AMERICAN PETROLEUM INSTITUTE
DELTA CHAPTER

February, 2004

www.api-delta.org

The APInion

Terror Talk

On November 11, 2003, API members were filled in on terror concerns by Vince F. Cottone of Chevron Texaco, Chairman of the Gulf Safety Committee.

Rich Tucker congratulates Vince Cottone

The Gulf Safety Committee provides a forum through which the experience, issues, and concerns of all Gulf of Mexico waterway stakeholders, users, and regulators can be expressed. The executive steering board of the Gulf Safety Committee represents the broad range of interests in the Gulf of Mexico: the oil and gas E&P industry, drilling services industry, commercial fishing industry, recreational diving industry, recreational fishing industry, shipping industry, passenger vessel industry, the towing vessel industry, environmental organizations, and regulatory agencies. The board meets to establish the agenda for general membership meetings and to study problems identified by the general membership.

Some of the products/initiatives of the Gulf Safety Committee thus far include a voluntary fishermen communications protocol, communication procedures to report suspicious activity or terrorist operations in the Gulf of Mexico, an offshore hazard slideshow/article, a reference chart of Coast Guard safety & security zones, and a maritime security levels chart. The Gulf Safety Committee maintains a web page on the Coast Guard's National Harbor Safety Committee Website at: http://www.uscg.mil/hq/g-m/harborsafety/Gulf%20Safety%20Committee.htm.

Mr. Cottone also covered transportation security regulations enacted to protect the important and expansive oil and gas industry. These include a Research and Special Programs Administration (RSPA) for hazardous material transportation and United States Coast Guard Maritime Transportation Security Act regulations.

The RSPA regulations impact offshore facilities and shore bases that ship certain hazardous materials. They also impose requirements for background checks, training, and security plans. These will impact many oil and gas facilities. The U.S. Coast Guard regulations will apply to certain E&P and transfer facilities. They will require security assessment

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2003 API Meritorious Service Awards to HAROLD ANDERSON, SCOTT SEWELL

(details on back cover)

Wednesday February 18, 2004

FAIRMONT HOTEL
11:00 Networking
11:30 Luncheon

RSVP to:
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for more information,
504-329-5384

$25.00 in advance
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Chairman's Message

Why not start 2004 with honoring two members of our oil and gas community at the Meritorious Service Award Luncheon on Wednesday February 18. This year's recipients are Harold Anderson and Scott Sewell. We have all met both of them in a professional capacity. Harold has worked in this area for thirty-seven years and Scott is a former Director of the U.S. Minerals Management Service. Both men are very active in local civic organizations.

These awards are given on behalf of the twelve societies that are active in the petroleum industry in greater New Orleans. This is an effort at cooperation among the societies that API-Delta Chapter has tried to foster. While every society has its own area of expertise or particular volunteer effort, there are issues that are common to all the societies and it is useful for us to cooperate.

With that in mind, I encourage everyone to participate with Josh Etkind of the Society of Petroleum Engineers and his One Voice initiative with its effort at synergerizing all of the different education initiatives the different societies support. I believe strongly that given the size of the oil and gas community in New Orleans we all need to work together for the improvement of the whole.

Richard L. Tucker

Attendees enjoy meeting and making friends at the November Joint Meeting

Published by: Word Catering, Ltd
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LNG: THE NEXT PRIZE

The following are excerpts from "The Next Prize," a November 03, 2003 News Article from Cambridge Energy Research Associates (www.cera.com), by Daniel Yergin, CERA Chairman, and Michael Stoppard, CERA Director.

A Global Gas Market:

A new global energy business—natural gas—is emerging. It will have a far-reaching impact on the world economy, bringing new opportunities and risks, new interdependencies and geopolitical alignments. As natural gas becomes a traded global commodity, it will be critical to meeting a host of urgent needs. The United States needs it to keep the lights on and stave off a coming energy shortage, Europe to rejuvenate its industry, developing countries to boost growth, and all of them to meet their aspirations to have a cleaner environment.

The change will be accomplished both with long-distance pipelines and with natural gas that ironically is no longer in gaseous form, having been liquefied through cooling. This "liquefied natural gas" (LNG) will be carried in tankers that can change direction on the high seas to respond to sudden shifts in demand or prices. Thanks to this emerging global commodity market, lights, air conditioning, and factories in the United States will run on electricity that is sometimes generated with natural gas from Indonesia, the Algerian desert, the seas of Trinidad or Nigeria, the island of Sakhalin in the easternmost part of Russia, the frigid northern waters of Norway, or the foothills of the Andes.

Yet, one of the more haunting aspects of this new global gas business is its reminder of the transformational years of the late 1960s and early 1970s, when the United States became integrated with the world oil market. In a few short years, the United States went from being a minor petroleum importer to a major one. The surge in demand from the world markets, pulled by the engine of the American economy, helped set the scene for the oil crises of the 1970s and created dependencies with which the world still wrestles.

For more than half a century, the United States has been broadly self-sufficient in natural gas, save for imports from Canada. In the next five years, it is likely to become a large gas importer; within ten years, it will overtake Japan as the world's largest. As it inevitably becomes part of this new global gas market, will the United States inadvertently trigger new security issues—or will new interdependencies help reduce future risks?

Many businesses have become truly global in their operations and perspectives over the last decade. Natural gas has been an exception until now. Although it is huge—a business worth over half a trillion dollars a year—it has been a local, national, or continental business, limited by the reach of pipelines and the absence of a global marketplace. But this picture is changing because LNG will allow the world's plentiful but long underdeveloped and "stranded" gas reserves to be efficiently carried to consumers.

The need for a global LNG market is growing urgent. In the United States, gas prices have doubled since the second half of the 1990s, placing a new burden on the economy and portending a shortage. Federal Reserve Chairman Alan Greenspan warned recently that dwindling domestic supplies were "a very serious problem" and a major threat to the U.S. economy and spoke out forcefully on the need to develop LNG supplies.

Much is now expected of LNG. But developing its full potential could cost as much as $200 billion worldwide, and energy companies will have to choose between investments in LNG and other investments. Will the complex network of technology and investment be established in time, given uncertainties about markets, regulation, and government policies? Will geopolitical risks constrain—or disrupt—development? Can natural gas live up to the need, and the high expectations, that the world now has for it?

Liquid Power:

Natural gas—in its gaseous form—can be carried efficiently only in pipelines. But when oceans get in the way, pipelines do not work. Fortunately, when natural gas is refrigerated down to temperatures of minus 260 degrees Fahrenheit, it contracts into a liquid, which can be put in a tanker and transported thousands of miles across the sea. On delivery, this liquefied gas is restored to its original state in a regasification terminal. Traditionally, the whole process has been relatively costly. But it is very effective—methane is 600 times less voluminous as a liquid than as a gas—and it allows large amounts of energy to be packed into a single cargo: one shipment holds the equivalent of five percent of the gas consumed in the United States on an average day.

LNG projects in Asia and Europe developed according to a very particular set of unwritten rules—what might be called "the LNG paradigm." The paradigm aims to ensure that a logistic, financial, and commercial chain links suppliers to consumers through contracts that govern every step of the process, from extraction and liquefaction to shipping, delivery, and regasification. Specific reserves are earmarked and developed for specific liquefaction facilities, the output of which is delivered by specified tankers to specific markets. All the elements of the projects—which last for 20 or more years—are laboriously worked out and settