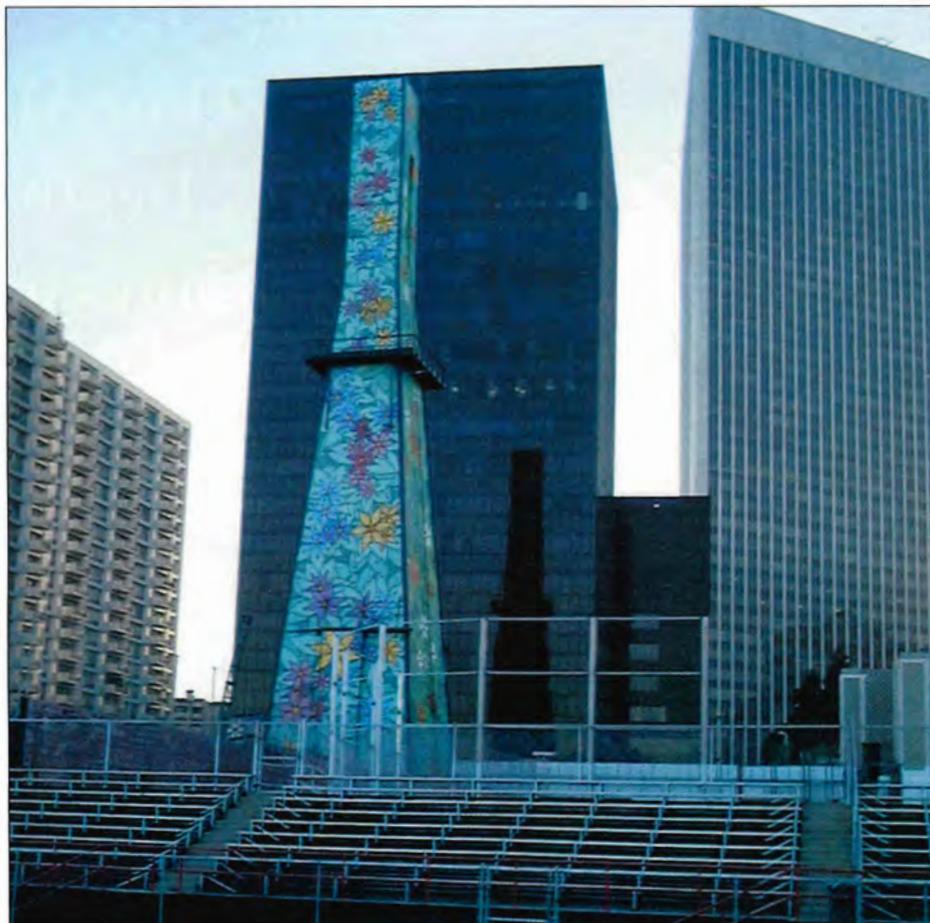
More than three decades have passed since the Santa Barbara oil spill, but the accident still haunts this whale-watcher's Eden at Carpinteria, Calif.

Just ask Venoco Inc., which owns and operates three production platforms here, with the associated unique challenges. For example, while producers elsewhere face only tumbleweeds, Venoco must constantly manage diplomatic relations with 100 neighbors living right next to its facilities – a permanent colony of harbor seals.

The sight of marine mammals snug against a service pier and two pipelines is but one of this area's reminders of the intrusion of oil on paradise. Venoco provides public access to view the rookery, just part of its extensive community outreach.

But a lot of people have never liked the industry. They want it out. They always have.

"The average amount of oil spilled from platforms, drilling and pipelines (since the big spill) averages about 28 barrels a year," says Rod Eson, Venoco's CEO and co-founder. "The industry has done an incredible job improving what we do. But the environmentalists still point to the pictures of the spill more than 30 years ago and say, 'This is what you guys are all about.'"



The "Tower of Hope" in Century City, is an active rig decorated with paintings done by children in medical facilities all around California. In the foreground are stadium seats for Beverly Hills High School; behind the tower is the Century City Medical Plaza.

*Photograph courtesy of Don Clarke*

Perhaps the 1969 spill can't fade into history because it created history, giving birth to the local group Get Oil Out, and some say also to Earth Day and the modern environmental movement.

Notable, too, much of the production here includes sour gas, which has always frightened people, one reason for decades of opposition to onshore processing.

The area has numerous natural oil and gas seeps, and the largest emits over 1,000 barrels of oil a week into coastal waters. But that's easier for locals to accept than having 21 production platforms interrupting the area's fantasy sunsets. So even though the 1989 Alaska tanker spill eclipsed the smaller incident here 20 years earlier, this is still ground zero for American anti-oil sentiment (see story on page 16).

"There are people here who were involved in the '69 cleanup who had oiled birds die in their arms," said AAPG member Karen Christensen, Venoco's exploration manager.

Soon, a local museum will add a new exhibit on the 1969 spill. That kind of exposure might make some companies cringe, but Venoco is also sponsoring an exhibit on the importance of oil and gas development in the Santa Barbara Channel, and Eson serves on the museum board.

See **Venoco**, page 12

**Midland Valley**

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## Venoco

from page 10

Like other corporations, Venoco sees citizenship as a duty and a business necessity.

But unlike many, it acts on those values with a striking mix of enthusiasm and creativity.

### 'Different Kind of Oil Company'

Founded in 1992, privately-held Venoco happily took on its highly-regulated offshore properties, along with fields on the Beverly Hills High School campus, in a Texas wildlife preserve and in the Sacramento Basin, where neighbors range from concerned duck clubs to delicate rice

*"The key to getting respect in the community is being in the community. We take people out and show them what we're doing."*

farms.

The strategy: Buy non-core or under evaluated, mature properties – ideally, from departing majors such as Chevron and Mobil – at smart prices, in prickly areas that few others will touch. Then, revitalize them with savvy geoscience, technology and drilling.

Venoco calls itself "a different kind of oil company." At local events, for example, it often displays a Toyota

Prius hybrid-electric sedan bearing the company motto, *Energy, Safety, Community*. It's an engaging way to suggest that "green" vehicles and a healthy local E&P industry are part of the same whole.

Venoco has earned grudging respect from many locals, and won awards from civic organizations and praise from government. In 2002, it was named business of the year by

three different chambers of commerce. Hundreds of people have taken Venoco's boat tours of the world-renowned natural seeps.

Despite these and others' efforts, opposition, moratoria and lawsuits have kept offshore exploration (not production) here at a virtual standstill since the early 1980s. Meanwhile, opinion polls continue to show high public disfavor for oil companies.

And local elected officials stand firm: "The Central Coast has seen the devastation of an oil spill," congresswoman Lois Capps said in 2001, "and our community views any new drilling as a threat to our environment and economy."

Against these kinds of odds, how does Venoco know its outreach is making a difference?

The answer: feedback.

Officials, teachers and kids who visit facilities send e-mails and thank-you notes, which fill a scrapbook in the home-office lobby. People say positive things at social events. Non-profit groups supported by Venoco have spoken up for the company when criticism seemed unfair.

"The key to getting respect in the community is being in the community," Eson said. "We take people out and show them what we're doing. Most have no idea of what we have to do to operate cleanly. They see how we behave, that we do the right things and go a step beyond rules and regulations."

They see also, Eson added, that oil people "don't have tails and horns."

### Friends, Not Enemies

Venoco donates \$400,000 to \$700,000 each year to charities, Eson said, with a 12-member employee committee screening the gifts. It also maintains a separate budget for energy education and community outreach.

Meanwhile, numerous employees do volunteer work, much of which is on company time, with Eson's blessing.

Karen Robertson-Fall, a former elementary school teacher, directs Venoco's education and community outreach, and she specializes in making sure programs and materials (especially those at [www.venocoinc.com](http://www.venocoinc.com)) are understandable. Too often, she says, well-meaning scientists and engineers go out to talk about energy, but the audiences can't absorb the technical explanations.

Venoco has taken extra effort to simplify technical jargon and show visually and hands-on how their operations work.

Further, she continued, building relationships requires extra attention to changing needs. For example – what happens if some teachers can't leave the classroom for an offshore tour because there's no money for substitute-teacher fees?

Solution: Venoco covers the fees.

Venoco sponsors beach cleanups and gives away sunscreen packets and sunglasses marked, "made from petroleum."

One recent Saturday, Venoco supported a fair, a fiesta, a festival, two fundraising dinners and a tour. The company shares data and good relations with the local university. It also hands out thousands of desk calendars showing local wildlife co-existing with energy facilities. Company brochures feature real employees, putting a human face on energy.

Venoco has learned what is effective – and what isn't.

See **Getting Along**, page 20

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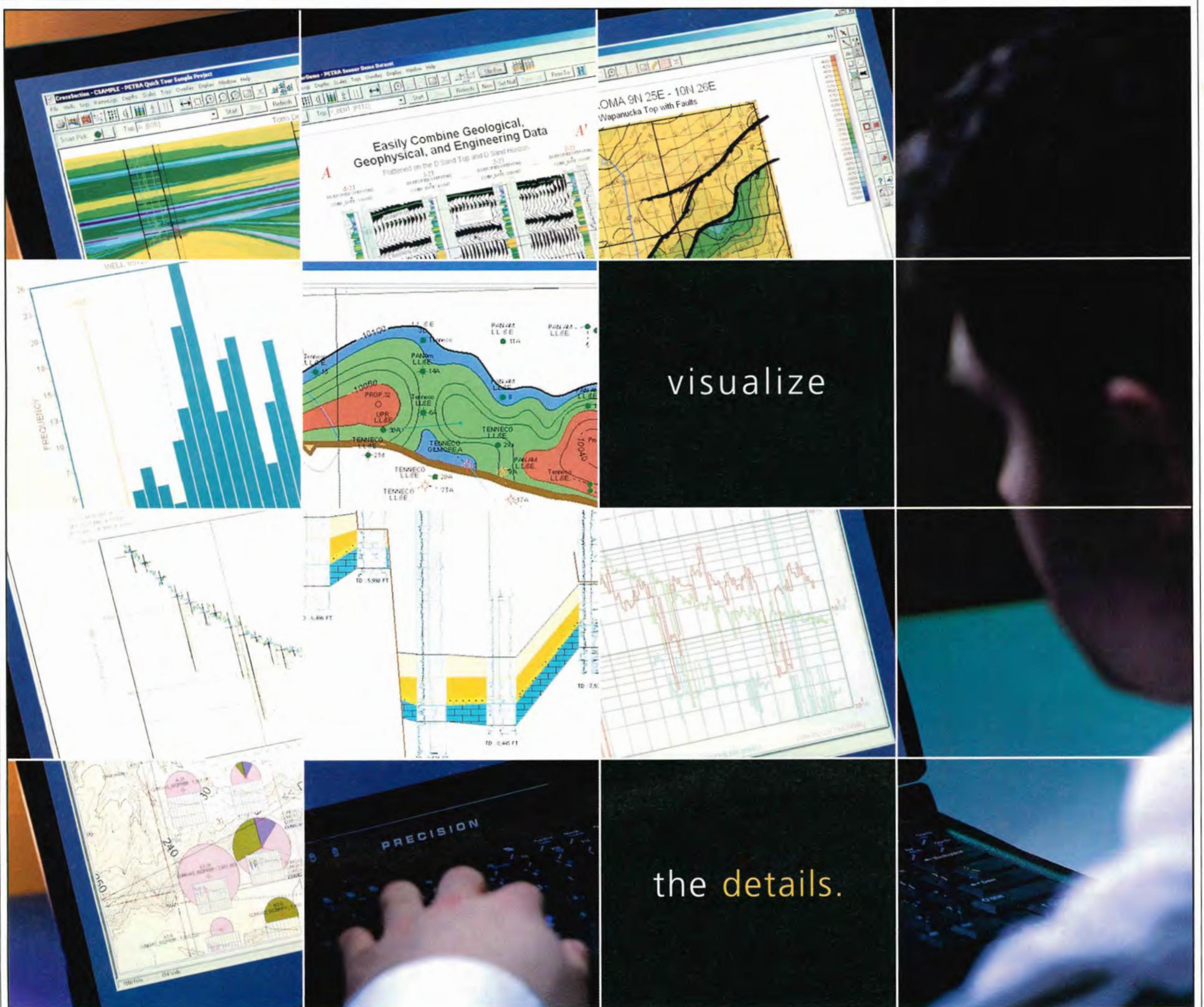
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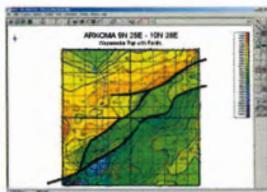
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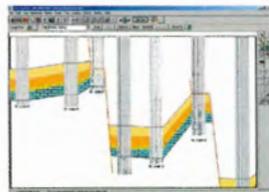


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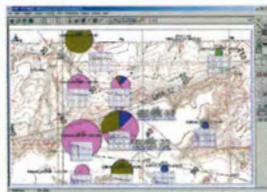
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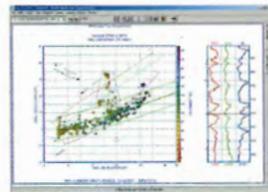
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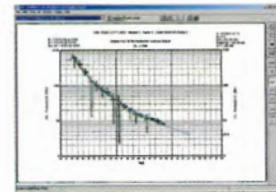
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# Friendly Geology, Tough Crowd

(Editor's note: Karen Christensen is chief geoscientist at Venoco Inc., a California independent noted for getting into the Santa Barbara Channel when others were getting out. She previously spent 18 years with Conoco, conducting and managing exploratory work in the Gulf of Mexico, deepwater Nigeria, onshore California, the North Sea and the Canadian Arctic.)

By JIM HENDON

*EXPLORER* Correspondent

AAPG member, Karen Christensen remembers well the time the head of a local anti-oil group summed up her feelings about Venoco: "For being in the most evil industry the world could ever imagine," she told her, "you guys are doing the best job you can."

These experiences come with the territory when you work in coastal California, site of the 1969 Santa Barbara oil spill. The industry here remains highly restricted, and Christensen attributes much of this to a "vociferous minority" that doesn't necessarily represent public opinion. But anti-oil sentiment remains common.

"All of us have been asked at dinner parties what we do, and people say: 'How can you live with yourself?' So you always think about how to describe your job, and you expect some hostility."

Christensen volunteers in the community, leading field trips for teachers and students and mentoring

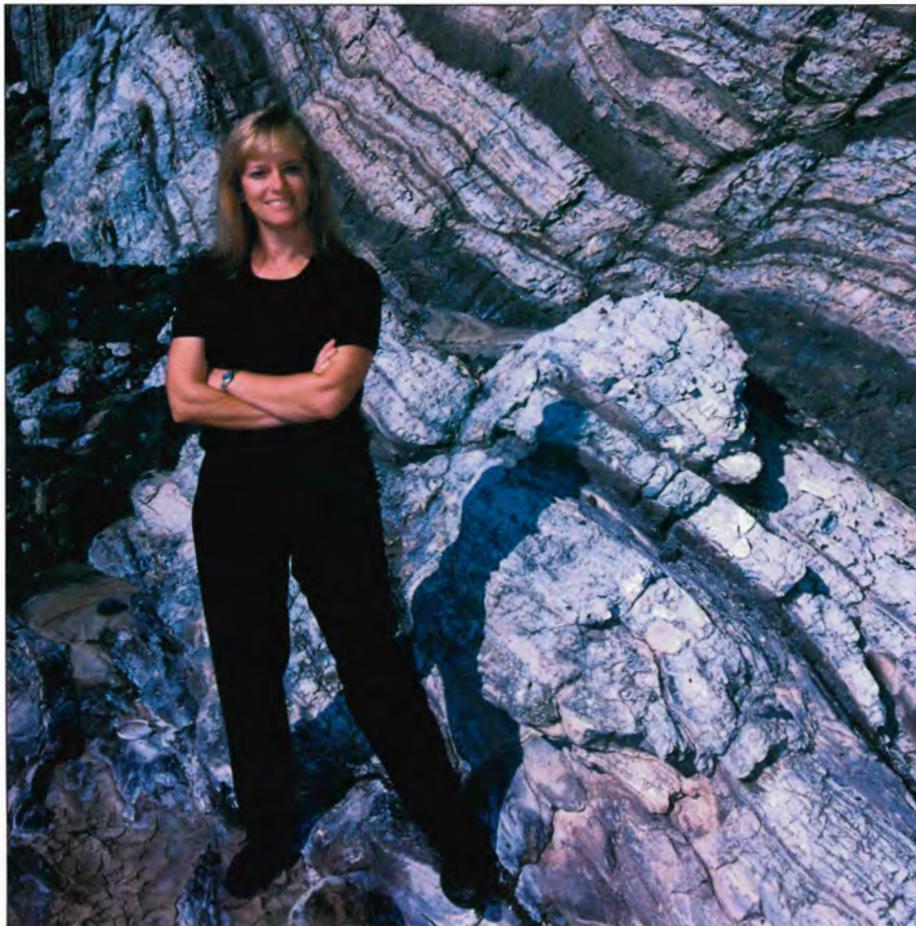


Photo courtesy of Venoco

Karen Christensen, chief geoscientist at Venoco, and the geology she studies and explains to the public.

others interested in science careers, among other activities. She enjoys this element of Venoco's company culture (see main story, page 10). But even more, she enjoys the mysteries of the Santa Barbara Channel.

"This is an extremely prolific basin, where oil migrates through faults, fractures and excellent reservoirs into a great variety of structural and stratigraphic traps," she says. "The Monterey Shale is one of the most interesting reservoirs in the world – it's both a rich source rock and an excellent, though complex, fractured reservoir. The Channel is one of the richest oil provinces in terms of density of fields, huge proven structures, and huge undrilled structures containing billions of barrels."

This is also where the technologies for deepwater exploration and production were first developed.

"Where else", she asks, "can you walk on the beach, enjoy porpoises swimming past, and pick up your own source and reservoir rocks in the sand?" Indeed, Christensen's husband, also an AAPG member, collects, cuts and polishes them, creating beautiful cross-sections with oil clearly visible.

"The oil oozes out of the cliffs and the mountains," she says, referring to the area's seeps. "The same rocks we're producing from offshore can be seen on the beach three miles away. It is structurally complex,

See **Christensen**, page 18

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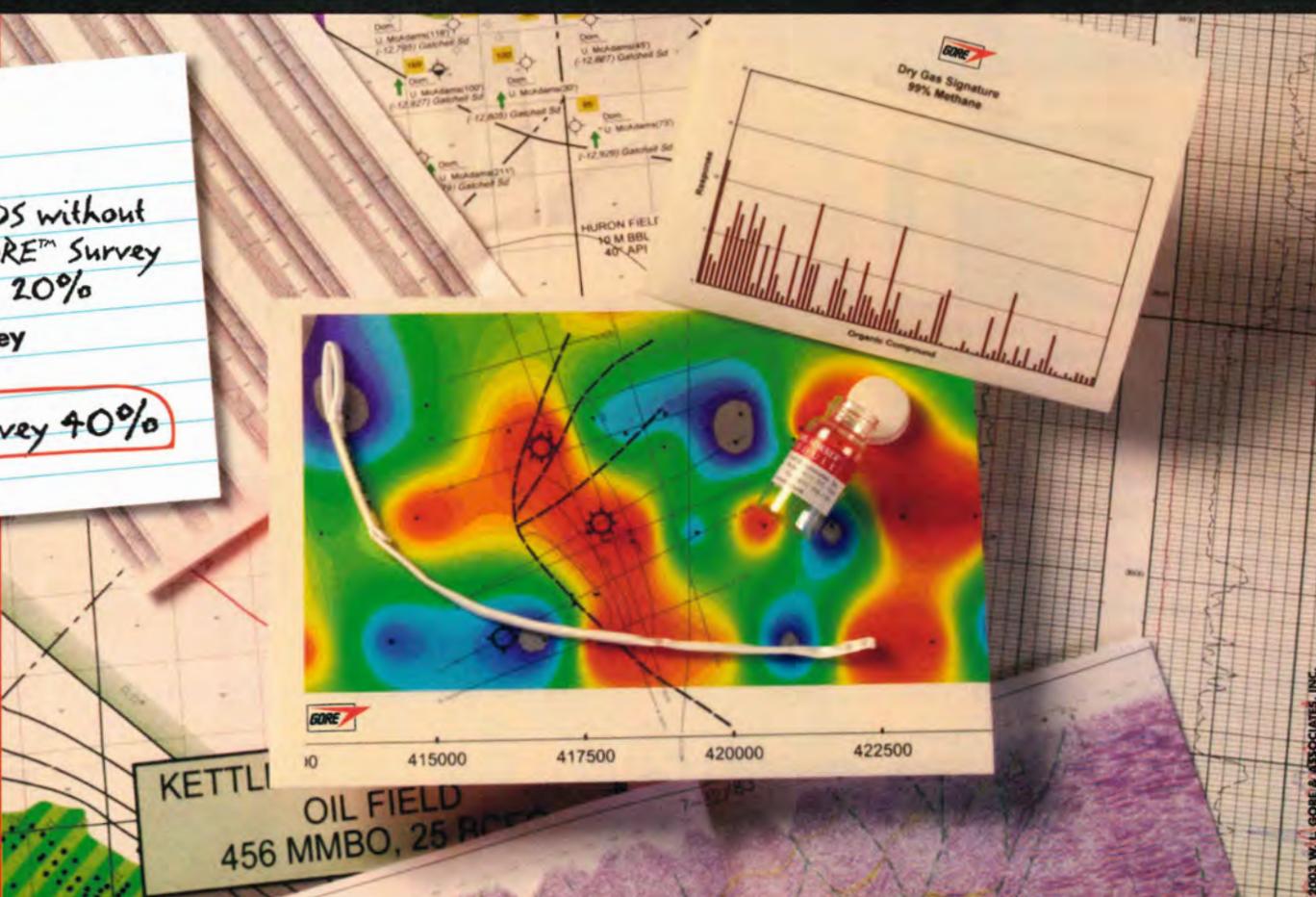
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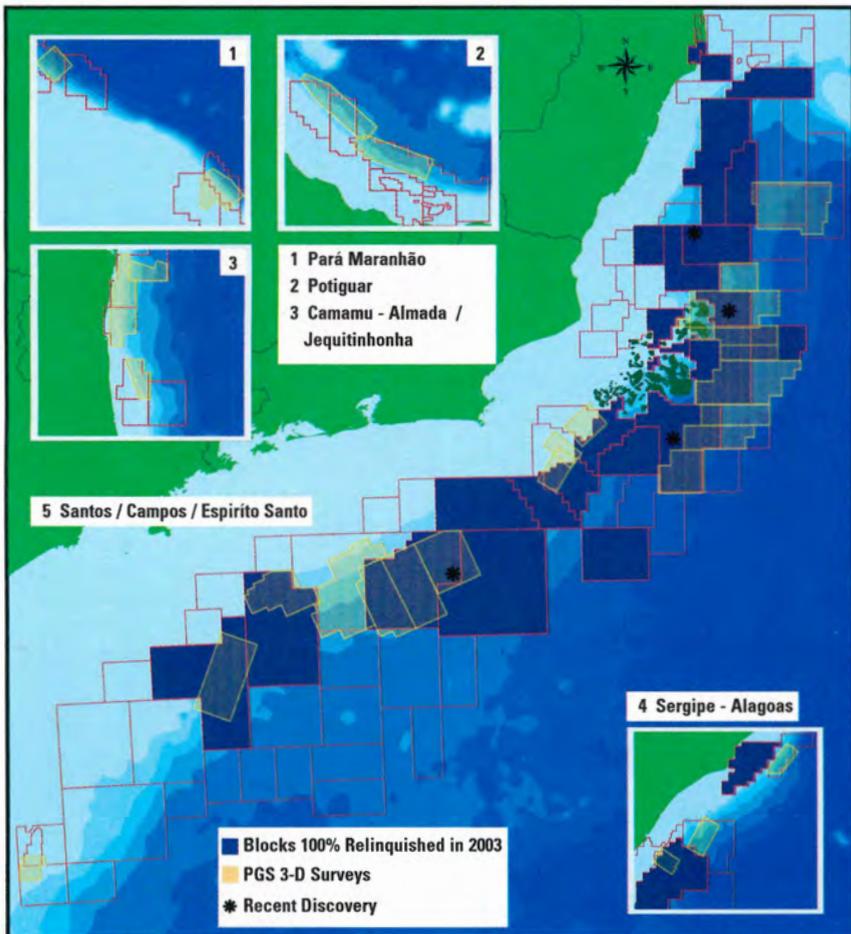
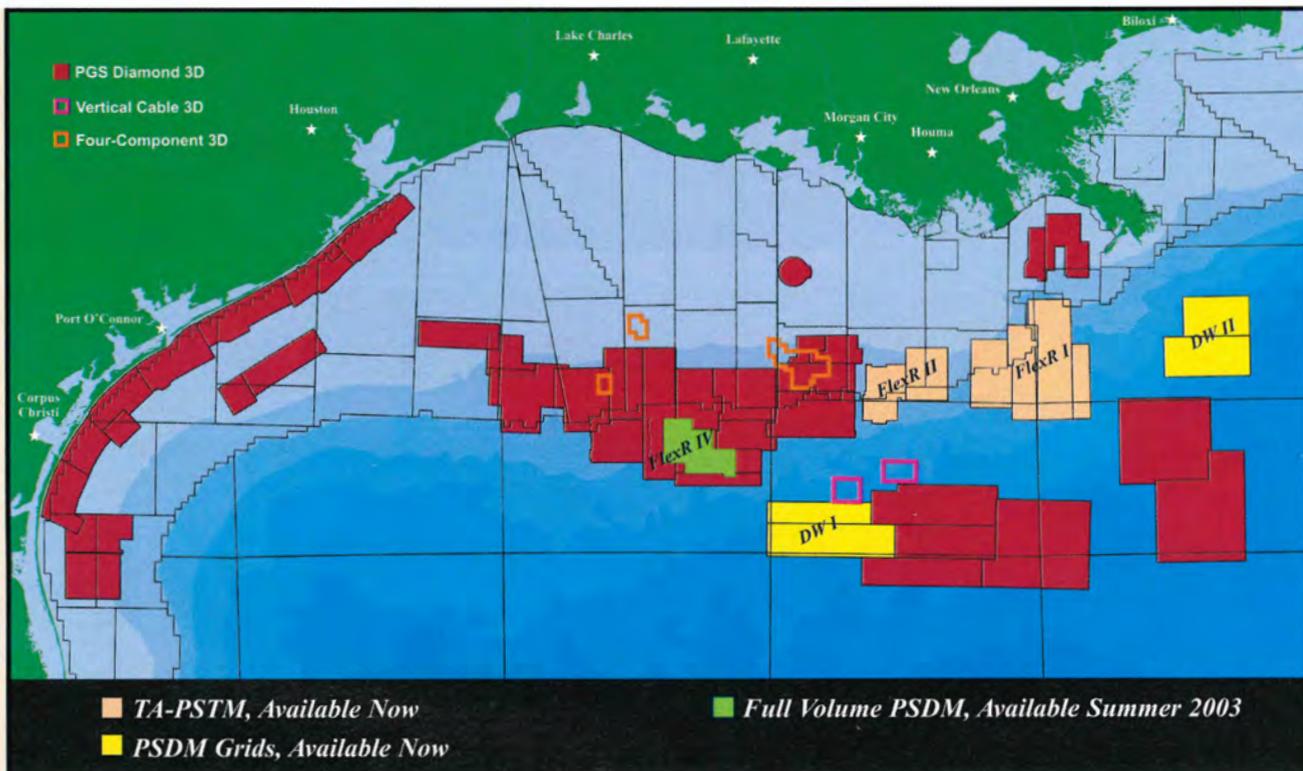
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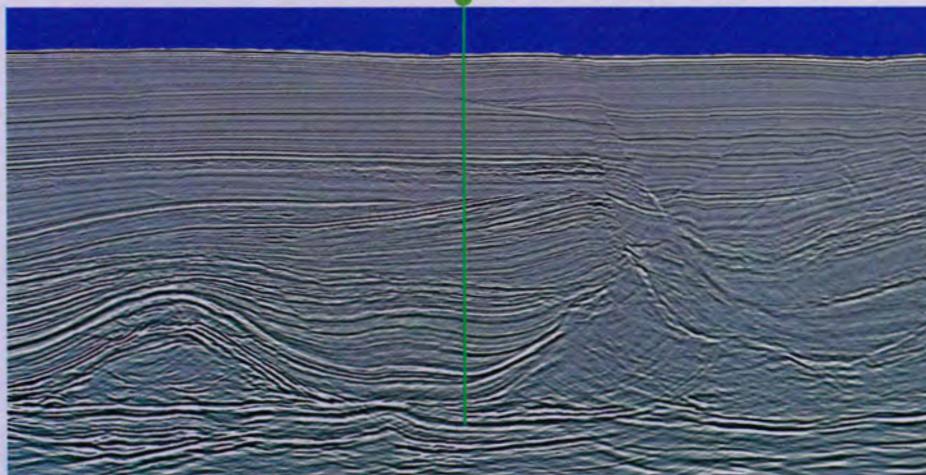
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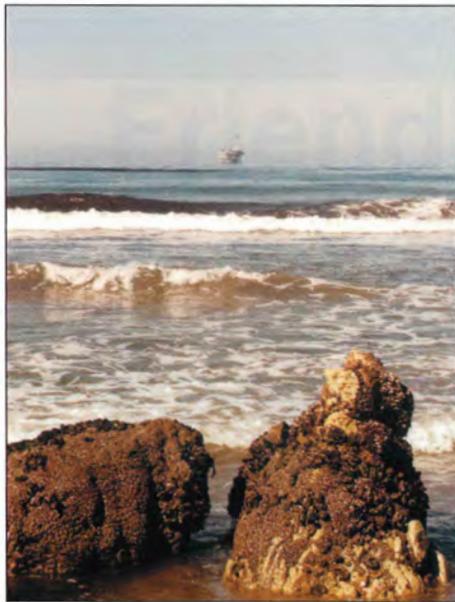


Photo by Karen Christensen

## Another Day That Lives in Infamy

On the afternoon of Jan. 29, 1969, there was a tectonic shift in the world's attitude toward industry in general the oil industry in particular.

For several years previous, there had been a growing political awareness of the need to clean America's polluted environment. Coal burning had been restricted in New York City in 1966, and a clean air bill was passed in 1967.

But on that fateful January day, an already antagonistic environmental movement reached a hostile critical mass.

It was the day of the oil spill in Santa Barbara Channel.



A Union Oil Co. platform six miles off the coast of Summerland, Calif., was preparing to pull 3,500 feet of pipe to replace a drill bit when a gas kick occurred. An initial attempt to cap the well was successful. But the resulting pressure buildup in the formation created five surface ruptures in an unexpected east-west fault on the ocean floor, releasing about 4,500 barrels of oil into the channel.

For 11 days oil workers struggled to depressurize the ruptured formation while oil bubbled to the surface and spread into an 800-square-mile slick. Incoming tides brought thick tar to pristine beaches over 35 miles of prime coastline.

It was 11 days of hard news as the world saw pictures of oily birds being treated at three emergency treatment centers and baskets of dead ones being carted before television cameras.

Fred L. Hartley, president of Union, held a news conference during the course of the clean-up, and in answering a question said, "I don't like to call it a disaster," because there has been no loss of human life.

"I am amazed at the publicity," he continued, "for the loss of a few birds."

Those comments inflamed the public – and the comment took on a life of its own. It became "common knowledge" that he literally had said, "What's the big deal about a few dead birds?" This was despite the comments being filmed for and available on TV.

Only days after the spill, Get the Oil Out (GOO) was founded in Santa Barbara, with organizers calling for a boycott on gas stations associated with Union, and urging consumers to burn credit cards and cut back on driving. Volunteers gathered over 100,000 signatures on petitions to ban all offshore oil drilling.

The following spring, thousands gathered in protest of the drilling. Wisconsin Sen. Gaylord Nelson came up with the idea that "if so many students across the country could mobilize against the Vietnam War, why not organize a national teach-in about the environment?" A national coordinator was hired, and on April 22, 1970, the first Earth Day was held, with an estimated 20 million people worldwide holding teach-ins and planting trees and generally agreeing that oil companies are polluters.

In response, the Environmental Protection Agency was established and a number of environmental statutes were ushered into law. A new era had begun.

As a postscript, an environmental group estimated 3,686 birds died because of contact with oil. Federal and state officials said there was no evidence of any marine mammal deaths due to the oil pollution.

—LARRY NATION  
(From the EXPLORER Century Issue, December 1999.)

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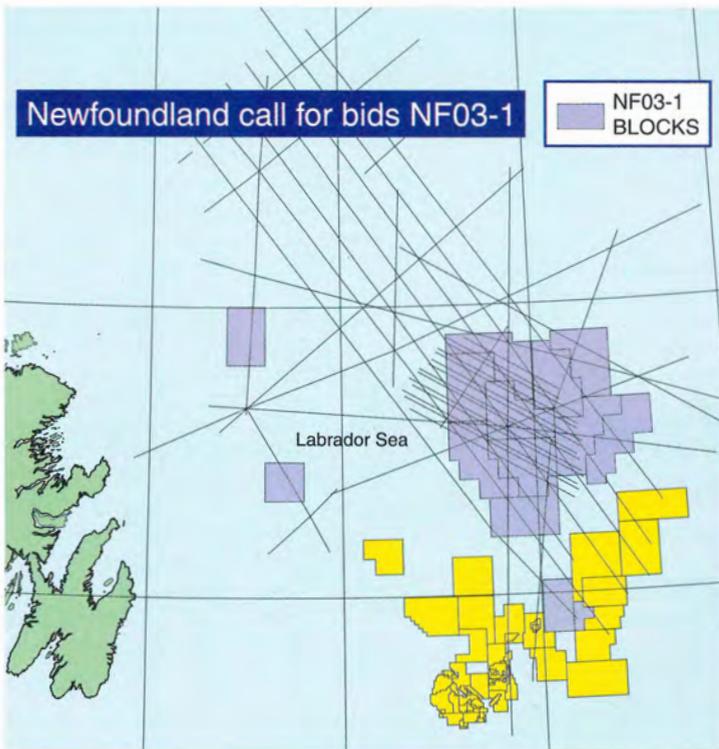
WesternGeco has implemented the EcoSeis system in a variety of sensitive environments to optimize operations and ensure continuing compliance.

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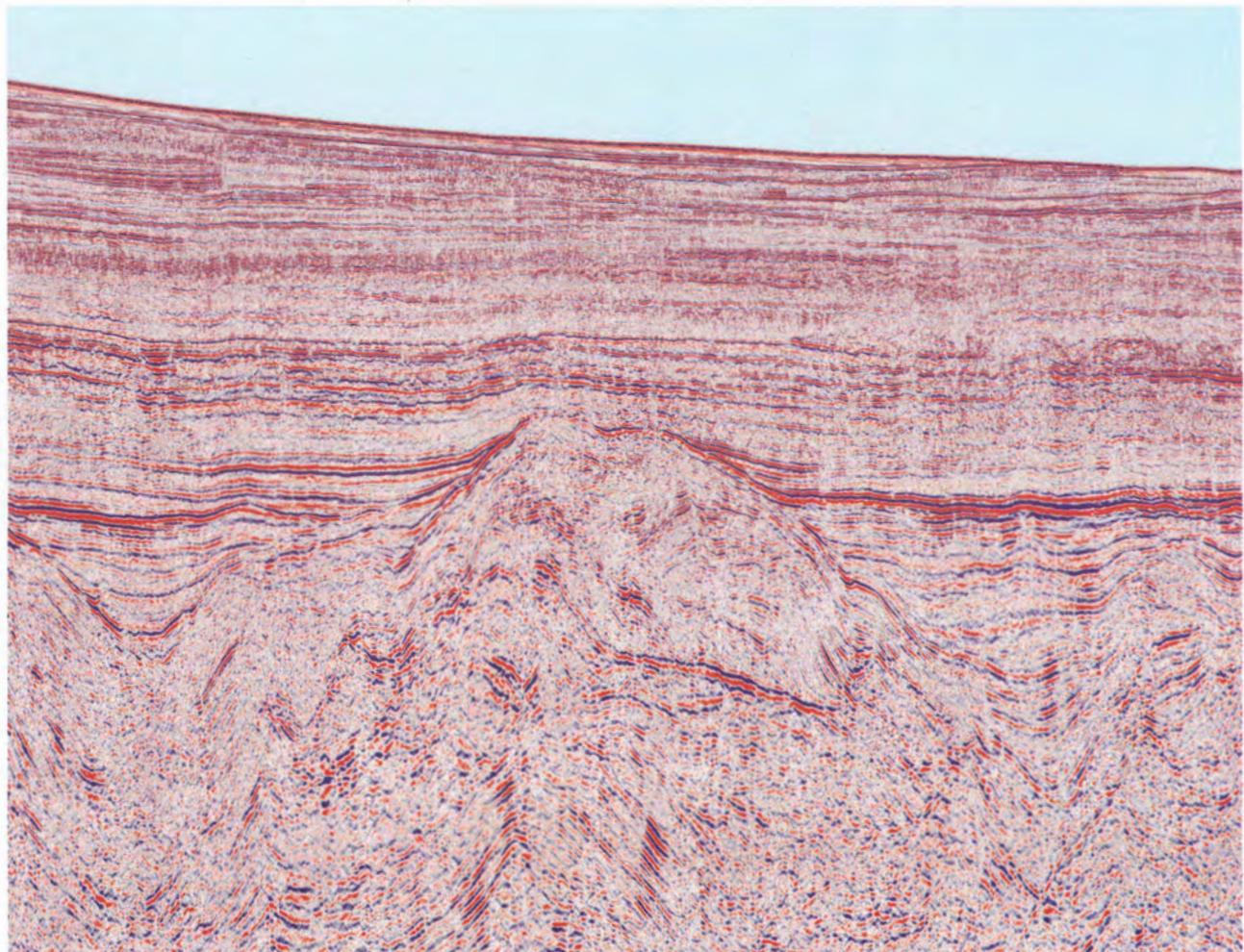


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Venoco takes members of the public on tours to Coal Oil Point and provides them with views of real "oil paintings" as seen in the inset. The Point is estimated to seep 6,000 gallons of oil each day.



## Christensen from page 14

stratigraphically complex – it's fun to come up with a geologic model and then take a walk on the shore and say to yourself: There's no way I can be right!"

Drilling on untested leases here has long been blocked by moratoria and lawsuits. But otherwise, she says, "In federal waters you can generally drill and produce any prospect that you can reach from existing facilities. I'm having as much fun, and more field work, exploring the innards and fringes of mature fields as I did doing rank exploration in the Chukchi Sea in the late '80s."

Christensen knows some dismiss

the Channel as a regulatory dead-end. But she sees it as a harvest area with upside, not yet sunset. Doing business is often difficult, but not impossible. One can still explore around the big legacy fields.

"We have a large, untested fault block in our South Ellwood Field, updip and on the flank, reachable from the existing Platform Holly. There's also a deeper-pool sandstone reservoir there with excellent shows, never tested."

Reachable from Venoco's Platform Gail, she says, is "a beautiful, untested strike/slip pop-up structure, with large bright spots." These wells are permitted with reserve estimates in the tens-of-millions of barrels, and easily reachable with existing technology."

Christensen knows this partly because when Venoco bought its mature offshore fields, she made sure to get all the regional seismic data as well. Trouble is, there are tens of thousands of tapes – and other voluminous Channel data also worth preserving. So she is informally working with seismologists, professors and the U.S. Geological Survey to preserve the data for public use in structural geology, earthquake research and other beneficial activities.

Further, the day may come when the nation needs the Channel's undeveloped resources.

"You could say that oil is in the bank until the time when people will allow it to be produced," she said. "Meanwhile, we're proving that drilling and production can continue."

As for public hostility, Christensen offers a hypothesis on why this is so frustrating to geoscientists. Most didn't choose geology for the money, she believes, even though it often leads to lucrative careers. Geology suits people who naturally enjoy "camping, hanging out in the outdoors, drinking beer around the fire and figuring out how the mountains got there."

Many fellow professionals, she believes, "are very proud of our environmental bent. We recognize the complexity of all Earth systems – we're the ones that perhaps best understand it! We're always dealing with natural systems – water, carbon, rock, paleo-climatic systems, which get into public issues like global warming. We really care about it, so we're personally hurt by the hostility."

Geoscientists also are more likely to be offended by irrational expectations of easy solutions to obviously complex scientific problems. The public and politicians want simple answers – take away production, but don't change our lives.

So, if geoscientists don't cause high gasoline prices and they didn't create the Enron scandal, is it fair to expect them to step up and fix public perceptions?

"We geologists, we're clean," she jokes. "We feel people shouldn't blame us. But the fact is, we have to live with our industry's reputation." Any small or individual effort is better than doing nothing.

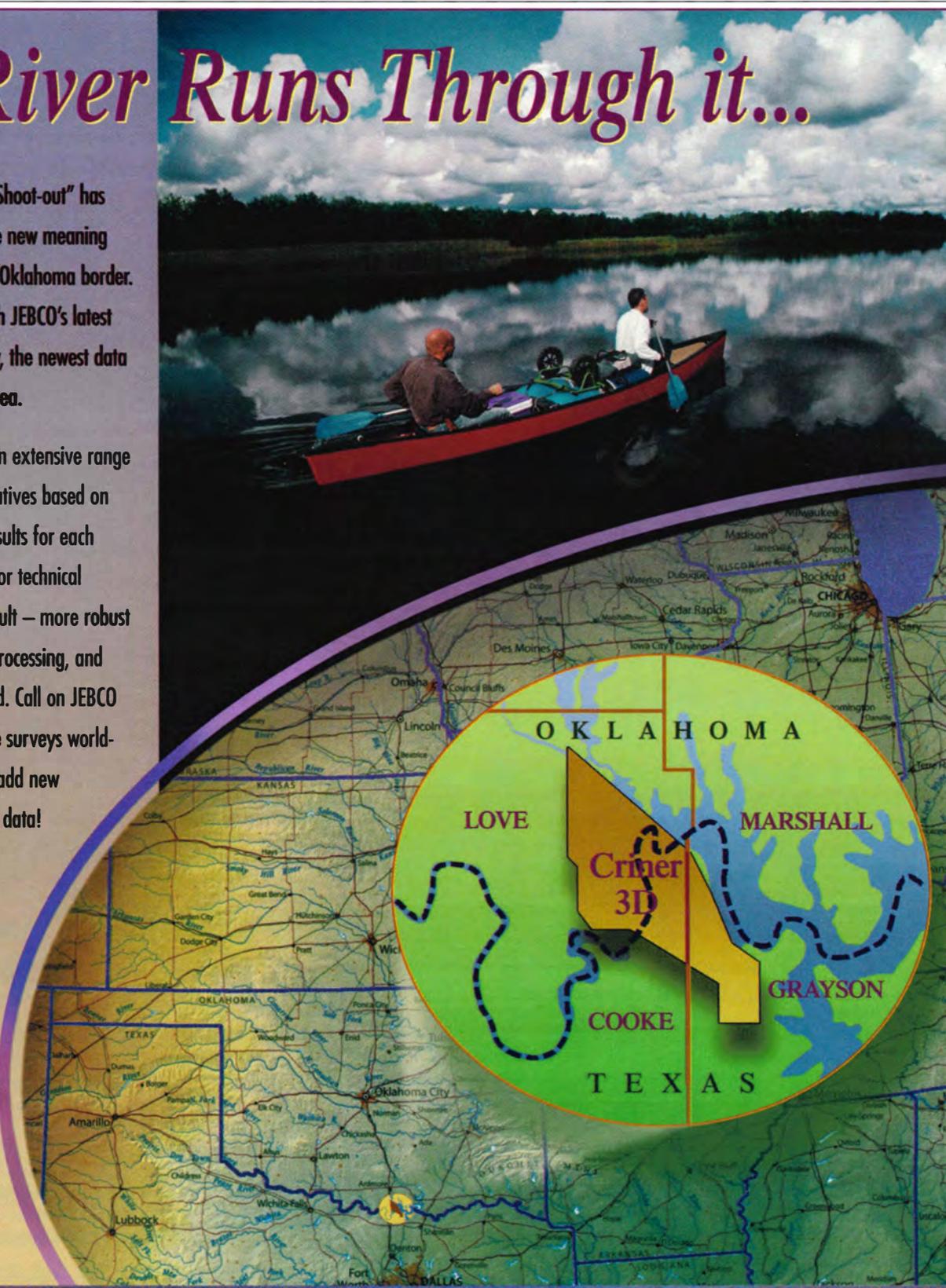
So she's currently designing a museum exhibit on oil migration and the oil seeps, another step toward demystifying energy for the public.

"You're just making a subtle impact," says Christensen. "You don't always have to ask, 'Is this the biggest bang for the dollar?' Just keep doing those little pieces." □

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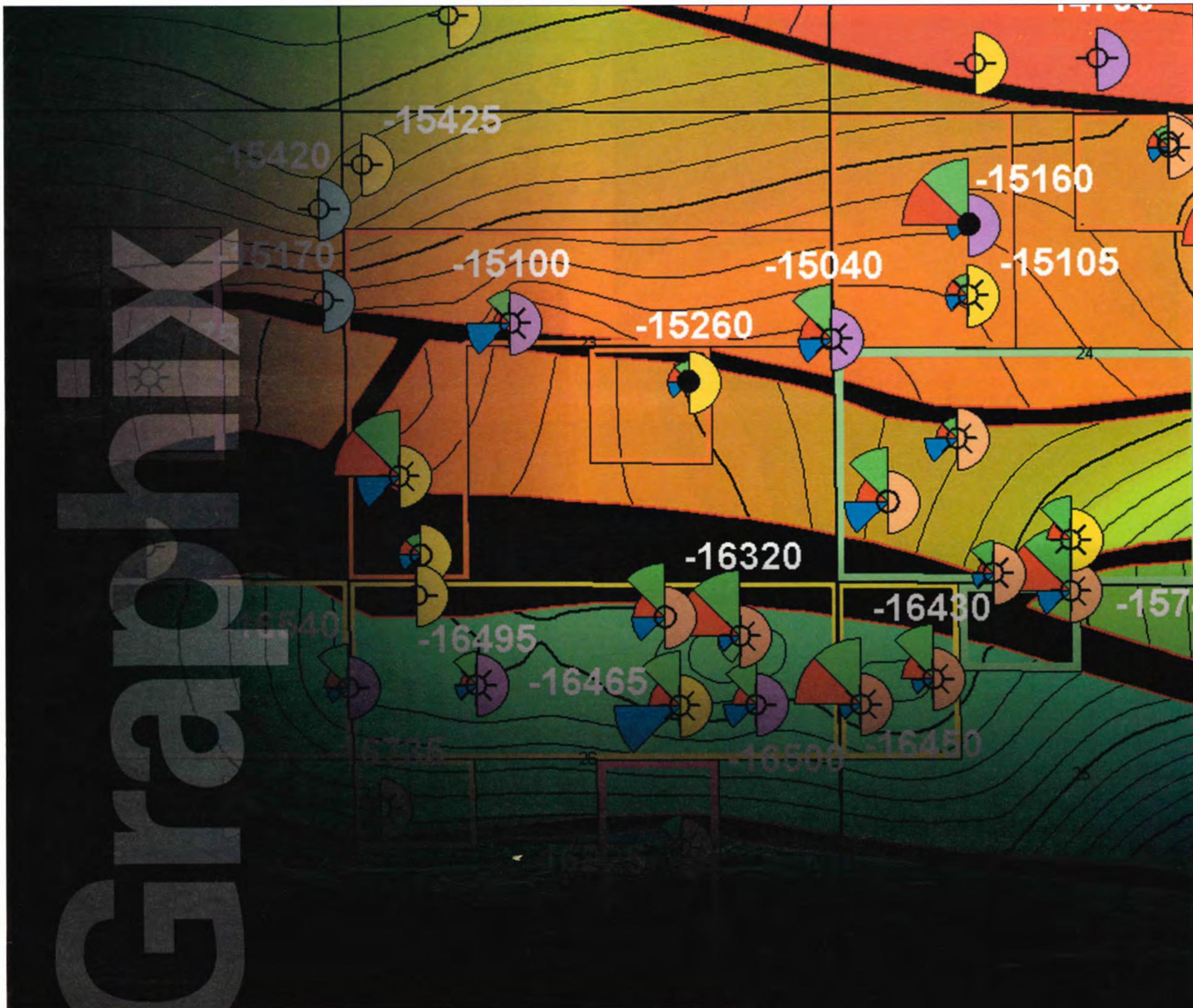


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Seals of approval: Venoco's Platform Holly is an ideal spot for basking in the sun and people-watching on a perfect California day.

## Getting Along

from page 12

Vice president for public and government affairs Mike Edwards has found, for example, that companies seldom make headway by lecturing people about their dependence on oil. True, California consumes more than twice the oil it produces. Spill risk is greater from tankers than offshore platforms. But if consumers don't want to acknowledge the links between offshore oil, gasoline and lifestyle, that's just a fact of oil-business life.

"Inform people and let them decide," Eson advised. "Not everyone is going to approve of what you want to do. That's their right. But they need to have the facts. There are people who don't care

what the facts are. But the majority of the public is not like that.

"They want to be informed and make up their own mind."

### Facing the Challenges

For Venoco, that includes raising facts that aren't pretty. On tours, Edwards always brings up the 1969 spill, when 80,000-plus barrels fouled 40 miles of coastline. He explains how the oil escaped from a too-shallow casing into an unconsolidated zone, then spewed from the sea floor.

Who could blame people back then for concluding that Mother Nature could surprise Big Oil at any time, with disastrous consequences?

Edwards also shows people the gas bubbling to the surface at the offshore natural seeps near Coal Oil Point – a natural wonder, instead of a natural enemy. He talks about Venoco's huge, submerged "seep tents," which capture gas that would otherwise pollute the air. And he explains that with industry diligence, extensive well casing, improved technology and today's tough regulations, chances are slim-to-none that another 1969 spill could ever happen.

Venoco produces about 15,000 BOE per day, most of it from offshore. To spread risk and raise capital, it wants to sell 50 percent of its wholly-owned offshore operations. The company wants to add more gas, onshore and international properties.

The latest came in Beverly Hills, where legal activist Erin Brockovich (profiled in the 2000 hit movie of the same name) threatened to sue Venoco and prior owners of the oil and gas field, claiming that fumes caused former students to develop cancer. School and air-quality officials are disputing the claims, however, and Venoco has a good relationship with the school and community.

In addition to official commendations for its clean operations, the company recently won kudos for supporting a project to decorate its 165-foot working derrick with artwork from terminally ill children. Called the Tower of Hope, it provides a colorful counterpoint to the negative Brockovich publicity.

Like others at Venoco, Eson has watched the oil and gas community struggle with its negative image for years. He is asked: Is it possible the industry deserves its bad reputation?

"I think we deserve it from the standpoint that we haven't done enough to dispel it," he responds.

Asked if he thinks things will get better or worse, he says, "I don't think it's going to get any easier."

He certainly should know. For example, based on regular interaction with more than a dozen government entities, Venoco believes that its Platform Holly and associated facilities may be the most regulated and inspected oil and gas complex in California. That just might make it the most regulated in the world.

Still, Venoco stays its course.

"We say, 'Come talk to us. We'll show you our operations,'" Eson said. "Early on, we decided we would let people know what we do, open the doors. If somebody sees something they don't like, we'll address those concerns."

So, what would he say to those who may be fed up with trying to convince a hostile public to give the industry the benefit of the doubt?

He smiles.

"I'd encourage them to go into another business, and tell them I'd like to make an offer on their assets," he said.

"This is not for the faint of heart." □

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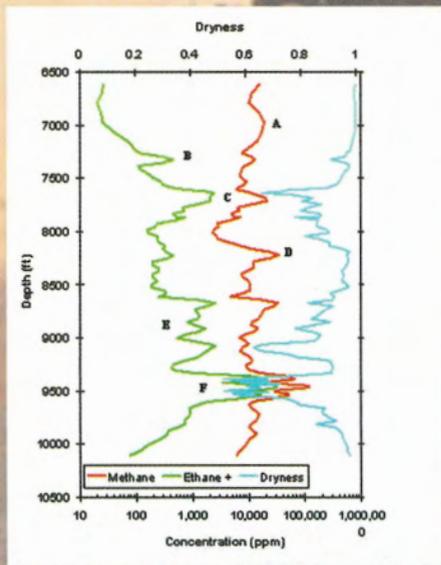
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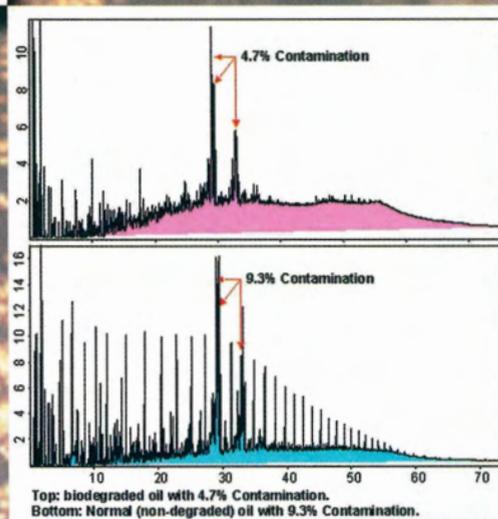


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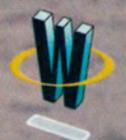


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*Barcelona Posters See West Africa Analogies***Spain Outcrops Hold Deep Secrets**

David Jennette and co-author Jerome Bellian, both with the Bureau of Economic Geology at the University of Texas at Austin, will present two posters dealing with their Spain 3-D laser-outcrop studies during the AAPG International Conference and Exhibition in Barcelona, to be held Sept. 21-24.

✓ "Three-D Digital Characterization and Visualization of the Solitary Channel Complex, Tabernas Basin, Southern Spain," will be presented Monday afternoon, Sept. 22.

✓ "Application of Laser-Scanned Outcrop Data to Build Models of Deepwater Reservoirs: Examples from the Tabernas and Ainsa Basins, Northern and Southern Spain," will be presented Wednesday afternoon, Sept. 24.

By KATHY SHIRLEY  
*EXPLORER Correspondent*

Long studied outcrops in Spain that may hold secrets to understanding deepwater reservoirs are providing new clues, thanks largely to new 3-D laser technologies.

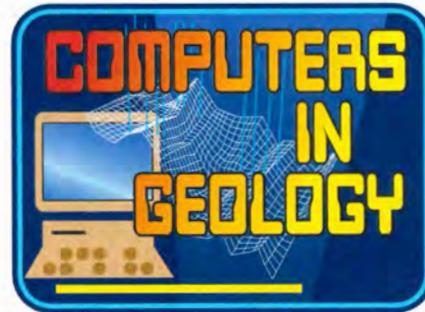
Lasers coupled with sophisticated computer programs are generating three-dimensional representations of the outcrops that, compared to traditional field studies, significantly enhance the information that can be gleaned from the exposed rocks.

Researchers from the Bureau of Economic Geology at the University of Texas at Austin recently traveled to Spain to study outcrops in the Ainsa and Tabernas Basins – rocks that are

analogous to deepwater deposits offshore West Africa. Their effort is part of a larger program designed to develop an entire portfolio of world-class examples of common reservoir types via 3-D representations of outcrops – a virtual geology experience, said David Jennette of the BEG and a researcher on the project.

The team has also studied outcrops in California, West Texas and Chile to better understand deepwater reservoirs (see April EXPLORER).

To do this, the scientists are using a light detection and ranging (LIDAR)



system, which has proven to be a valuable tool for rapid, quantitative characterization of outcrop geology.

That technology – along with computer advances in acquisition technology, data handling, data merging and visualization – is providing a superior method of outcrop capture and analysis when compared to traditional photograph-based methods, Jennette said.

The combination allows outcrop facies to be readily placed into navigable 3-D volumes that can be examined while in the field and then later interpreted on a workstation or PC back in the office.

The high resolution digital terrain models are draped with conventional photographs and co-rendered with attributes such as:

- ✓ Weathering profile.
- ✓ Laser intensity.
- ✓ Multi-spectral data to produce greatly enhanced outcrop imagery.

**Total Recall**

LIDAR, built by Optech, is a portable system that emits a laser pulse and then receives and measures the laser beam bouncing off an outcrop face.

"The instrument collects 2,000 points a second and is basically a mirror that captures the reflected laser or image of the outcrop face," Jennette said. "We typically capture points every two to five centimeters on an outcrop."

They then scan the outcrop looking for the geology they want to capture as a very detailed digital elevation model. Because

**Analog Database to Expand**

Oil companies also see the potential value of a technique for producing 3-D outcrop analogs. Several major oil companies are supporting the Bureau of Economic Geology's research.

The BEG team plans to expand its outcrop analog database over the next several years to include important outcrops of both clastic and carbonate systems. This summer David Jennette and his team will be in Ireland.

"One of the areas we would like to advance to is very large rock outcrop systems like the Brushy Canyon of West Texas or Karoo in South Africa," he said. "We can cover tens of square kilometers in an afternoon with aerial LIDAR tools and implant ground based, high-resolution surveys into that data."

He views this as an opportunity to bring together big aerial surveys and highly focused ground based surveys to build the basis for a much more accurate geologic characterization of the subsurface.

"Once this data is captured it is captured for good," he said. "It isn't a document gathering dust on somebody's bookshelf. It is something that can constantly be made evergreen through new analyses and new types of applications, and new company Web-based learning tools."

"Given the cost associated with studying these far afield places, once the images are captured there is a continuing return on the investment." □

continued on next page

### Fairfield's new **DEEP SHELF** program combines acquisition and processing for better decision making.

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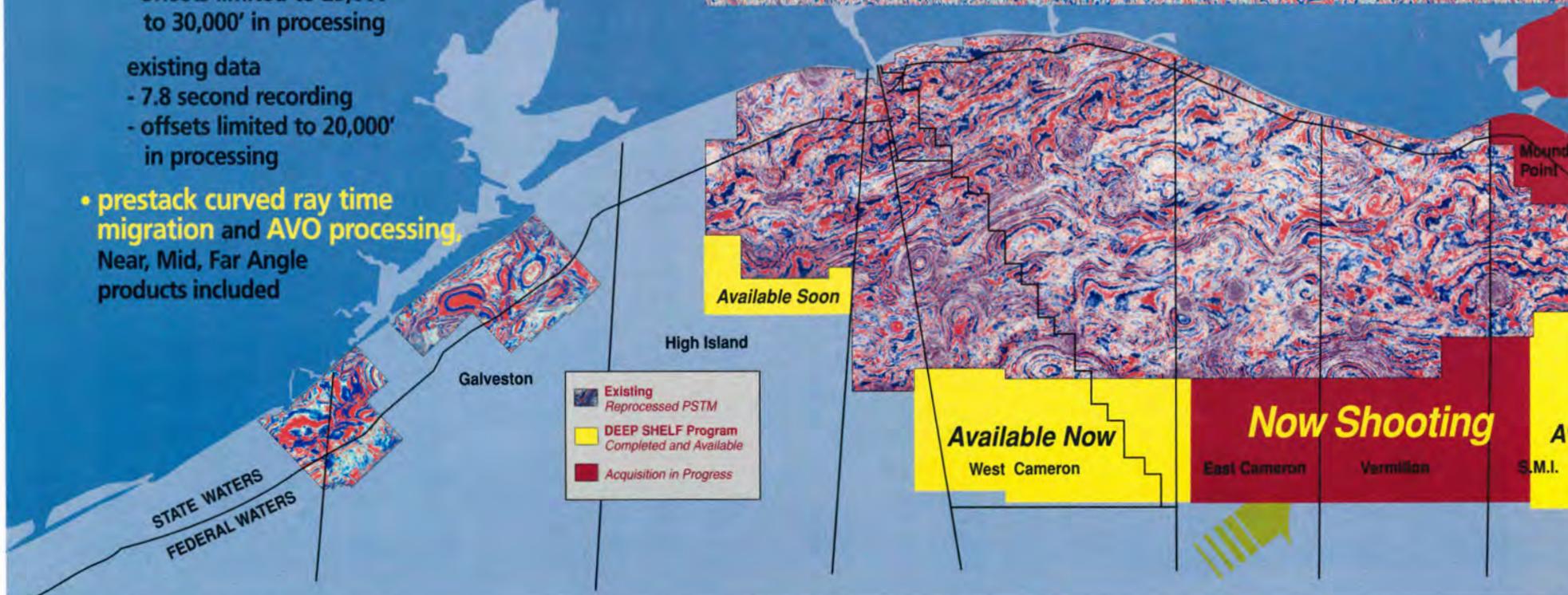
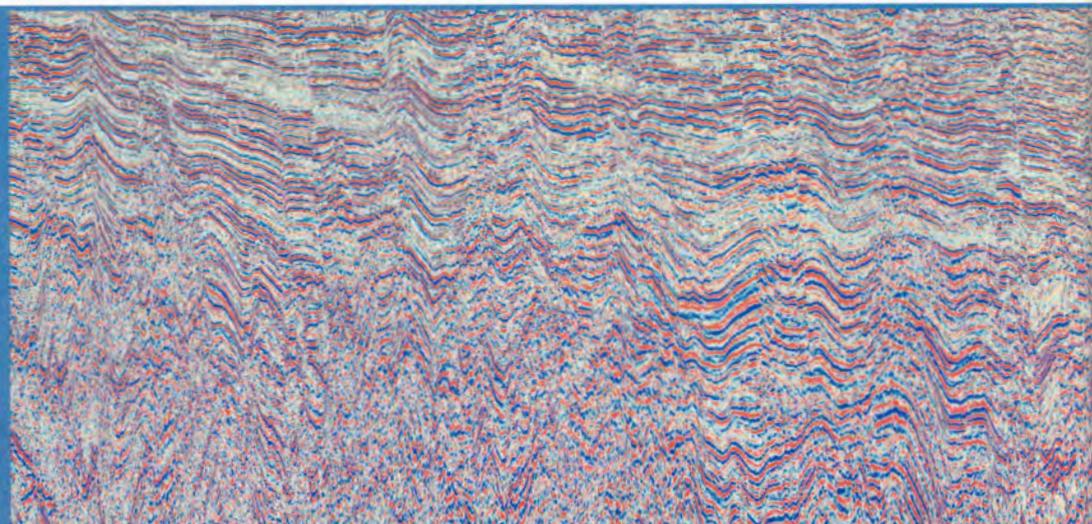
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continued from previous page

this system captures so much spatial data, they are able to fill out the XYZ points so the final image actually looks like the outcrop surface – “and we can visualize almost all of the geology,” Jennette said.

Using the LIDAR system Jennette and his colleagues can produce a black and white photograph of the outcrop in three dimensions because the instruments capture the intensity of the reflection.

“It knows what energy is being emitted by the laser and then measures the reflection strength that is returned,” he said. “Intensity values are closely tied to rock color and lithology.”

The tool allows them to take several 10- to 15-minute scans, then move the scanner over a few tens or hundreds of meters and shoot another scan, almost as if taking a photograph.

The laser is just part of the system. Equally important are the computer software programs that synthesize and then bring meaning to the images.

“The software allows all these scans to be merged within a matter of seconds,” Jennette said. “We pick what appear to be common points on two different scans, and the software merges the two instantaneously within a statistical threshold that we establish. That is how we capture kilometer long outcrops.”

The 3-D outcrop volumes are compatible with visualization technology, so in addition to viewing the 3-D imagery on the desktop, scientists can cycle the volumes into the visualization centers scattered throughout the world and be immersed in the outcrop.

Another benefit for geoscientists is recall of outcrops.

“When I worked at a major oil company research lab, one of my responsibilities was building an analog system,” Jennette said. “One part of that training was to take people out to outcrops. Unfortunately, retention of that information by an overworked geoscientist sitting at a workstation a year later is minimal. Now they can have instant recall through the 3-D images, and greater return on outcrop training experiences can be demonstrated.”

“That’s what is great about this tool,” he continued, “putting it in the hands of geologists, so the people who collect the data can actually do the processing, interpretation, visualization and mentoring.”

#### The Gain in Spain

For the Ainsa and Tabernas basins study in Spain, conventional field study methods and tools with laser-generated imagery were combined to create 3-D representations of several well-studied outcrops.

The digital scans from the Ainsa 1 and Ainsa 2 channel systems were manipulated to provide an elevated vantage point that sites down bed dip.

“This approach revealed an abundance of strongly layered bed and bed-set architecture that was not readily apparent from the ground,” Jennette said. “Small-scale accretionary beds also are evident.”

Scans of the Tabernas’ Solitary Channel – a small, incised submarine canyon of reservoir rock inside slope mudstones – provided a 3-D digital framework from which lithofacies and time-significant surfaces (high-frequency sequence boundaries and abandonment surfaces) are better

See **3-D Lasers**, page 29

## Software Adapted As Needs Arose

When the Bureau of Economic Geology scientists first began using the Optech commercial LIDAR system there was a great deal of software development associated with the system. However, the Bureau of Economic Geology has been instrumental in the software’s evolution.

Every six months or so the company that builds the software, InnovMetric, has upgraded parts of the system based on user needs identified by the geologists in the field.

“Although LIDAR technology has been around, there are many exciting applications,” said the BEG’s David Jennette. “The LIDAR tool was primarily designed for civil and mechanical engineers to capture large, complex facilities. We are adapting it for geological situations. For instance, horizons are easily interpreted with the InnovMetric software.”

Scientists are taking “this rich set of XYZ data” and modifying the computer framework so it can be ported into geologic modeling software.

“That’s the area where the BEG has worked the hardest,” Jennette said, “to try and combine the rock data both in terms of intensity and surface information and draping digital photographs to produce detailed models and bring all that information into a geological modeling package like GOCAD.”

GOCAD is a 3-D modeling software package that serves as an integration environment. It is designed for modeling detailed geologic rock properties in 3-D space, but it provides the ability to involve other kinds of data volumes like seismic

when building the geologic model.

“The scans provide what approaches an irregular 3-D seismic line based on the outcrop data,” he continued. “This is done by taking the 3-D point cloud and interpolating the intensity values to make a surface of texture that is draped on the model.”

Digital photographs also can be draped on the model as a texture, producing the ultimate visual experience.

“I used to work in a major oil company research facility and we had a mantra – increase precision, increase accuracy and decrease interpretation cycle time,” Jennette said. “That was our research mission. This tool continues that philosophy and allows us to bring incredibly accurate 3-D outcrop imagery into a 3-D geologic model very quickly.”

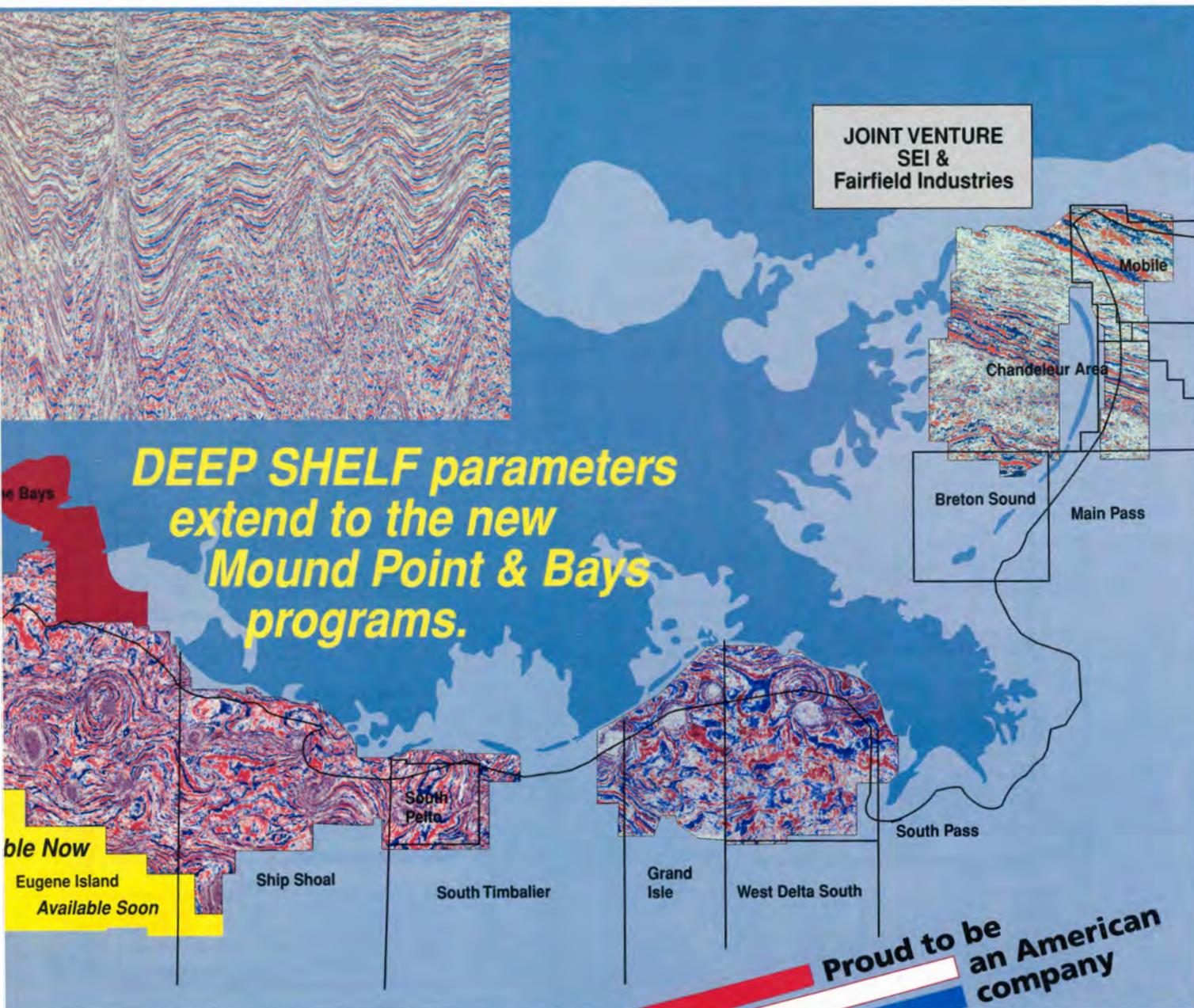
Instead of months of arduous digitizing of a photograph, for example, scientists can begin assimilating outcrop data in a matter of a few weeks.

“That’s a significant time reduction,” he said. “But more importantly, the accuracy is profound.”

Instead of companies storing everything as photo pans or sketches, this tool now allows interpreters to call up an outcrop and actually navigate around the outcrop with a whole front end window dressing of description of such elements at grain size and lithofacies types.

“In a desktop environment people can be so much more in tune with rock analogs at their fingertips,” Jennette said.

– KATHY SHIRLEY



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## BUSINESS SIDE OF GEOLOGY

## The More Zones, The Merrier

(Editor's note: This month's guest columnist is James A. MacKay, who retired last year after 34 years with Texaco.)

By JAMES A. MacKAY

Properly evaluated, drilling opportunities with multiple prospective zones can be significantly more attractive than single-objective proposals. The combination of the various zones can add pre-drill expected value (EV) to the portfolio by demonstrating the improved chance of a flowing discovery, increasing the estimated resource potential, or both.

However, with this increased value there also comes increased complexity.

This article describes some of that complexity associated with multiple-zone systems, and explains the difference between reciprocal dependency and conditional dependency. The extent of dependency should be forecast relative to geologic phenomena that have influenced the total subsurface system.

Geoscientists and engineers need to have a good understanding of the various types of dependencies that should be considered – and the impact they will have on the calculation of potential reserves and chance.

\* \* \*

To assess the chance and resource assessment of multiple zones, start by evaluating, for each zone, the range of

*As an analog, consider Joe and Mary in a class demonstrating a game of "standup or sit down."*

resource potential (which we will refer to in terms of the mean, Mz, of the distribution) and geologic chance of success, Pg.

These two sets of data are then combined using appropriate statistical procedures – a statistical process that requires the additional estimate of the extent of dependency between the zones.

Consider two zones, A and B:

## Zone A

- ✓ Pg = 30 percent.
- ✓ Mz = 60 MMBO.
- ✓ CWR = Chance-weighted resource = Pg x Mz = 18 MMBO.

## Zone B

- ✓ Pg = 20 percent.
- ✓ Mz = 80 MMBO.
- ✓ CWR = Chance-weighted resource = Pg x Mz = 16 MMBO.

## Independence

The chance of at least one zone being successful, assuming no dependence between the zones, is simply 1 minus the chance of all zones failing:

$$Pg(\text{well}) = 1 - (1 - Pg(A)) \times (1 - Pg(B)) \\ = 1 - (1 - 0.30) \times (1 - 0.20) = 1 - (0.7) \times (0.8) = 1 - 0.56 = 0.44.$$

To calculate the mean resource for the well, divide the sum of chance weighted resources for the zones by the Pg(well).

$$Mz(\text{well}) = (CWR(A) + CWR(B)) \div Pg(\text{well}) \\ = (18 + 16) \div 0.44 = 77.3 \text{ MMBO.}$$

We now know the independent chance of having one or more successful zones, 44 percent; and the mean resource (if successful), 77.3 million barrels. The P10 and P90 range of resources can be calculated using

appropriate statistical tools. Available multiple-zone software takes advantage of Monte Carlo sampling techniques to selectively add success-case outcomes from each zone.

## Dependence

Now we calculate the analogous values assuming a fully dependent state. Fully dependent zones can be either **reciprocally dependent** or **conditionally dependent**. Reciprocal dependency means that if one zone works the other must work, and if one zone fails the other must fail.

Due to the forced similarity constraint, both zones must have the same chance of success. Alternatively, in the common case of conditional dependency, the success of the lower-chance zone (B) relies on the success of the higher-chance zone (A), but there is a possibility that zone B could fail even if zone A is successful. Success of zone B is therefore fully conditional (only possible) on the success or failure of zone A.

As an analog, consider Joe and Mary in a class demonstrating a game of "standup or sit down." If the two are *independent*, Joe and Mary can stand up or sit down without regard for the other. If Mary is *conditionally dependent* upon Joe, then she MAY stand when Joe stands and CAN NOT stand unless Joe stands.

continued on next page

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If the above probabilities of Joe standing equal 30 percent and Mary standing equal 20 percent, then Joe would stand up when asked 30 percent of the time, Mary would never stand unless Joe stands, and when Joe stands Mary would stand 67 percent (20 percent ÷ 30 percent) of the time.

Since Mary can never stand without Joe standing, the probability of at least one person standing is the same as the probability of Joe standing, or 30 percent.

We can apply this same logic to zones A and B. If the two zones are fully dependent, they cannot be reciprocally dependent because they have different chances. B must be conditional on A since A is the higher-chance zone. In other words, they are conditionally dependent.

The overall chance of at least one zone is the same as the chance of the lowest-chance zone, Zone A or 30 percent.

Now, back to our geologic system with this specific conditional probability applied,

$$Pg(\text{well}) = Pg(\text{highest chance zone}) = Pg(A) = 30 \text{ percent.}$$

The mean resources are calculated the same way they would be if the zones were independent; the sum of the chance-weighted zone resources divided by the Pg(well).

$$Mz(\text{well}) = (CWR(A) + CWR(B)) \div Pg(\text{well}) = (18 + 16) \div 0.30 = 113.3 \text{ MMBO.}$$

**Comparing the Results**

Notice that independence generates the higher chance and dependence generates the higher mean resource. In this example, chance ranges from 30 percent in the fully dependent case to 44 percent in the fully independent case – a wide expanse of 14 percentage points.

If the geologic data suggests that the zones are partially dependent you can simply estimate the "strength of dependency," also referred to as the degree of correlation through the range of the chance of success spectrum (which in this case is bounded between 30 percent and 44 percent):

Level of dependence:	Pg	Mean resource
Full dependence:	30.0%	113.3
Strong: (1/3 through range)	34.7%	98.0
Moderate: (halfway through range)	37.0%	91.9
Weak: (2/3 through range)	39.3%	86.5
Full independence:	44.0%	77.3

Once the strength of dependency is assigned (here we will assume there is a "strong" correlation) the mean resource is calculated the same way as we did previously:

$$Mz(\text{well}) = (CWR(A) + CWR(B)) \div Pg(\text{well}) = (18 + 16) \div 0.347 = 98.0 \text{ MMBO.}$$

Note: The chance of completing (Pc) this discovery is derived by multiplying (1) the combined Pg of the test by (2) the percentage of the combined revenues distribution that is larger than the "threshold" reserves value required to

pay for completion, flowlines and production facilities.

\*\*\*

**Recommended Reading:** *Naked Economics: Undressing the Dismal Science*, 2003, by Charles Wheelan (Norton).

Now, listen up folks! This is a "must read" for every geoscientist or engineer who thinks economics is probably important, but impossibly opaque and boring. Very well written, clear, concise and – best of all – entertaining!

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(Editor's note: MacKay is senior associate of Rose & Associates Houston.)



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Labels: Atlantic Ocean, 3000m water depth limit, 12 mile territorial limit, SURINAME, GUYANE, BRAZIL, Cayenne, Maroni-1, Sinnamary-1, Oyapok River, Weg naar Zee, Tamberdjo Oil Field, Calcutta, So-1, Son-1, A2-1.

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**GEOPHYSICAL CORNER**

# Is the 3-D Survey 'Good Enough?'

(The Geophysical Corner is a regular column in the EXPLORER, edited by Denver consultant R. Randy Ray. This month's column is the first of a two-part series titled "Azimuth and Offset: A 3-D Survey Design Perspective.")

By STUART WRIGHT

Even though the first 3-D seismic survey was acquired almost 40 years ago, it's been in only the last 15 years that 3-D has evolved from an R&D project for major oil companies to a "commodity" tool that is almost ubiquitous. Accompanying that evolution has been an improvement in the hardware and software necessary to design, acquire, process and interpret the resulting 3-D data as efficiently as possible.

Despite the broad acceptance of 3-D seismic, no clear standard for survey design has emerged. Nor should one be expected. The best survey is always a function of the geology that needs to be imaged. As long as the subsurface of the earth is not "standardized," there can be no "standard design."

Furthermore, most users aren't just interested in the best data quality possible; they want the best overall survey. The difference between the two is that the best survey must also consider economic and surface issues.

Ultimately, a successful 3-D survey is one that gathers "good enough" data – good enough, that is, to meet the economic demands of our industry.

However, in any endeavor that lacks standardization, there are bound to be a few eight tracks and BetaMaxes.

Therefore, it is worthwhile to take a look at some of the more common misconceptions that can impact the success of a 3-D survey.

**Wide Azimuth 3-D Equals 'True' 3-D?**

There is no short and simple answer to the question of optimum source-to-detector azimuth. Intuitively, a wide-azimuth survey that collects long offset data from all directions might seem to be better – but this isn't always the case.

In fact, most early 3-D seismic surveys were narrow azimuth, although it

was probably a matter of necessity as much as intentional design. In basins with moderate-to-deep objectives, the number of channels in the recording system restricted the contractors' ability to economically acquire wide-azimuth seismic data.

However, most of these early surveys were "good enough" to be considered successful, or if they weren't, it probably wasn't the lack of azimuth that caused them to fail.

For deep geologic objectives, equipment limitations can still exist. Achieving long offsets in the cross-line direction requires either very widely spaced receiver lines or a lot of lines in the active recording patch.

Before choosing a wide-azimuth design, a question that must be asked is how will these different azimuths be used?

If pre-stack, azimuthally dependent analysis of the data is planned (see, for example, October-November 2002 Geophysical Corner), then wide-azimuth data is absolutely necessary.

If not, designing a survey to record long offsets in all directions can easily create more problems than it solves.

**Three Different Wide-Azimuth Designs**

To help understand the implications of wide-azimuth shooting, we will compare offset distribution plots from a standard narrow-azimuth geometry (figure 1, design A) to three different wide-azimuth designs (B, C and D). But before we do, let's take a careful look at each of the four different acquisition strategies.

For all four surveys we will assume a maximum usable offset of 10-11,000 feet. Other key design parameters are listed in tables 1 and 2. In particular, notice the "Maximum Cross-Line Offset" values listed in table 2.

As you can see in figure 2, wide-azimuth design B has greater cross-line offset than narrow-azimuth design A (figure 1), despite having the same number of receiver lines, channels and fold. It does this by using a receiver line

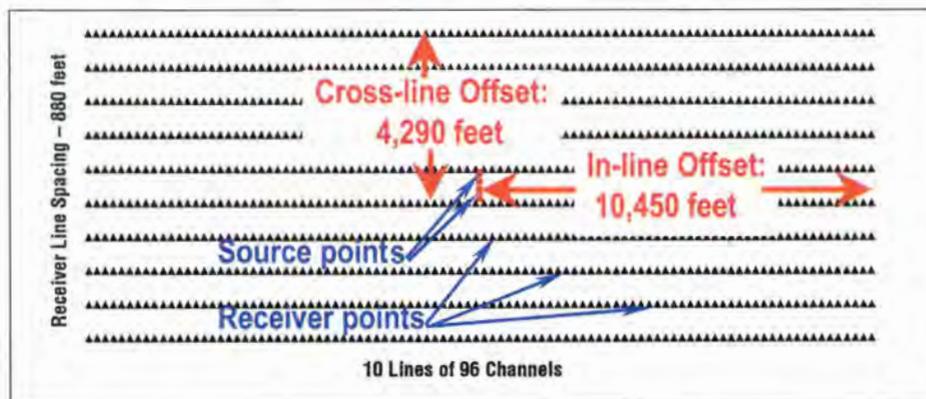
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Table 1: Design Parameters

Design	Recording Patch	Receiver Line Spacing	Source Line Spacing	Nominal Fold
A	10 lines of 96 receivers	880 feet	1,760 feet	30
B	10 lines of 96 receivers	2,200 feet	1,760 feet	30
C	24 lines of 96 receivers	880 feet	3,960 feet	32
D	24 lines of 96 receivers	880 feet	1,760 feet	72

Table 2: Design Attributes

Design	Maximum In-line Offset	Maximum Cross-line Offset	Relative Cost
A	10,450 feet	4,290 feet	\$\$
B	10,450 feet	10,890 feet	\$\$
C	10,450 feet	10,450 feet	\$\$
D	10,450 feet	10,450 feet	\$\$\$



Figures courtesy of Kevin Werth

Figure 1 – Narrow-Azimuth Design A. The recording patch is 10 lines of 96 channels with individual channels spaced 220 feet apart. The receiver lines are 880 feet apart. Overall, the resulting rectangular geometry is 20,900 feet long in the in-line direction and 7,920 feet wide in the cross-line direction.

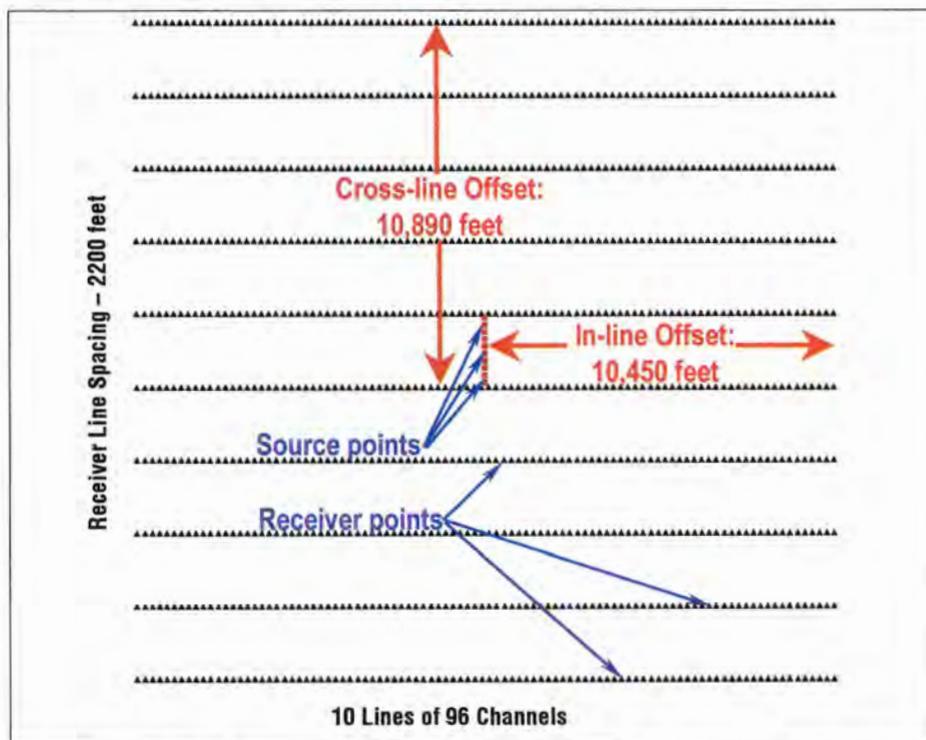


Figure 2 – Wide-Azimuth Design B. The recording patch is 10 lines of 96 channels with individual channels spaced 220 feet apart. The receiver lines are 2,200 feet apart. Overall, the resulting square patch is 20,900 feet long in the in-line direction and 19,800 feet wide in the cross-line direction.

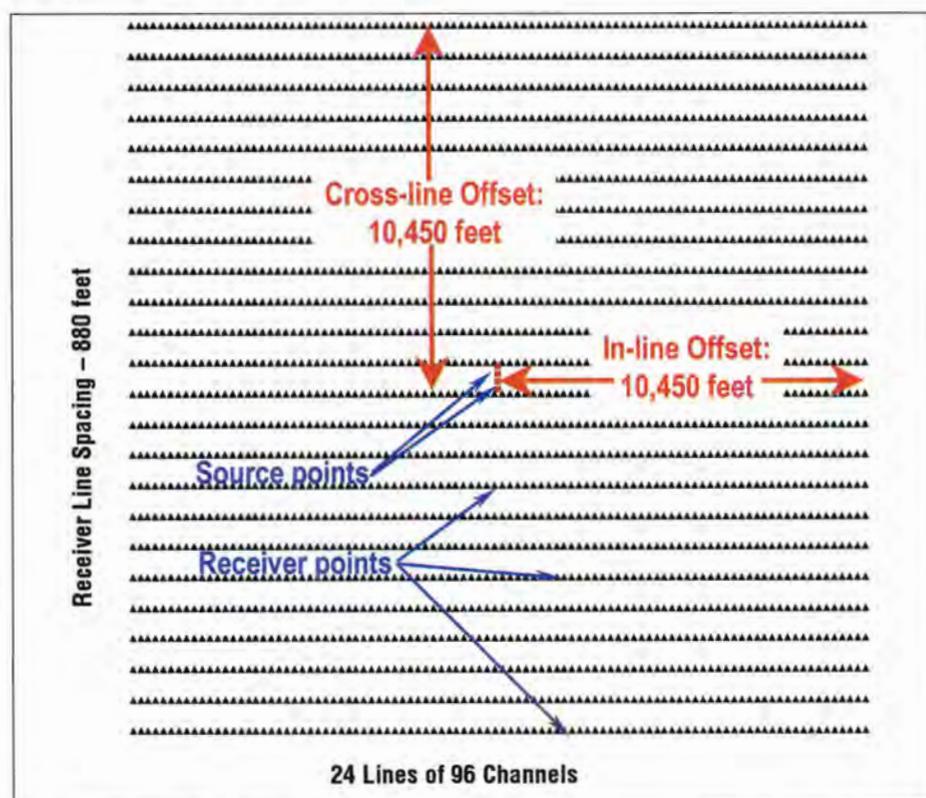


Figure 3 – Wide-Azimuth Designs C & D. The recording patch is 24 lines of 96 channels with individual channels spaced 220 feet apart. The receiver lines are 880 feet apart. Overall, the resulting square patch is 20,900 feet long in the in-line direction and 20,240 feet wide in the cross-line direction.

**Q&A: All Gas Is Not Created Equal**

**So How's the Propane Well Doing?**

*(Editor's note: This month's Q&A is a lot like that old story about what happened when your young child first asked you, "Where did I come from?"*

*You probably relied on all of your knowledge and experience, explaining in great (and delicate but overwrought) detail about the entire concept of "a man and a woman liking each other a whole lot" and then getting really, really scientific.*

*And then, when you're finished, your child says: "Oh, well ... Joey came from Toledo."*

*Sometimes the obvious questions are the ones that geoscientists work too hard*

*to explain.*

*So, remember: These Q&As aren't really for you. They're for you to use when someone who is not a geoscientist assumes you can answer a simple question with simplicity and clarity.)*

**Question: Is it possible to drill for propane, butane or methane?**

Short answer: People do it all the time. Methane is the largest component of what we call natural gas.

Propane and butane also are gases, and may be found in smaller amounts in natural gas.

Because of their value as fuel and their high energy content per cubic foot – about 2,500 Btu for propane and 3,250 Btu for butane – they're often separated from the gas stream and sold as natural gas liquids.

By contrast, methane has just over 1,000 Btu per cubic foot.

For added confusion, the second-largest component of natural gas after methane is called "ethane." Ethane also could be liquefied and sold as fuel, but it's more commonly used as a feedstock for petrochemicals.

Natural gas liquids are the opposite of unnatural gas liquids (just kidding). They

are often referred to as NGLs (that's true).

Propane and butane don't occur naturally in separate, large accumulations, so there's no such thing as drilling a propane well or a butane well.

Not that long ago, NGLs were much, much more valuable than high-methane natural gas, relatively speaking. Some operators justified their drilling programs by the amount of NGLs they expected to generate.

So, in that sense, it is possible to drill where you plan to recover more-than-usual amounts of propane and butane.

— DAVID BROWN

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spacing that is more than twice the spacing used for design A.

Design C (figure 3) on the other hand, has the same receiver line spacing as A (the narrow design), but uses 24 lines in its patch geometry to achieve the added width. However, to keep the fold (and cost) about the same as that of the narrow design, source line spacing for C has more than doubled.

Finally, we get to design D – the "best" of the wide designs. It uses the same source and receiver line spacing as the narrow plan. The major design difference is in its recording patch – 24 lines of 96 channels versus only 10 lines for A.

As a result, the fold produced by design D will be more than twice that of the other surveys.

There is one other difference between these two designs: relative cost. Design D will cost more to acquire, because significantly more recording equipment will be needed.

**The Importance of Offset Distribution**

For any particular 3-D survey design, a wide range of attribute plots can be easily produced and examined. However, for any given fold, the attribute that will have the most impact on data quality is offset distribution.

The potential problems created by poor (irregular) offset distribution are numerous, and in some cases the damage is irreparable by even the cleverest data processor.

These problems might include (but aren't limited to) the following processing related issues:

- ✓ DMO (Dip Move Out) artifacts.
- ✓ Poorly resolved surface-consistent statics solutions.
- ✓ Poorly resolved refraction statics solutions.
- ✓ Inferior, or highly variable stack attenuation of coherent noise.
- ✓ Degraded AVO analyses.
- ✓ Increased appearance of an acquisition footprint.
- ✓ Increased difficulty estimating correct processing velocities.

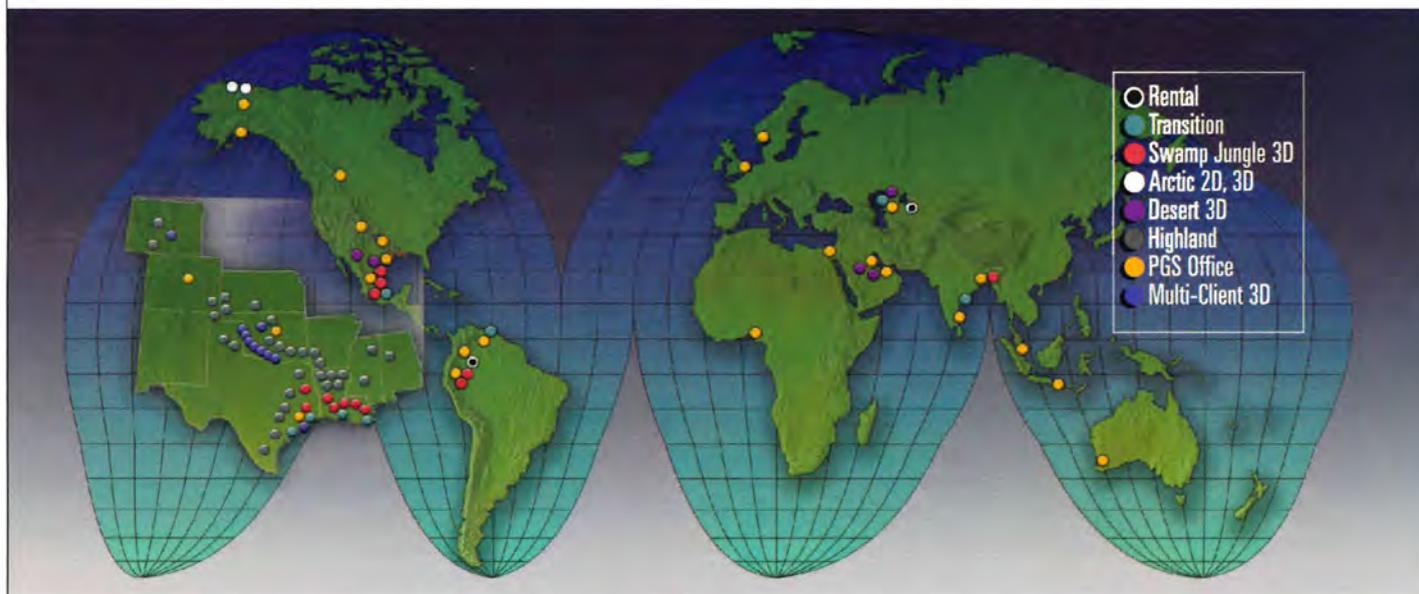
Certainly, not all surveys with poor offset distribution will be ruined by problems such as these, but it is better to address them during the design phase than after the data are acquired.

Next month, therefore, we will look at offset distribution plots for each design mentioned above.

*(Editor's note: Wright is manager of geophysics for Dawson Geophysical in Denver. Assisting in preparing this column were Dan Wisecup and Kevin Werth.)* □

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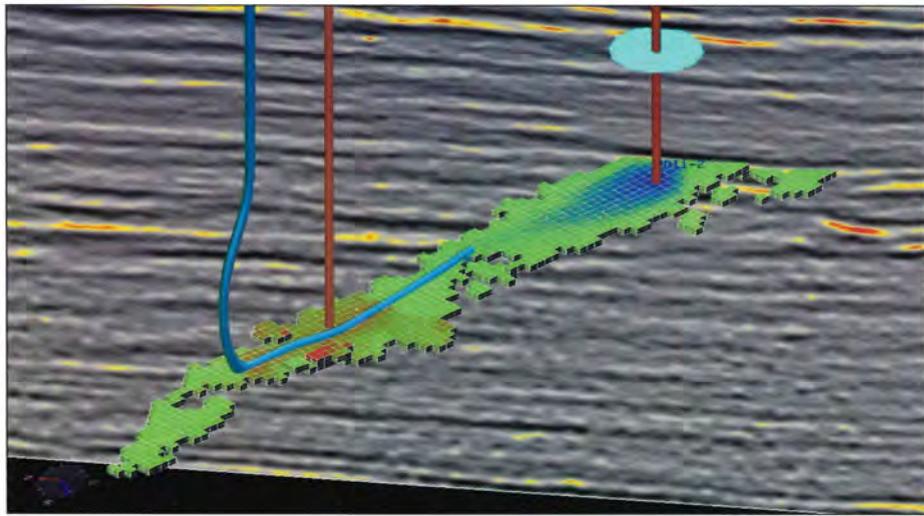
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Graphic courtesy of Magic Earth

Simulation model showing fluid migration within the reservoir, displayed with the seismic data (in depth). Simulation was done to evaluate possible production from the horizontal well with the vertical well being used to inject water.

### 3-D Gulf Tour

## E-Poster Images Offer Wide View

By LOUISE S. DURHAM  
*EXPLORER Correspondent*

If a mere picture is worth a thousand words, a suite of 3-D images is perhaps comparable to encyclopedic in the value of the message it conveys.

It takes only a few choice words, however, to characterize the visual impact of certain 3-D images, with "stunning" and "spectacular" often at

the top of the list.

Such was the case with the graphics accompanying the presentation "Evolution of the Northern Gulf of Mexico Through the Cenozoic – A 3-D Visualization Tour," given at the interactive e-poster session at the AAPG Annual Meeting last month in Salt Lake City.

The array of vibrant images was proffered by Bill Galloway during his delivery of the paper, which was co-authored by Dennis A. Sylvia and R. Combellas. The trio is based at the Institute for Geophysics, University of Texas at Austin.

Probably the most dramatic 3-D aspect of the presentation was a series of surfaces that basically reflect a quantitative paleobathymetry of the subject region, which was contoured as

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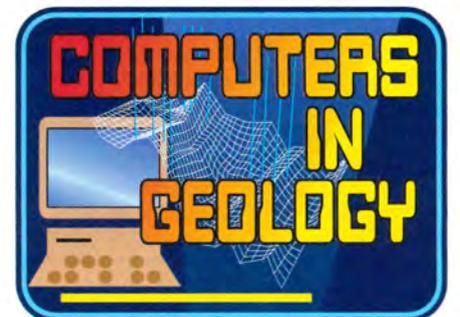
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a derivative of the standard paleontologic-base depth zonation.

"It was with a fair bit of effort that this was converted into an actual pseudo-bathymetric map," Galloway noted.

The material he presented at the e-poster gathering was an outgrowth of an industry consortium called the Gulf Basin Depositional Synthesis project, which originated seven years ago.

"During the first two phases of the project, we created a digital GIS database and used this to create suites of maps, primarily for our supporting companies," Galloway said. "But Phase 3, which ended six months ago, was different.

"We added new kinds of information," he said, "essentially creating a GIS database and synthesizing and consolidating interpretations for the Tertiary history for the whole Gulf basin – with emphasis on the U.S. half of the Basin – for the whole Cenozoic.

"One of the additions during Phase 3 was the compilation of paleobathymetric data, which were derived from micro-paleo reports collected over the years of OCS drilling.

"We hit on the idea of going beyond just creating a little quilt that used numerical zones from shallow to deep water, which usually means I to VI," Galloway said, "to attempting to convert this to actual depths.

"It was not easy."

#### 'Some Interesting Things'

To accomplish this goal, Sylvia called on expertise he acquired as a meteorologist with the U.S. Air Force.

continued on next page

continued from previous page

"Dennis was aware of the use of map algebra, which meteorologists do regularly with such things as pressure," Galloway said. "He did a lot of conditioning in the sense of establishing boundaries, e.g., shoreline locations, maximum depths for a paleo GOM, so we could put boundaries on the basin."

"We extracted in a selective way the paleobathymetry information for each stratigraphic unit that the database differentiated from a very large database released by the MMS," Galloway noted, "which includes paleo reports from more than 10,000 wells in the OCS."

Paleobathymetric surfaces were constructed for 13 time steps during the Cenozoic. The reconstructions show how 3-D visualization can be used to evaluate the impact of events such as

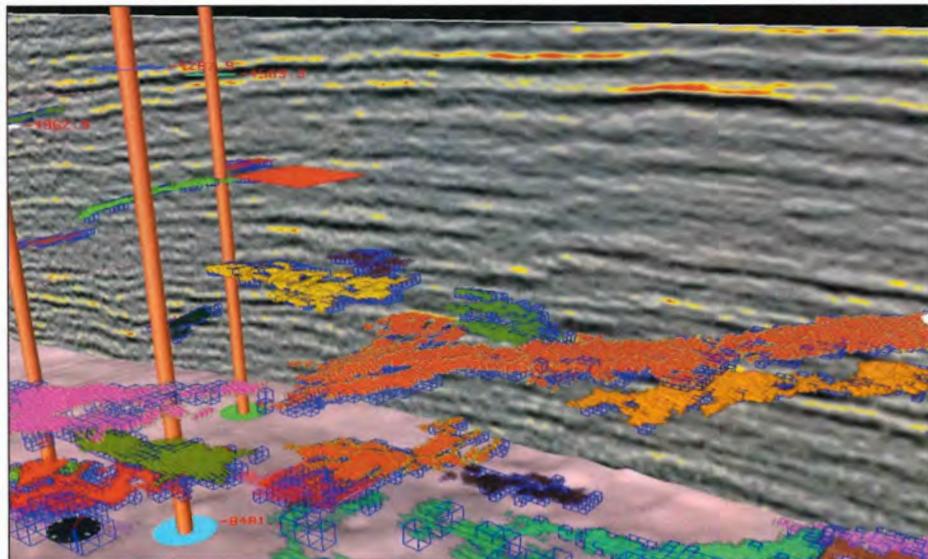
continental climate change and tectonics on the sedimentation history of the Gulf basin.

Bathymetric surfaces were modeled for each of the major Oligocene and younger depositional episodes. Doppler maps were also constructed depicting depositional pattern change.

"Geologically, you see some interesting things going on, and some surprising things are highlighted when you look at the map as a 3-D rather than just color blotches," Galloway said.

"And likewise, when you subtract and look at a map that shows change through time rather than a condition that exists at a particular interval of time." □

For more information on this subject, visit the AAPG Web site. [www.aapg.org](http://www.aapg.org)



Geologic model displayed with the seismic bodies that have been interpreted as potential reservoir targets. The model attempts to predict reservoir properties.

### 3-D Lasers

from page 23

correlated along the two-kilometer outcrop belt.

A series of faults disrupt stratigraphic continuity of the channel fill and digital removal of the faults simplified oft-debated stratigraphic relationships.

Also, laser intensity data were integrated with outcrop weathering patterns and RGB values from digital photographs to produce a classification scheme that distinguished mudstones from sandstones, and even differentiated sandstones having varying lithic-grain content.

"All of these data are being used to generate a cellular-based geological model of a slope-channel reservoir analog in GOCAD," he said.

The Solitary Channel is an analog for the traps companies are now exploring for and beginning to produce offshore West Africa.

"Even though the Solitary Channel is small – only a couple hundred meters wide and 50 meters thick – it still offers a very good view into the architecture of systems that we now know exist in the subsurface and hold hydrocarbons," Jennette said.

Jennette and Bellian spent three days capturing the entire multi-kilometer-long outcrop. The pair took 75 scans, which were all merged in those three days.

"The software and merging system is so fast that you can check your work in the evening and make sure you obtained 100 percent coverage," Jennette said. "If there is a hole in the data you can go back the next day and re-scan it. The software gives us that immediacy while conducting the survey." □

JDZ License Round Opens

## Gulf of Guinea

### Joint Development Zone

On April 23, 2003, The Nigeria São Tomé and Príncipe Joint Development Authority announced the launch of its first license round. Nine Blocks of prime exploration acreage within the outer reaches of the prolific Niger Delta hydrocarbon province are on offer.

The WesternGeco multiclient 2D data set, of which 3000 km lie within the Joint Development Zone, is available for licensing to help evaluate the hydrocarbon prospectivity of the area. The license round closes October 18, 2003.

STP-99 Survey	Round Africa Survey
PROBE 89 Survey	Blocks on offer
Roan 89 Survey	Designated area
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São Tomé and Príncipe: Sample lines JDZ area

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# AAPG Internet Site Adds New Services

By JANET BRISTER  
Web Site Editor

Since the EXPLORER computer issue last year, several Internet-based services to AAPG members have been introduced.

For example, online registration became a reality in time for last month's AAPG's annual meeting. Over 60 percent of those pre-registered for Salt Lake City did so online.

Online registration is also available for

this fall's international AAPG conference in Barcelona, Spain.

Online registration will soon be available for AAPG courses and field trips.

## Doing Business Online

At the beginning of 2003, members were enabled to pay their dues over the Internet. All you need is your member number and you can check the status of your dues.

Want to upgrade your membership by joining a division? You still need to make an application to that division – but once you've completed that process you can renew your membership through the online dues payment system.

Recording an address change is now easier as well with the change of address form that goes directly to the membership department.

In an effort to stay current with our membership we are enlisting your help. New to the Members Only area is the AAPG Lost Members List. This is a list of members whose contact information has changed and with whom AAPG is no longer able to correspond. Check it out and help us find your friends.

## Training and Learning Online

Online training has evolved from self-paced interactive online learning short courses to a full-length online course taught by Roger Slatt from the University of Oklahoma.

This 15-week course, "Reservoir Characterization for Geologists," was attended electronically by eight students from Dallas and Houston to the U.K., Norway and Argentina.

The global sessions included weekly lectures and exercises. Slatt used e-mail to grade the lessons, and utilized a chat room as needed to enhance the training.

The course will be offered again in the fall.

## Enhanced Research Online

Last June, AAPG leadership opened up the BULLETIN Archives as a benefit for being a member – but the \$99-per-year subscription for members was done away with, and AAPG membership embraced the opening of the BULLETIN Search area. The first BULLETIN was printed in 1917 and now all members of AAPG are able to search 86 years worth of this quality data for free, at any time.

(Registration is required for access, and that's it. Simply contact [aapgdata@aapg.org](mailto:aapgdata@aapg.org), and you'll receive instructions on how to log in to the archives.)

More than 360,000 published pages also are available to AAPG membership in this online database. It began with AAPG publications and now includes the GCAGS *Transactions*, SEPM's *Journal of Sedimentary Research*, *Journal of Petroleum Geology* and all publications of the New Orleans and East Texas geological societies. Also added recently are the *Petroleum Abstracts* of the University of Tulsa.

Soon to be added are publications of the Lafayette, Houston, Ardmore, Panhandle (Amarillo), Oklahoma City and

The screenshot shows the AAPG website with a navigation menu on the left including: About AAPG, Careers, Committees, Divisions, Education, Foundation, Geoscience, International, Meetings, Members Only, Programs, Publications, Services, and Gateways. The main content area features:
 

- ENERGY** AAPG 2003 Annual Meeting: Exhibitor Space International Pavilion, TECHNICAL PROGRAM, Plan your time at the meeting.
- MAY BULLETIN AVAILABLE** with a LOGIN REQUIRED notice.
- DAILY NEWS:** May 5, 2003 8:35 a.m. CST. Items include: Iraq Oil Minister Named, Underground Refinery Found in Iraq, Sakhalin Projects Under Way, Nigeria Rio Hostages Freed.
- APPROACHING DEADLINES:** May 15: Int'l Meeting Hotel Rates expire; August 15: Int'l Meeting Preregistration closes; September 11: Dallas 2004 Call for Abstracts closes.
- EXPLORER MAY 2003** with a link to Pay your Membership Dues ONLINE.
- Barcelona, Spain 2003 International Conference & Exhibition** with Exhibitor Space Sponsorships Available TECHNICAL PROGRAM.
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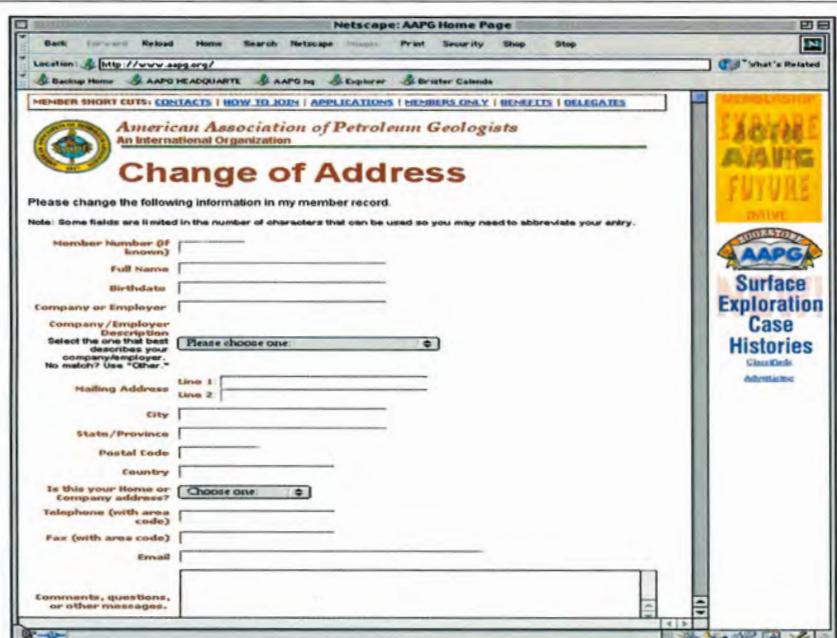
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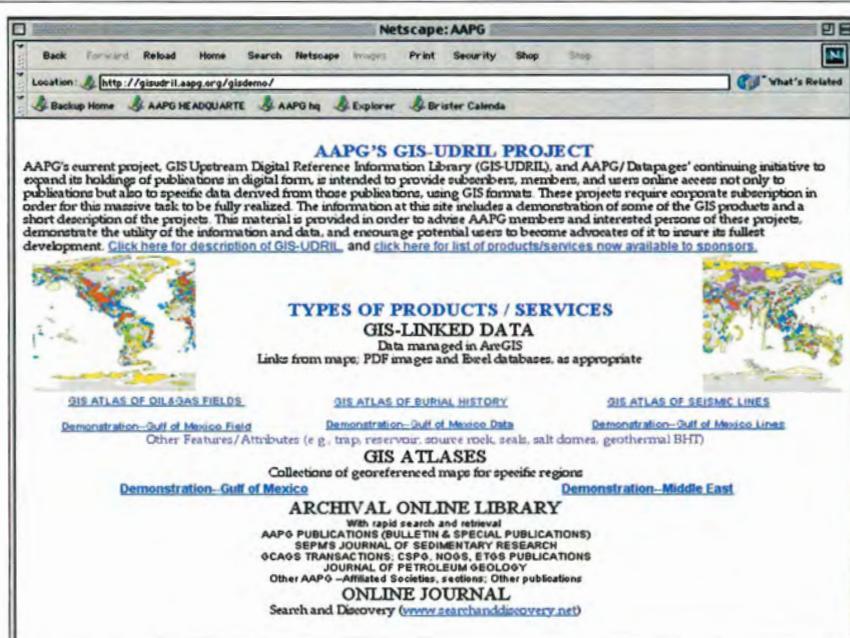
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These images are some of the services you'll find online at [www.aapg.org](http://www.aapg.org). From change of address (left) to information on the UDRIL Project (right), the AAPG Web site has it all.



continued from previous page

Tulsa geological societies, plus the Canadian Society of Petroleum Geologists Bulletin.

Thanks to the efforts of AAPG/Datapages and its corporate sponsors, the growth of this wealth of data has been tremendous. The ultimate goal is to include publications of all AAPG affiliated societies.

*Search and Discovery*, AAPG's online journal, continues to add to its offerings every day. Included here, in addition to articles of interest taken from various publications, are poster sessions, abstracts and papers given in oral sessions and other venues.

When you visit, be sure to click on "New Articles" to preview the most recent additions.

**What Else? Online**

Did you know the House of Delegates publishes a quarterly newsletter? *The Delegate's Voice* is now posted online.

Also, the Division of Professional Affairs makes available its newsletter, *The Correlator*, every issue.

Several surveys were made this year through the Internet. These included:

- ✓ An education survey focused on courses and their relativity.
- ✓ An all-member survey, which evaluated services and benefits of AAPG.
- ✓ DPA checked in with a survey asking their membership to weigh in on electronic balloting.

As we look to the future, plans are aggressive and far-sighted regarding online access. These include:

- ✓ Applying for membership in AAPG.
- ✓ Voting for AAPG officers is being considered by the House of Delegates. If approved, you'd be able to cast your votes electronically.
- ✓ A Virtual Student Expo would help students launch their careers.
- ✓ A Member Registry will help independents get the word out about skills they have to offer the public.
- ✓ Faster download for the AAPG home page with an upgraded design.
- ✓ Online registration will become more refined to include exhibit booth sign-up.
- ✓ Research will be enhanced throughout the GIS-UDRIL project.
- ✓ Online prospect rooms for use at APPEX.
- ✓ Data and more data added to AAPG/Datapages.

Have you begun to explore all the online services and benefits that are one click away on the World Wide Web? With all that is there, and all that is to come, why not start today?

Good browsing! ☐



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The names that appear here are of those who have made donations to the AAPG Foundation in the past month – predominately through adding some additional monies on their annual dues statement.

To these people, and to those who have generously made donations in the past, we sincerely thank you.

The AAPG Foundation will continue its stewardship for the betterment of the science and the profession of petroleum geology, thanks to you.

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Roseanne C. Perman  
W.B. Perry Jr.  
Jahn Jean Peterson  
James Albert Peterson  
Charles Kenneth Petter Jr.  
Dan Errol Pfeiffer  
Luis Alberto Piccioni  
John Thomas Pickens  
Michael Kenney Pickens  
Warren Yale Pickering  
Frances W. Pierce  
James A. Pitkin  
Tim Piwowar  
Sverre Planke  
Daniel John Plazak  
David Dierker Pollard  
Olga Khurshedovna Popova  
Robert Lloyd Pott  
*In memory of Owen Woodbury*  
Dewitt L. Potter  
Lisa Marie Powell Beaver  
Ernest George Pratt  
Irving John Prentice  
Martin William Quest  
Raymond Wallace Rall  
Wilson R. Ramirez  
Donald L. Rasmussen  
Pulak K. Ray  
Ken Rechin  
Geoffrey Edward Reed  
Eugene F. Reid  
Scott A. Reid  
Joachim Wilhelm Reinhardt  
George O. Reif Jr.  
Robert R. Remy  
Joe Reynolds  
Scott David Reynolds  
Hamid Reza Rezazadeh  
Andrew John Rigg  
Fabrizio Rigo De Righi  
*In memory of Ardito Desio*  
Thomas Frederick Ritter  
Janiel Rivera  
James Warner Roach  
Stephen D. Robbins  
Billy Walter Roberts  
Renee M. Robertson  
Michael Anthony Robinson  
Paul Scott Robinson  
William C. Robinson  
Xavier Roca Argemi  
Raul Rodriguez  
John F. Rogers  
Chris Ivan Ruisaard  
Brian H. Russell  
Mark Stephen Rutherford  
William Warren Sager  
Nestor John Sander  
Robert Wayne Sandridge  
Donald M. Saunders  
Ricardo R. Savini  
Henry Joachim Schaefti  
John Christian Scheldt  
Maja E. Schellepeper  
John Edwin Scherer  
William Michael Schill  
Max W. Schley  
Greg Schoenborn  
Marion Welch Scholes  
Robert Guy Scholl  
Norman West Schultz  
Elizabeth Thelma Schwarze  
David M. Scull  
Dev Dutt Sharma  
Stephen L. Shaw  
Michael S. Shearn  
F. Carlton Sheffield  
Shell Oil Co. Foundation  
*In support student paper and poster awards*  
Glenn Lincoln Shepherd  
Toshiaki Shibasaki  
Jack William Shirley  
Vinton Hubbard Sholl  
*In memory of Dwight Free*  
Jeffrey Shralow  
George William Shurr  
J. Donald Silberman  
John H. Silcox  
Homer Fischer Simmons Jr.  
Richard Carl Simpson  
Allen Sinnott  
Angela Skamwetsaki  
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Robert Webb Osborne  
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Homer Fischer Simmons Jr.  
Richard Carl Simpson  
Allen Sinnott  
Angela Skamwetsaki  
Isaac Edwin Skillern

James Lockert Sleeper Jr.  
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Isaac John Smith  
Langhorne B. Smith  
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S.K. Smith  
Suzanne B. Smith  
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Harvey Stein  
Doerte Steinhoff  
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John Roland Stewart  
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Craig B. Forster  
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James Philip Frymire  
Anthony Charles Gibson  
Paul Michael Guarino  
Jennifer Adair Head  
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William J. Hunter  
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Thomas Clifton Kartrude  
Benjamin Johnson Kemp  
Mohit Khanna  
Charles S. King  
Heather Rogers Kline  
Denise Kay Kulhanek  
Shannon Elise Lemke  
Barbara Luneau  
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Christopher Thomas McLain  
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Botosan O. Omatsola  
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Meredith Russell Stipp  
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Martin Kenneth Dubois  
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Gerken Services Inc.  
Larry D. Gerken  
*In honor of John and Doris Shelton, and Gary and Faynelle Stewart*  
Per Viktor Gravem  
Andrew Lloyd Haner  
Ellen West Hoveland  
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Gerard McGinn  
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Kathleen Marie McColgen  
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Kristine Lee Stair  
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Brian David Hester  
John Richard Hogg  
Albert James Jenik  
Joao Vicente Alfano Keller  
John Robert Kerns  
*In memory of Jim Hooks; In memory of Dennis Irwin*  
Robert Clarkson Millsbaugh  
Robert H. Paschall  
Douglas H. Pottorff  
Juan Rogelio Roman-Ramos  
Herbert Mark Stanley Jr.  
*In memory of Anna Marie Stanley*  
Barry Edward Wawak  
Michal Zywiecki

## PROFESSIONAL NEWS BRIEFS

**Nadeem Ahmad**, to chief geologist, OMV Exploration GmbH, Islamabad, Pakistan. Previously senior geologist, Schlumberger Oilfield Services, Muscat, Oman.

**Jorge Eduardo Baldi**, to E&P manager-Trinidad and Tobago, Repsol YPF S.A., Rio de Janeiro, Brazil. Previously exploration manager-Brazil, Repsol YPF, Rio de Janeiro.

**Timothy A. Berg**, to senior geophysicist-South Louisiana asset team, BP, Houston. Previously geophysicist-Skarv Field, BP Norge, Stavanger, Norway.

**Jim Blagg**, to geoscientist, New Mexico Ground Water Quality Bureau, Santa Fe, N.M. Previously geophysical consultant, Houston.

**Bruce A. Blake**, exploration and development manager-Gulf of Mexico, Repsol YPF, Houston. Previously team leader-Trinidad and Guyana, Repsol YPF, Houston.

**Jim Brooks**, to Sturgeon Visiting Professor in Geological Sciences, Ohio University, Athens, Ohio. Previously consultant geoscientist, Glasgow, Scotland.

**Larry J. Cavallo**, to manager-onshore east operational planning and forecasting, Dominion Exploration and Production, Houston. Previously production manager-West Virginia and Six Sigma Black Belt, Dominion Exploration and Production, Jane Lew, W.Va.

**Paul D. Ching**, to director, SepTAR (Shell E&P Technology and Applied Research), Shell International E&P, Rijswijk, The Netherlands. Previously general manager, Sarawak business unit, Shell Malaysia E&P, Miri, Malaysia.

**Marlan Downey** has received the Hollis D. Hedberg Award in Energy from the Institute for the Study of Earth and Man at Southern Methodist University in Dallas, in recognition of his "extraordinary contributions to the energy industry worldwide and for his commitment to education and student research." Downey, past president of AAPG, is a former president of Pecten International and Arco International.

**Rodney J. Eichler**, to executive vice president and general manager-Egypt, Apache Corp., Cairo, Egypt. Previously vice president and general manager-Egypt, Apache, Cairo.

**Bill Francis**, to division geologist, Encore Acquisition Co., Fort Worth, Texas. Previously senior geologist, Encore Acquisition, Fort Worth.

**Ric Frasse**, to Asia region manager, ChevronTexaco, Singapore. Previously team manager, Caltex Pacific Indonesia (Texaco), Sumatra, Indonesia.

**Richard E. Herrmann**, to vice president-data access and integration, A2D Technologies, Denver. Previously senior vice president-geotechnology and business development, Petroleum Place, Denver.

**Rob Jacobs**, to senior vice president-business development and planning, Encore Acquisition Co., Fort Worth, Texas. Previously senior vice president-asset management, Encore Acquisition, Fort Worth.

**Tako Koning**, to Angola residential representative, Yme Foundation, Luanda, Angola. Previously retired after having spent 29 years with ChevronTexaco.

**Mark Larsen**, to principal geologist, Schlumberger OFS, Dallas. Previously principal geologist, Schlumberger OFS, Shreveport, La.

**Eduardo V. Manalac**, to undersecretary of energy, government of the Republic of the Philippines. Previously retired after 28 years with ConocoPhillips, Houston.

**Alex McNair**, to principal geophysicist, Century Onshore,

Houston. Previously principal geophysicist, Century Exploration, Metairie, La.

**Samuel T. Pees** has received the "Keeper of the Flame" award from the Drake Well Foundation. Pees, of Meadville, Pa., is president emeritus of the Drake Well Foundation and has written over 70 papers on the history of the petroleum industry.

**Lee Petersen**, to division geologist, Encore Acquisition Co., Fort Worth, Texas. Previously president, Palo Pinto Exploration, Fort Worth.

**Steven L. Pierce**, to geologist, Stone Energy, Lafayette, La. Previously

geophysicist, Unocal, Sugar Land, Texas.

**Mark J. Pospisil**, to vice president-geology and geophysics, XTO Energy, Fort Worth, Texas. Previously manager-exploration, XTO Energy, Fort Worth.

*(Editor's note: "Professional News Briefs" includes items about members' career moves and the honors they receive. To be included, please send information in the above format to Professional News Briefs, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101; or fax, 918-560-2636; or e-mail, smooore@aapg.org; or submit directly from the AAPG Web site, www.aapg.org/explorer/pnb\_forms.html)*

It's **true** that **GeoCare Benefits Easy RX Hospital Income Plan** pays you up to \$200 for every day you are in the hospital and helps pay for your prescription drugs when you are not.



Is life handing you a little more than you can chew? You may have among the best health care coverages available, but you may still incur out-of-pocket expenses for prescription drugs or if you or a family member are hospitalized. The Easy RX Hospital Income Plan provides benefits for out-patient generic and brand name drugs if you are under age 65 and can help you pay for deductibles, childcare, travel, lodging—the extra expenses that may go with in- and out-patient hospital care. The Plan can pay you up to \$10,000 a year (\$25,000 lifetime) for prescription drugs and doubles benefits for hospitalizations resulting from an accident, pathologically diagnosed cancer or intensive care or coronary unit stays. *With its affordable rates, the Easy RX Hospital Income Plan is a great way to indulge your taste for financial security.* Call 1-800-337-3140 for more information and your FREE GeoCare Benefits Easy RX Hospital Income Plan Kit or visit our website at [www.geocarebenefits.com](http://www.geocarebenefits.com).



But, it's **false** that the coverage also provides a chef to prepare your food.

# EDUCATION CALENDAR

Short courses are listed here in chronological order; field seminars are sorted by subject matter, subsorted by date. An asterisk (\*) indicates a change in the dates from those previously published; two asterisks indicate a new offering.

## 2003 Short Courses

Applied Subsurface Mapping  
July 14-18, Dallas

Terrigenous Clastic Depositional Systems and Sequences – Applications to Reservoir Prediction, Delineation and Characterization  
July 22-23, Austin

Well Log Analysis & Formation Evaluation  
Aug. 5-8, Austin

\* Quantification of Risk – Petroleum Exploration & Production  
Aug. 19-22, Golden, Colo.

Practical Salt Tectonics  
Sept. 3-5, Houston

Pore Pressure Prediction in Practice  
Sept. 20-21, Barcelona, Spain  
(with AAPG international meeting)

Deepwater Sands – Integrated Stratigraphic Analysis  
Sept. 25-26, Barcelona, Spain  
(with AAPG international meeting)

Recent Advances in Normal Fault Growth and Linkage: Implications for Petroleum Exploration in Prospective Rift Provinces  
Sept. 25-26, Barcelona, Spain  
(with AAPG international meeting)

Practical Salt Tectonics  
Sept. 25-26, Barcelona, Spain  
(with AAPG international meeting)

Structural Styles and Traps  
Oct. 11-12, Tulsa  
(with Mid-Continent Section meeting)

Log Analysis of Shaly Sands  
Oct. 22, Baton Rouge, La.  
(with GCAGS Section meeting)

Siliciclastic Sequence Stratigraphy

Oct. 25-26, Dallas  
(with SEG Annual Meeting)

\* Risk Analysis for Development Applications  
Oct. 29-31, Houston

Fractured Reservoir Characterization and Modeling  
Nov. 10-14, Austin

## 2003 Field Seminars

### Carbonates

Sequence Stratigraphy and Reservoir Distribution in a Modern Carbonate Platform, Bahamas  
June 23-28  
Begins, ends in Miami, Fla.

\* Controls on Porosity, Distribution in Carbonate Reservoirs  
Sept. 25-29  
Begins, ends in Almeria, Spain  
(held in conjunction with the AAPG international meeting)

### Clastics – Ancient

Wave-Dominated Shoreline Deposits and Foreland Basin Stratigraphy, Book Cliffs, Utah: Depositional Models for Hydrocarbon Exploration  
June 9-17; Aug. 18-26  
Begins, ends in Moab, Utah

### Clastics – Modern

Modern Deltas  
Sept. 8-12  
Begins in Baton Rouge, La.  
Ends in New Orleans

Modern Clastic Depositional Environments  
Sept. 22-28  
Begins in Columbia, S.C.  
Ends in Charleston, S.C.

### Sequence Stratigraphy

Sequence Stratigraphy Field Seminar: Sequences and Facies on an Active Margin  
Oct. 12-17  
Begins, ends in La Jolla, Calif.

### Tectonics and Sedimentation

E&P in Thrusted Terrains, Practical Applications of Structure and Stratigraphy in the Montana/Alberta Foothills  
July 15-21  
Begins, ends in Calgary, Canada

Submarine Fan and Canyon Reservoirs, Calif.  
Sept. 29-Oct. 4  
Begins in San Francisco  
Ends in Bakersfield, Calif. □

## How many ways will you benefit?

- As a buyer looking for "that" deal.
- As a seller presenting your latest and greatest prospect.
- Attend the Risk and Asset Development Short Course.
- Upstream Perspectives Forum: trends, forecasts, outlooks and business strategies.

## "Forum: Perspectives on the Upstream Business of Oil & Gas"

September 9, 2003, 8:30 am – 4:30 pm

The broad objective for the Houston APPEX Forum will be to address the major industry trends, forecasts or outlooks and business strategies that are expected to drive the industry over the balance of this decade. • Deepwater E&P trends and North American Gas will be the two focus themes • The morning session will address the international regions – primarily the Atlantic and Pacific rims and Latin America. • The afternoon program will commence with a brief GOM session to complete the deepwater comparisons and will continue into addressing onshore US and Canadian gas.

Sponsored by IHS Energy

For information, contact:

Michelle Mayfield-Gentzen • Fax: 918-560-2684 • E-mail: [mmayfiel@aapg.org](mailto:mmayfiel@aapg.org)

Web site: <http://www.aapg.org/meetings/appe/>

**Global Geoenergy Research Ltd.**  
Halifax, Nova Scotia, Canada  
Tel: (902) 453-006 ; Email: [muki@global-geoenergy.com](mailto:muki@global-geoenergy.com)  
[www.global-geoenergy.com](http://www.global-geoenergy.com)

### Report Sale

1. Petroleum Systems of Offshore Nova Scotia, Eastern Canada including Deepwater Risk Assessment

### Expertise

1. Maturity (vitrinite reflectance) and Petroleum System Risk Assessment of various North American Basins

2. Source Rock Geochemistry of Selected Basins of the World

3. Petroleum System Risk Assessment (including geological, geochemical, survival components, etc.) of selected onshore and offshore East Coast Canadian Basins

## INTERNATIONAL BULLETIN BOARD

(Editor's note: This column is devoted to international items of note to the AAPG, including the activities of AAPG-related groups around the world.)

News items, press releases and other information should be submitted to the EXPLORER/International Bulletin Board, P.O. Box 979, Tulsa, Okla. 74101; telephone - 918-560-2616; fax - 918-560-2684; or e-mail - [dfree@aapg.org](mailto:dfree@aapg.org).)

Bienvenidos - Welcome!

AAPG and the Asociación Mexicana de Geólogos Petroleros (AMGP) invite you to participate in the 2004 international conference and exhibition, to be held Oct. 24-27 in Cancun, Mexico.

The conferences' technical committee already has begun preliminary work in preparing an exciting program of oral and poster sessions, field trips, and short courses under the theme of "Petroleum Industry in the 21st Century - Technology, Business and Frontiers."

Sessions built around each theme will allow the participants to review:

- ✓ State-of-the-art technologies, including discussions of deep and ultra-deep exploration and production.
- ✓ Business development in topics such as gas, cycle time and future employees.
- ✓ Environmental social issues.
- ✓ A look at the future of exploration and production.

A special session on Mexican basins will provide a review of hydrocarbon systems of the most important petroleum provinces of this country. Management sessions in each theme will bring in corporate leaders from the industry to share their points of view about the current state of our business.

Those attending will have the opportunity to take a pre-conference short course, attend the technical session and select a post-conference field trip on the subject to complete the experience, following an educational module approach.

Exciting short courses and field trips will include a wide range of topics, such as visits to outcrop analogs of the most important hydrocarbon reservoirs of the Gulf of Mexico Basin.

### Cancun Is a Paradise!

The city of Cancun is strategically located in the northeastern tip of the Yucatan Peninsula between the Caribbean and the Gulf of Mexico. It was built on a gleaming white sand bar, surrounded by iridescent aquamarine crystal clear waters of the Caribbean, and offers a huge variety of beautiful beaches,

land- and water-based sports, shopping and restaurants that offer the best samples of Mexican cuisine and the hospitality of the Mexican people.

Along the Yucatan beaches you will find botanical gardens, natural reserves, wildlife and eco-archaeological parts, the largest system of underground river channels in the world, natural aquariums, bird watching and over 700 species of orchids.

With over 200-plus sun-filled days per year, you will have a good chance to enjoy it all.



Yucatan was once inhabited by the ancient Mayans, an advanced civilization that ruled for hundreds of years over Belize, Guatemala and Honduras. Not far from Cancun are several Mayan sites, such as the mighty capital city of Chichen-Itza with its 75-foot tall pyramid temple of Kukulcan, the famous ball court, the advanced astronomical observatory and the sacred cenote (sinkhole). You will be able to visit the walled fortress of Tulum, the entry port of the Yucatan.

Plan now to take advantage of these attractions, join the field trips, the guest activities and the various eco-tours made available pre- and post-conference.

Come and enjoy Cancun, and stay longer. □

## Pre-registration Deadline: August 15!

### Limited Time ❖ Limited Space Unlimited Opportunity

- ❖ 500+ abstracts
- ❖ 5 concurrent sessions
- ❖ 100 posters per day
- ❖ 9 short courses
- ❖ 13 field trips
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# MEMBERSHIP AND CERTIFICATION

The following candidates have submitted applications for membership in the Association and, below, certification by the Division of Professional Affairs. This does not constitute election, but places the names before the membership at large. Any information bearing on the qualifications of these candidates should be sent promptly to the Executive Committee, P.O. Box 979, Tulsa, Okla. 74101. (Names of sponsors are placed in parentheses. Reinstatements indicated do not require sponsors.)

## For Active Membership

### Alabama

Fowler, Heather Elizabeth, GeoMet Inc.,

Birmingham (D.J. Benson, W.G. Hooks, T.D. Burns)

### California

Blake, Karen E., Paulsson Geological Services, Brea (D.D. Clarke, M.R. Legg, J.A. Russell)

### Colorado

Deery, John Richard, grad student, Fort Collins (reinstatement); Leaver, Jay Scott, Thomasson Partner Associates, Denver (S.M. Landon, T.J. Mather, W.R. Moore)

### Louisiana

Galluzzo, James Joseph Jr., Minerals Management Service, New Orleans (C.J. Kinler, L.S. French, R.H. Peterson); Morse, Melissa Jeanne, ExxonMobil,

New Orleans (S.A. Burner, S. Dougherty, D.J. Salter)

### Maine

Harmon, William Lloyd, consultant, South Portland (reinstatement)

### Oklahoma

Arney, John W., Devon Energy, Oklahoma City (G.Y. Riggs, G.B. Davis III, H.L. Magley); Sims, Steven Marquess, independent, Norman (S.A. Friedman, K.S. Johnson, C.J. Mankin); Talbert, Samuel J., Samson Resources, Tulsa (T.F. Matthews, F.J. Senz, J.C. Meyerhoff)

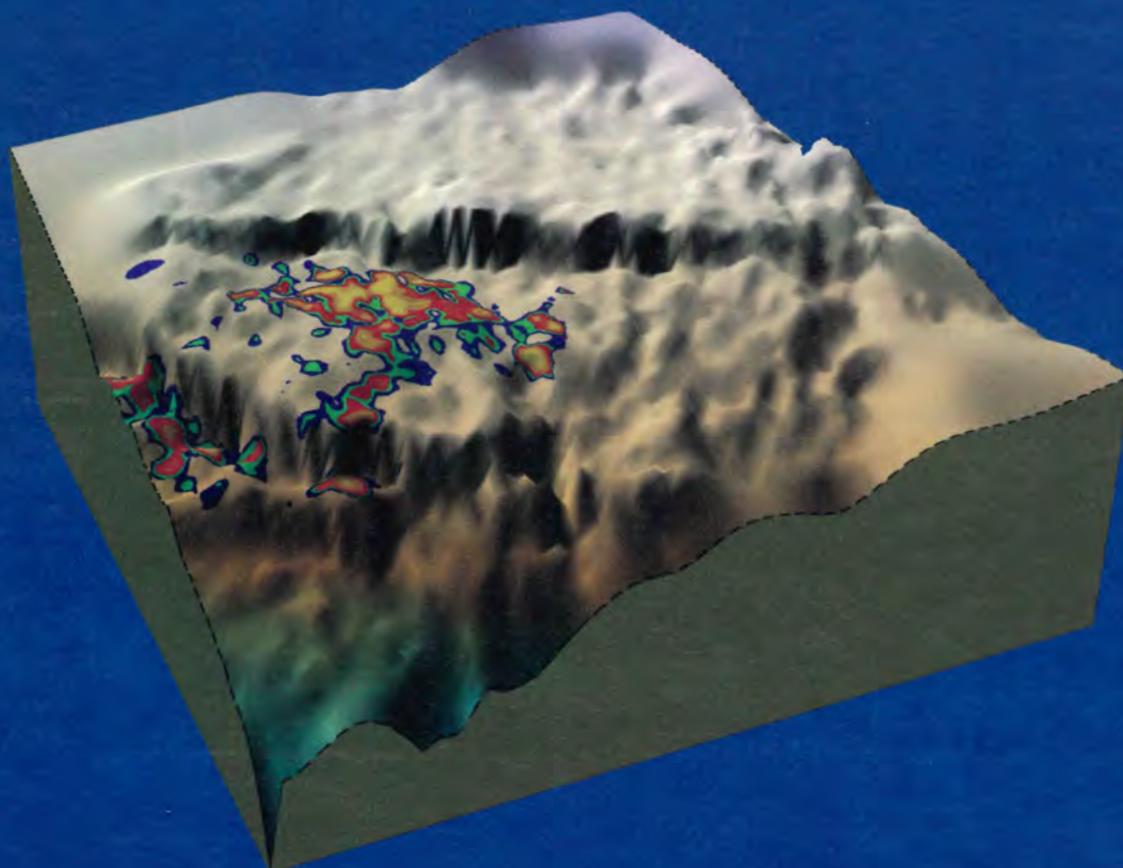
### Texas

Barnhill, W. Chris, Tierra Oil Co., San

Antonio (E.B. Neff Jr., C.M. Barnhill, J.C. Kucewicz Jr.); Bentley, Mary Caroline, Hilcorp Energy, Houston (J.R. Dean, T.W. Sandefur, C.E. Nagel III); Borel, Robb Allen, BHP Petroleum, Houston (G.E. Grubitz, B.D. Butler, C.R. Bissell); Box, Richard A., Harmony Geophysics, Houston (reinstatement); Budlong, Jennifer Catherine, Landmark Graphics, Houston (M.C. Barnes, T.M. Sheffield, W.K. Matthews III); Burton, Forrest Hugh, Kerr-McGee Corp., Houston (J.E. Jordan Jr., H.J. White, J.A. May); Eisner, Pablo Nicolas, Anadarko Petroleum, The Woodlands (T.A. Fowler, D.J. McLean, Q.M. Moore); Fuchs, James L., Anadarko Petroleum, The Woodlands (D.L. Godwin, M.E. Navolio Jr, K.T. Lewallen); George, Daniel T., Anthem Oil & Gas, Midland (reinstatement); Hoover, Andrew Robert, Shell International E&P, Houston (C.M. Griffith, M.T. Cisar, B.W. Coxe); Jantz, Keith C., Kerr-McGee Corp., The Woodlands (J.E. Jordan Jr., H.J. White, J.A. May); Jones, J.L., independent, San Antonio (M.M. Debus, R.W. Debus, J.C. Kucewicz Jr.); Kirschner, Roland Heinrich, ConocoPhillips, Houston (R.L. Nagy, W.R. Trojan, D.S. Moore); Mannikko, Norman R., Unocal, Sugar Land (J.H. Noll, D.P. Ragusa, D.H. Naas); Mason, Eric Herbert, Houston Pipeline Co., Houston (R.S. Cook, R.W. Crockett, J.R. Handley); Meredith, John C., Kerr-McGee, Houston (J.E. Jordan Jr., H.J. White, J.A. May); Moore, Rachael Aivano, Kerr-McGee Corp., Houston (J.E. Jordan Jr., J.D. Gordon, K.C. Joern); Moy, Gary F., independent, Falls City (M.M. Debus, R.W. Debus, J.C. Kucewicz Jr.); Mulder, Richard Allen, Kerr-McGee Corp., Houston (J.E. Jordan Jr., H.J. White, J.A. May); Parker, Timothy S., Dominion E&P, Houston (reinstatement); Perales-Graham, Margaret R., MPG Petroleum, San Antonio (M.M. Debus, R.W. Debus, E.H. Horton); Richards, Trevor Lawrence, Hunt Oil Co., Dallas (R.E. Webster, L.D. Galbiati, R.D. Shepherd); Ruppert, Ryan Frederick, ExxonMobil, Houston (C.R. Beeman, D.F. Kosich, S.H. Schaps); Towerly, Lisa M., BP Amoco, Houston (S.A. Earle, B.A. Lanam, T.A. Berkman); VanDerHurst, Lana, Kerr-McGee Corp., Houston (J.E. Jordan Jr., H.J. White, J.A. May); Wilbourn, Gerand L., Anadarko Petroleum, The Woodlands (M.D. Seeber, D. McGuire, T.L. Fasnacht)

continued on next page

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#### Oklahoma

Straatmann, Wendy Leigh, Samson Resources, Tulsa (C.F. Clawson II, B.B. Cone, T. Barron)

#### Texas

Weir, Gary M., BP America, Houston (H.E. Leetaru, R.A. Hutton, C.E. Bartberger)

### Petroleum Geophysicist

#### Texas

Huggins, Jonathan W., consultant, The Woodlands (K.A. Bowker, C.A. Stamm, H.L. Magley)

continued from previous page

**Wyoming**  
Kiteley, Louise Marie, consultant,  
Sheridan (reinstate)

**Australia**  
Begg, John Douglas, Voyager Energy,  
Daglish (reinstate); Smart, Susannah  
Mary, Woodside Energy, Perth (R.R.  
Gries, R.B. Kirk, D.B. Alsop)

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(J.K. Ward, R.B. Wheeler, D.L. Pierce);  
Nielsen, Karsten Schjodt, Nexen Inc.,  
Calgary (D.A. Leckie, M.B. Rogers, B.J.  
Hicks); Okaro, Patrick Ifechukwu,  
ConocoPhillips Canada, Calgary, (J.C.  
Hopkins, G.S. Pavan, S.E. Lavender)

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Energy, Cairo (A.A. Saoudi, A.T. Mansour,  
H.G. Hussein)

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Khan, D. Das); Chakraborty, Chandan,  
Oil & Natural Gas Corp., Dehra Dun (K.  
Dutta, D. Gandhi, D. Das); Christopher,  
Peddinti, Oil & Natural Gas Corp.,  
Rajahmundry (A. Banerjee, D. Ghosh, M.  
K. Samanta); Dangwal, Vinod, Oil &  
Natural Gas Corp., Dehra Dun (K. Datta,  
D. Gandhi, B. Khan); Joshi, Jaya, Oil &  
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D. Gandhi, D. Das); Manavalan, A., Oil &  
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Murphy Sarawak Oil, Kuala Lumpur (F.  
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Lekki (E.U. Adokpaye, B.S. Akinyemi,  
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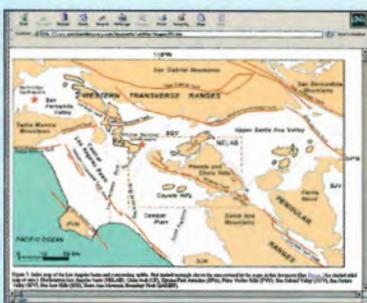
**People's Republic of China**  
Xu, Xuhui, Wuxi Res Inst Exp Petr Geol,  
Jiangsu (X. Xie, S. Li, C. Lin) □

## Whittier Fault Trend CD-ROM Subject

Research on the Whittier fault trend in the Los Angeles Basin is now available on the AAPG Search & Discovery Web site and as a CD-ROM of geo-referenced information.

"The Whittier Fault Trend: Cross Sections, Structure Maps and Well Tops in the Major Oil Producing Area of the Northeastern Los Angeles Basin," was posted to Search & Discovery shortly before the annual meeting. The data also are compiled on a CD-ROM in GIS formats, and are being released as Search & Discovery CD-ROM Series No. 1.

The work was done by Tom Bjorklund, with the University of Houston.



Geoscientists believe that understanding the deep structure of the Los Angeles basin is critical to the assessment of the seismic hazard – as well as the future petroleum

potential – in one of the United States' most densely populated regions.

That deep structure is hardly known, however, because over 6.4 kilometers of Pliocene and younger rocks have buried the rocks that record the early history of the basin. Acquisition of the modern

seismic data that might reveal the deep structure has not been feasible in this densely populated area.

Fortunately, just 50 kilometers to the east, evidence of the basin's deep structure character is accessible in the outcrops and wells of the Puente Hills area of the northeastern Los Angeles.

The Search & Discovery Web site is at <http://www.searchanddiscovery.net>, or by link to [www.aapg.org](http://www.aapg.org).

The CD-ROM costs \$38 (plus shipping). A complete table of contents is available on the Bookstore Web site. It can be ordered online at <http://bookstore.aapg.org>, or by calling the AAPG Bookstore at 1-800-364-2274 (in the USA & Canada); others call 918-584-2555. Ask for catalog #083-03.

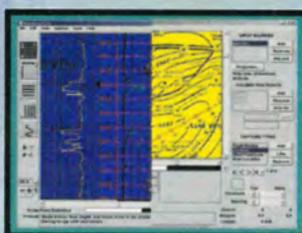
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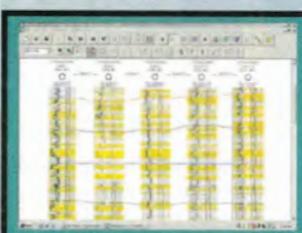
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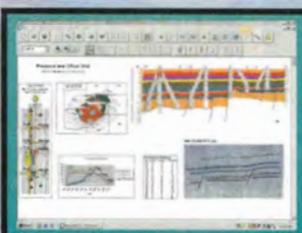
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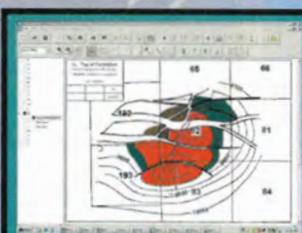
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**READERS' FORUM****"With a Little Help ..."**

I can understand Jeff Bryant's feelings about the oil business and employment ("Goodbye to the Business," Readers' Forum, May EXPLORER).

I have been there myself. He is very right about no one acknowledging your resumes and letters. In this area the companies have regressed back to the Stone Age.

Luckily, I have been able to find work either full time or on contract, and I owe it all to friends and acquaintances. There is no substitute for a good network of professionals and friends both in and out of the "oil bidness." I love this work, and the people, and cannot imagine doing anything else even without the good salary and perks. Only twice in my career have I ever done anything outside of geology and I always kept looking for the "oil bidness" work.

I wanted to be a geologist even before I found out you could make a living at it. It was not until I spent two summers with Mobil Oil in Corpus Christi, Texas, that I saw people actually getting paid to do what I loved to do.

So, good luck with your new life, Jeffrey Bryant. I bet there are a lot of "kindred spirits" in the "oil bidness" wishing you success.

At least you are still attached to geology, even if it is viewed from a far distance.

Jim Burkholder  
Spring, Texas

*Editor's note: Letters to the editor should include your name and address and should be mailed to Readers' Forum, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101, or fax (918) 560-2636; or e-mail to forum@aapg.org. Letters may be edited or held due to space restrictions.*

**The Myth Is a Myth**

After reading the degrading slam of exploration geologists and associated company management in the article "Myth of the Prospector Lingers" (Business Side of Geology, May EXPLORER), one must ponder why an organization of oil explorationists would even pay the author to write a column we all must endure reading.

The motivation to write this article came out loud and clear with the

statement, "With this concept comes the realization that each opportunity must be assessed consistently and objectively." (i.e. like using an outside third party company like the author's company)

He continues, "The inherent uncertainties can be dealt with using geotechnology and geostatistics." Yeah, right.

Oil is found by great science, luck and guts.

When one looks at an oil and gas

production map, one rapidly realizes that there have been a bunch of fantastic companies who have invested in exploratory prospects over the years.

The author refers to this as his "Prospector Myth." It is the money made from these oil fields discovered by the "Prospector Myth" by his clients that helps the author make his house payments every month.

The business plan that the only "real value" comes from buying one's reserves in an existing field falls apart when one realizes that there would be no fields to buy without the prospector's

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**Turn Left at Albuquerque**

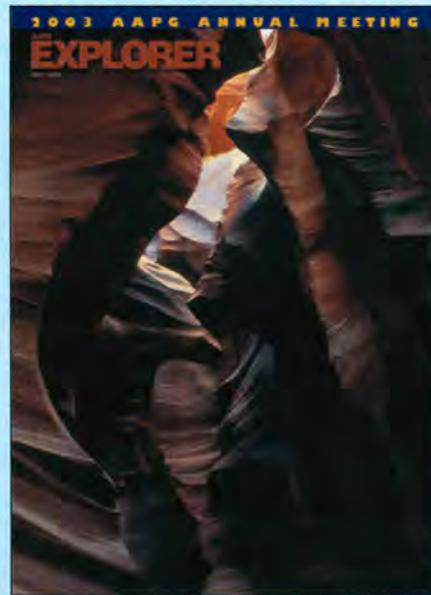
Picked up my mail today and was delighted to see the beautiful rendition of my Antelope Canyon photo on the May EXPLORER cover.

This was followed by consternation when I read the credit on the inside page that placed the canyon in Utah.

You might consult the material I sent along with the picture, in which I noted that the canyon is in Arizona, as I was careful to make the distinction. It is about 2/12 miles southeast of Page, Ariz., on the south side of highway 98 across from the Navajo power station on the Navajo reservation.

I know that I will be catching it from my colleagues who have been there and who know where the canyon is.

I have no idea what the editorial implications of this might be, but I know I am in for it with my professional



colleagues.

Should be interesting.

Peter K. Link  
Evergreen, Colo.

*(Editor's note: That bright red glow you see in the sky over Tulsa is from the collective color of our embarrassed faces here.*

*Note to all geologists: AAPG member Peter Link knows where Antelope Canyon is located. We're the ones who were lost.*

*Of course, Utah has so many beautiful locales of its own, we just assumed this was one more example of its splendor.*

*For our birthdays we're all asking for new maps.*

*In the meantime, to Peter and to the state of Arizona, we apologize.)*

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Commentary

# Old Dogmas Get New Examination

Can we harness and manage better the value that geoscience and geoscientists bring to industry and society?

Do we think we know more than we do? See what we want to see?

A recent Geological Society Conference on "The Future of E&P – Thriving or Just Coping?" set out to examine these and related questions: How the answers could contribute to a thriving industry and how, as geoscientists, we could make a difference.

Here, briefly, are some thoughts arising from the conference by three attendees noted at the end of the commentary.

A past president of AAPG discussed the value of identifying and overturning "dogma" in our business and replacing it with a new "heresy." This meeting examined, enthusiastically, what constitutes the current "dogma" (see box), challenged it and considered what a new "heresy" might be.

It was controversial and intellectually challenging.

At the end of the day ours, like any industry, is run by and relies on people – with, as well as their foibles, their tremendous capacity for imagination, new ideas and solutions. And so this, the human element of our business, emerged as very much the underlying theme of the discussions.

Are we, as individual geologists and as organizations, failing the science of geology?

Have we met the enemy and he is us?

The answer was "yes."

Since the workshops were largely populated by managers, one of the themes that echoed around the discussions was that management behavior represents one of the key factors in improving the effectiveness of the industry – issues are primarily people problems, not technical or technological challenges.

Our consensus is that the means of improving our behaviors is not complex or difficult (or costly), but more "common sense" – but in that case, why are we so bad at improving?

**Do we really believe these?**

- ✓ Companies are properly organized to create value, and that people are costs not value.
- ✓ Organizations and employees understand making versus spending money.
- ✓ We use "fit for purpose" technology that results in superior project execution.
- ✓ Organizations understand personal attitudes to risk and we learn from our failures.
- ✓ Experience and creativity do not create value.
- ✓ We have little to learn from other professions, other industries.
- ✓ We manage hiring, promotion, motivation, reward and diversity objectively and effectively.
- ✓ We measure what's important, and what's important can be measured.
- ✓ "Reputation" is a management issue.
- ✓ Employees and stakeholders are aligned.
- ✓ Leadership comes from the top.
- ✓ "Passion" is a word that doesn't belong.
- ✓ We recognize and challenge mindsets when we see them.

Isn't there real value to be found in challenging the statements above?

**Architecture**

It is useful to examine ways of improvement in the framework of the *internal* architecture of an organization and the *external* architecture of its relationships with its stakeholders.

A fundamental question within both is how do we measure – and communicate – the *value* of earth scientists? And how can we enhance that value?

- Internal architecture – motivating and valuing staff, management and

See **Commentary**, next page

continued from previous page

"unconstrained optimistic exuberance."

I have found that guys like the author forget their failures in the missing discovery of a great field and only pat themselves on the back with the avoidance of dry holes. They often spend the rest of their lives trying to make up for the reserves they mis-evaluated.

I have found that the field is either there or it is not. It is not 4.2 percent there, nor 12.8 percent there. The field is either down there waiting for you to discover it, or it is not. The discovery comes out of great science, and not from geostatistics.

Finally, as case-in-point, the author touts deepwater discoveries as example of success. The point is the author would never, ever support initiating the drilling

of a rank new play like the deep subsalt, or the 30,000-foot deepwater oil play in the Gulf.

That took the "unconstrained optimistic exuberance" by an explorationist. Guess what? Those huge discoveries didn't have a 1 percent chance of success; they had a 100 percent chance of success. Those fields were just sitting there waiting for someone to finally fire their risk assessment gurus and drill them.

Gary C. Stewart  
Golden, Colo.

(Editor's note: The columnists who appear in the EXPLORER are invited volunteers and receive no compensation.)

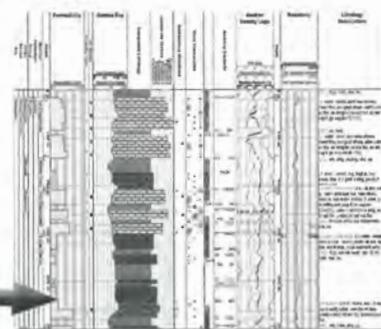
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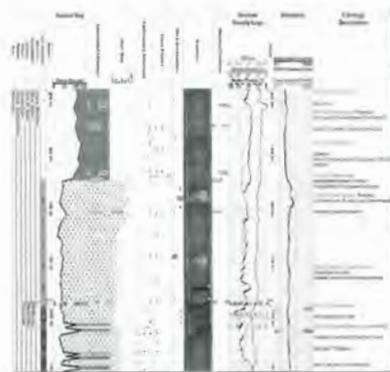


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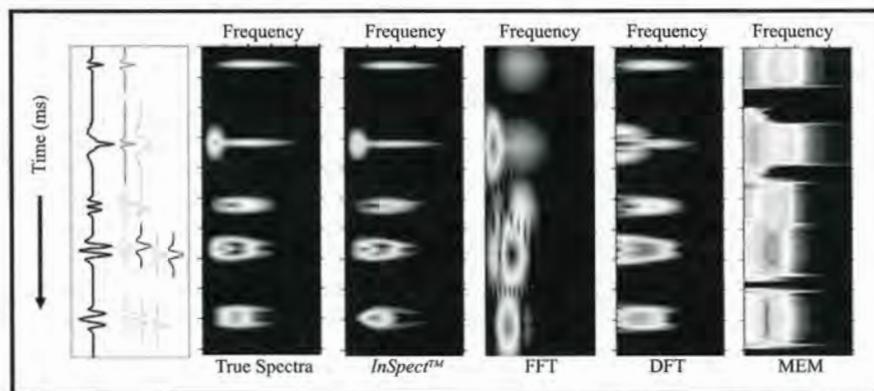
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## INMEMORY

- Allin, Philip Robert, 88  
Lafayette, La., March 9, 2003
- Barr, Jim L., 63  
The Woodlands, Texas  
October 2002
- Buttermore, Paul M., 104  
Garland, Texas, Feb. 5, 2003
- Cochrane, John M., 81  
Granville, Ohio, March 14, 2003
- De Jarnett, Presley Leonard, 75  
Spring, Texas, March 27, 2003
- Dennis, James E., 79  
Salado, Texas, Feb. 14, 2003
- Everett, Robert Walter Jr., 81  
Baton Rouge, La., Nov. 23, 2002
- Fryxell, Arne Stuart, 78  
Bellingham, Wash., Dec. 5, 2002
- Green, William Randolph, 86  
Boise, Idaho, Oct. 17, 2002
- Gries, John Paul, 91  
White Lake, Mich.  
March 28, 2003
- Grocock, Gerald Richard, 53  
Evergreen, Colo., March 28, 2003
- Grow, George Copernicus Jr., 86  
Westfield, N.J., March 27, 2003
- Hardy, Hugh W., 78  
Houston, April 2, 2003
- Helmig, Phil D. (AC '37)  
Roswell, N.M.
- Henderson, Thomas Briggs Jr.  
(AC '54)  
Corpus Christi, Texas
- Hill, David Ray (AC '68)  
Colton, Ore.
- Jespersen, Jerold E. (AC '56)  
Wichita, Kan.
- Kate, Frederick Henry, 86  
Oklahoma City, March 9, 2003
- LeRoy, Tom E. (AS '41)  
Socorro, N.M.
- Owen, Donald Eugene, 74  
Terre Haute, Ind., Jan. 13, 2003
- Paredes, Manuel, 78  
Houston, April 22, 2003
- Rago, Frank T. Jr., 77  
Littleton, Colo., Feb. 18, 2003
- Rector, Michael Robert, 80  
Bakersfield, Calif., July 15, 2002
- Richards, George Leroy, 76  
Wimberley, Texas, March 7, 2003
- Richardson, Donald Eugene, 74  
Oklahoma City, June 23, 2002
- Spencer, Richard Nelson, 79  
Richmond, Va., Nov. 3, 2002
- Tucker, Paul M., 89  
Houston, April 1, 2003
- Weems, John Howell, 77  
Houston, April 1, 2003
- Wissig, George C. Jr., 60  
Valencia, Calif., April 2, 2003

(Editor's note: "In Memory" listings are based on information received from the AAPG membership department. Age at time of death, when known, is listed. When the member's date of death is unavailable, the person's membership classification and anniversary date are listed.)

## Commentary

from previous page

leadership.

We need breakthroughs to continue generating value, but breakthroughs make most people feel uncomfortable and at risk, and we hold ourselves back from change and moving on out of fear and out of lack of awareness of what it is about.

If we are to hope to achieve a breakthrough or step-change in organizational performance, then we must first recognize that we, as a profession and as individuals, have the means and the responsibility to make it happen – and then be prepared to do something about it.

Ways of achieving this might be:

- ✓ Ensuring that *everyone* in the organization understands the business drivers, where money is made and where it is spent.

- ✓ Developing new kinds of "training" or awareness programs to build understanding of risk preferences in decision-making, permission to fail and genuinely learning from it, and other aspects of what might be called "emotional intelligence" in ourselves and our colleagues.

- ✓ Defining an organizational architecture that distinguishes and creates a balance between asset management and control (which should be "squeezed until the pips squeak"), and revenue generation (which should be inspired and allowed to grow).

- ✓ Building an organizational architecture that ensures a sufficient "creative space" as well as a "functional space."

- ✓ Always looking at whether there are enough, too many, too few geologists, engineers, accountants, managers (not easy, but look at where the money is made versus where it's

spent).

- ✓ Focusing on the value of diversity.

- ✓ Hiring people who are smarter than you are.

- External architecture – stakeholder alignment

As geologists (in the widest sense of the term):

- ✓ We can add value to an organization's relationships with its shareholders, the market and society.

- ✓ We need an independent and separate voice from the industry, companies and industry organizations.

- ✓ We need to develop credibility and practicality so we can comment in public intelligently on the Natural Resources Businesses and associated areas such as environmental issues, and the contribution that the science of geology can and does make to understanding and managing these.

This does not need to be a large scale or high cost initiative in order to succeed.

\* \* \*

There is no simple recipe for taking these ideas and harnessing all the incremental value that could be achieved. It is apparent from this conference that the ideas, the passion, the desire to make a difference have not vanished. But if we are to achieve the kinds of changes that we believe our industry and profession need to create the kinds of performance improvements we think are possible, then it's up to us. Please, tell us what you think.

Alastair Beach, Exploration Consultants Ltd: [a.beach@ecqc.com](mailto:a.beach@ecqc.com).  
Jonathan Craig, Eni-Lasmo: [jonathan.craig@eni-lasmo.com](mailto:jonathan.craig@eni-lasmo.com).  
Michael Welland, Orogen Ltd: [orogen@mwelland.globalnet.co.uk](mailto:orogen@mwelland.globalnet.co.uk). □

**MEETINGS OF NOTE**

**2003 U.S. Meetings**

Sept. 9-11, APPEX (AAPG Prospect and Property Exposition), AAPG, Houston.

Sept. 6-10, Eastern Section, AAPG, annual Section meeting, Pittsburgh.

Sept. 3-7, AAPG Foundation Trustees Associates, annual meeting, Whistler, B.C., Canada.

Sept. 21-24, Society for Organic Petrology, annual meeting, Washington, D.C.

Oct. 5-8, Society of Petroleum Engineers, annual meeting, Denver.

Oct. 12-14, Mid-Continent Section,

AAPG annual Section meeting, Tulsa.

Oct. 22-24, Gulf Coast Association of Geological Societies, AAPG, annual Section meeting, Baton Rouge, La.

Oct. 26-31, Society of Exploration Geophysicists, annual meeting, Dallas.

Nov. 2-5, Geological Society of America, annual meeting, Seattle.

**2003 International Meetings**

Sept. 3-7, AAPG Foundation Trustees Associates, annual meeting, Whistler, B.C., Canada.

Sept. 8-12, Offshore Northwest Europe, annual meeting, Aberdeen, Scotland.

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## DIRECTOR'S CORNER

## Once It Gets Started – Watch Out!

By RICK FRITZ

One of the great enjoyments of my career was working for Exxon at its production office in Kingsville, Texas. As a young geologist I was paired with a young engineer and, as a team, we immediately began to develop prospects.

I began work in 1977 during the "boom," when there were a lot of young people starting their careers in Kingsville. Of course, we always joked about "getting out of Kingsville" as soon as possible and moving to more glamorous places. In reality, Kingsville was a good place to start and I met many of my best friends there.

A sort of "pecking order" existed on transfers out of Kingsville. As I was one of the "first in" of my peer group, after about two and one-half years, I was the "first out."

For my farewell party, I decided to give a "Weevil Award" as a joke to the next person most likely to leave. "Weevil" was a term used for new hires in Kingsville. I'm not sure how to describe it, except to say that it was one of those endearing insults that are often given to new hires.

The "Weevil Award" was an incredibly ugly, dilapidated bowling trophy. It was left in my garage by the previous owner when Mary and I moved to Kingsville. It was one of those strange, forlorn things that had been abandoned like an old hat.

For some reason, I was reluctant to toss it. Who knows? It could be put to good use.

For my farewell party, I slapped a fake brass nameplate on it, and presented the trophy to my co-worker Tom Chidsey, who most recently served as general chairman for the Salt Lake City meeting. He passed it on as a joke

when he left Kingsville to Gary Wier. Gary gave it to Jim Himanga, and he to others. Apparently, it began to take on a mystic aura, in that each person to receive the award soon left Kingsville.

After a few years I lost track of the "Weevil" and never gave it another thought.

\* \* \*

I've always liked to start things. At least a lot of people accuse me of that. I'm not sure it's always a compliment.

In the fall of 2000 at the SEG meeting in Calgary, I was commenting to Dan Smith that I had not found time to initiate an AAPG prospect and property expo. Furthermore, I lamented, it was probably too late to start one.

Dan was emphatic that the membership wanted AAPG to develop this program, and strongly encouraged me to proceed. So we built a business plan, and then-president Marlan Downey and the Executive Committee approved the idea. Chuck Noll was chosen as the first APPEX general chairman. A lot of volunteers and staff worked furiously, and now we are preparing for our third expo, having grown every year. Paul Hoffman and Deborah Sacrey are co-chairs for APPEX 2003.

We have made a number of improvements to APPEX this year:

✓ We have moved the APPEX meeting to its now-permanent time



The Weevil Award

frame during the second week of September. APPEX will be held Sept. 9-11, once again at the George R. Brown Convention Center in Houston.

✓ We are partnering with IHS to present an "Upstream Perspectives" forum on Tuesday, Sept. 9. The morning session will concentrate on global issues presented by experts on Africa, Asia and Latin America. The afternoon session will focus on North American perspectives, especially gas potential.

✓ This year the exhibition will last for nearly two full days – Wednesday and Thursday, Sept. 10-11. While the exhibition will feature mostly domestic onshore prospects, this year's exhibition also will feature a deepwater pavilion and an international area.

We are expecting our largest exhibition ever with over 400 booths!

\* \* \*

In January 2000, six months after I came to AAPG, I received a box in the mail. Inside was a letter describing the history of the Weevil Award and a very nice letter from David Noble with ExxonMobil. David's letter said:

"You probably forgot about this old trophy a long time ago, but one of us who worked in Exxon's old Kingsville district passed the trophy on for all of these many years. I'm afraid it has

become a little worn, and it looks to me that a few of the nameplates fell off many years ago. But, I can honestly say that it has been openly displayed with both pride and humor for the entire time that many others and I have held it for you. And now it is finally time to return it to you."

You can imagine my surprise when I saw that old trophy from my garage in Kingsville from over 20 years ago. Attached was a list of almost 25 geologists with most of their names on little brass plaques on the trophy.

I display the Weevil Award with pride on the bookshelf in my office. It speaks to the camaraderie of our profession, i.e., only a bunch of crazy geologists would pass an old, ugly keepsake along for 20 years. Since my name was never on the trophy, I am amazed that oral tradition preserved that fact for 20 years. I appreciate David returning it to me.

You never know where something is going to go once you start it. I guess the most important thing is to start something.

\* \* \*

Please join us at APPEX this year. It's a member show and we have made a great start. Our third year is going to be one of the best.

For all the latest APPEX news, go to our Web site at [www.aapg.org](http://www.aapg.org). For specific questions, contact Michelle Mayfield Gentzen, at [mmayfiel@aapg.org](mailto:mmayfiel@aapg.org).

## Range of Issues 'Staggering'

## DEG Looks to Influence Policies

By CHRIS STEINCAMP

DEG Liaison Committee Chairman

DEG's Liaison Committee is designed to provide a link between the geoscience community and the various agencies and institutions that make or influence public policy with regard to environmental issues.

The committee recently has been reformulated to maximize our ability to identify appropriate issues that affect the geological community – and then to have a positive impact on policy makers, to ensure that environmental policies are adopted based on sound scientific principles.

The potential range of issues that may perhaps merit attention from the Liaison Committee is staggering. One of the tasks that will be undertaken in conjunction with the membership of DEG and AAPG as a whole will be prioritizing those tasks.

\* \* \*

One of the prominent issues on AAPG's and DEG's radar screens is the licensing of geologists. A number of

states have now passed licensing laws that apply to geologists; in the last several years, thousands of geologists have become licensed across the United States pursuant to various state licensing statutes.

Because of these licensing statutes, the potential positive impact from the application of geology to a number of problems facing the public is enormous. In no area was this more true than the world of environmental regulation and cleanup.

As environmental regulations continue to tighten, they have begun to intrude into the relatively sheltered world of petroleum exploration and production. New federal requirements for SPCC plans for oil and gas leases (see DEG column, December 2002 EXPLORER) as well as storm water pollution prevention plans for drill sites are only two examples that have received a great deal of attention in the industry.

As it stands in most states, both SPCC and storm water pollution prevention plans must be approved by a licensed engineer. In most states, this



approval would extend to any licensed engineer, even if the engineer's particular discipline would have no contact with the issues involved.

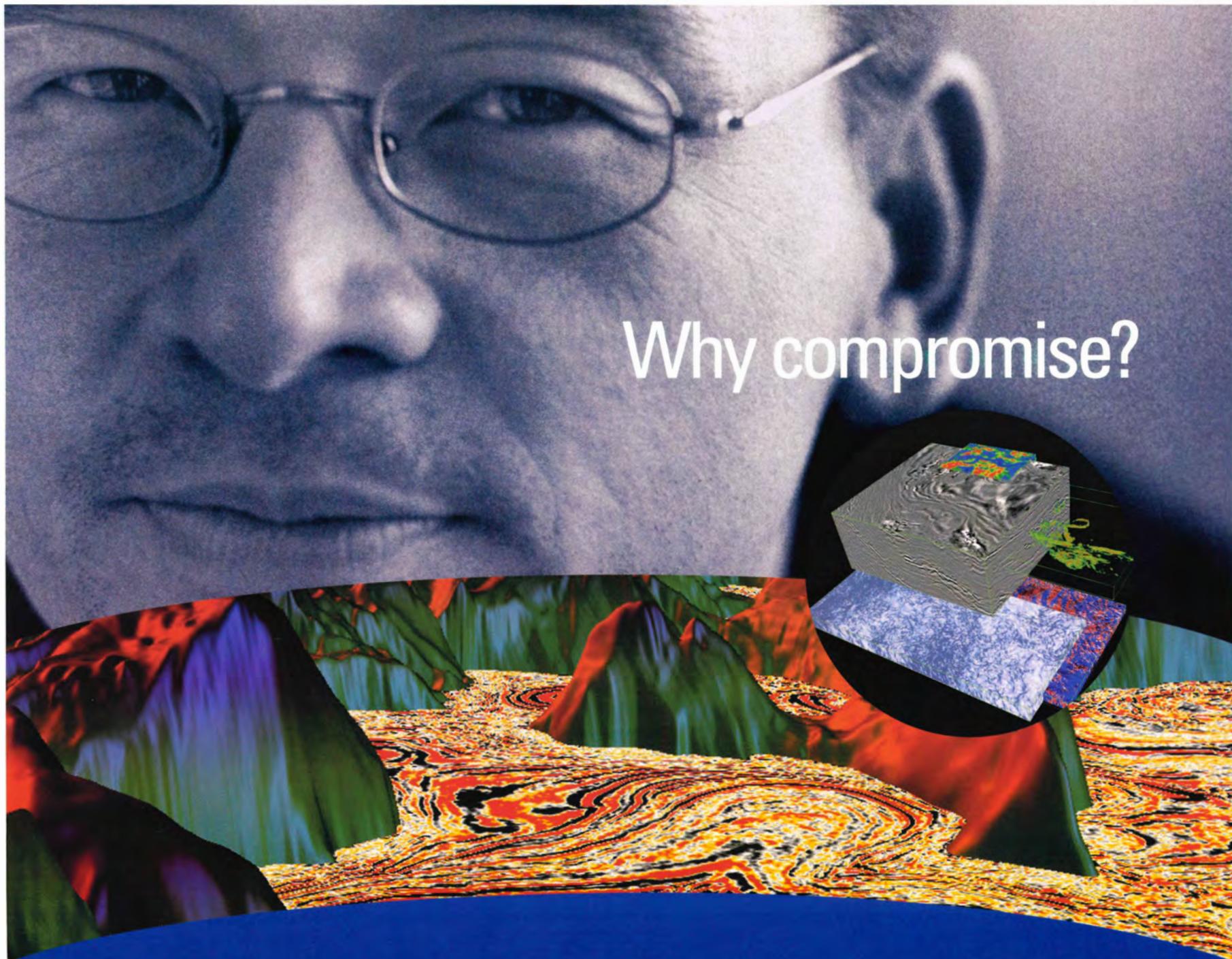
Likewise, a licensed geologist is not on the list of those entitled to approve such plans even in states with geological licensing.

These facts point to the need for action.

The DEG Liaison Committee intends to analyze such federal and state regulations and statutes to determine areas where geological expertise could be applied – and then urge policy makers to adopt changes in statutes or regulations, allowing licensed geologists to legally apply their geological expertise to these problems.

A license to practice geology without the legal or regulatory sanction necessary to put that license into action is nothing more than a piece of paper hanging on the wall. Expansion of the ability for geologists to participate in these areas will have an enormous positive impact on both the profession of geology and the environment.

Should you be willing to help, or if you have issues or concerns that should be considered by the DEG Liaison Committee, please contact a DEG officer, Section representative or committee chairman. □



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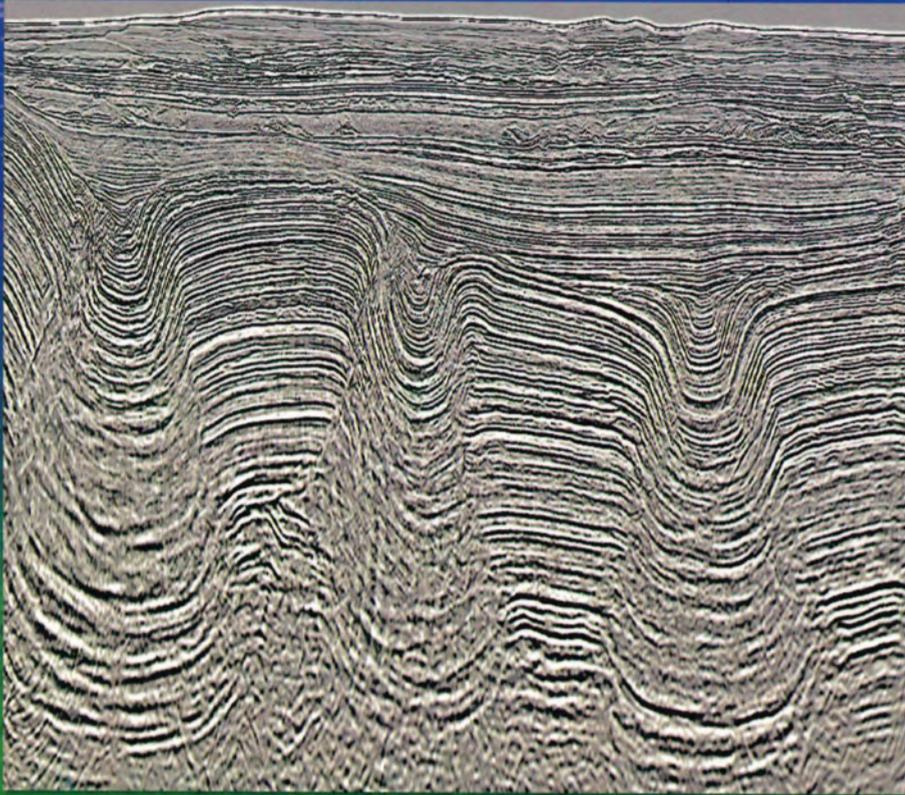
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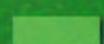


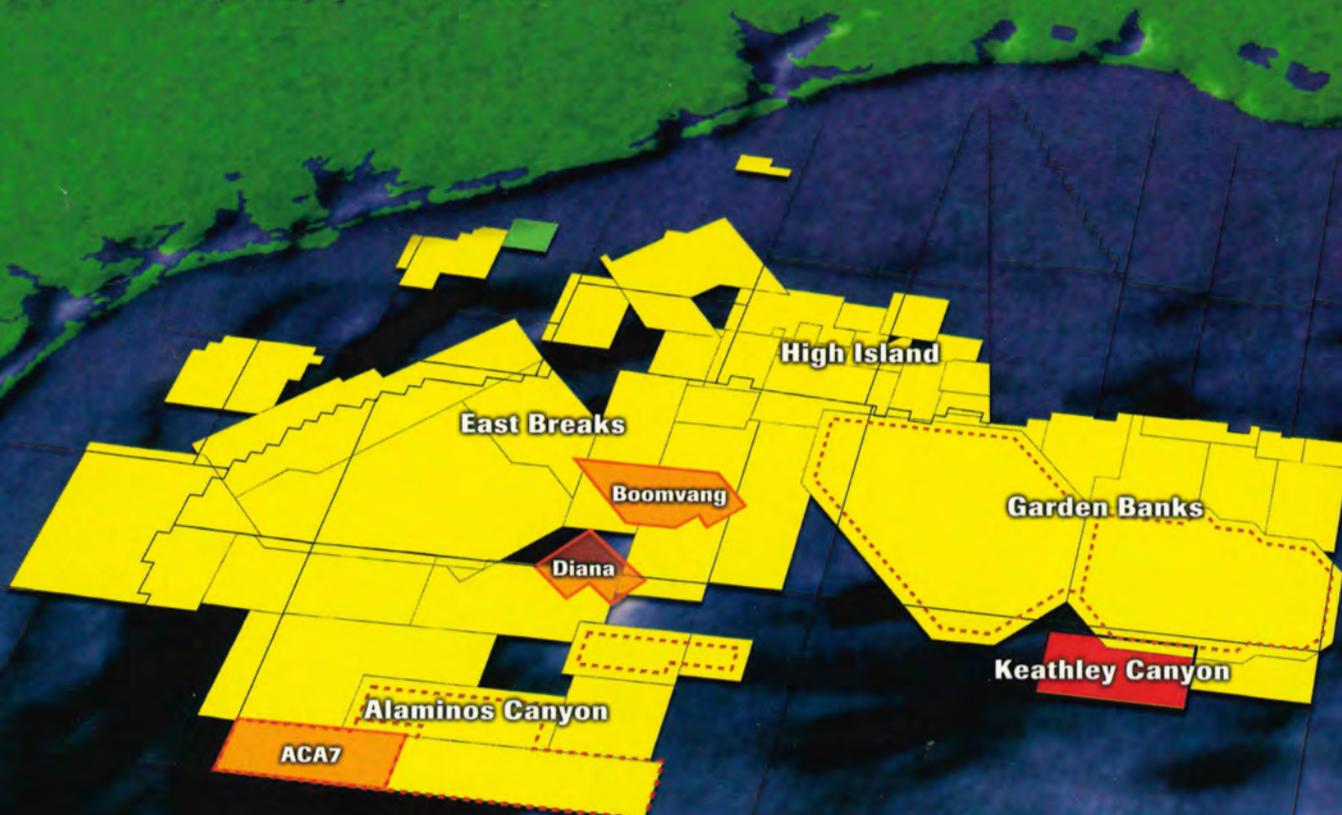
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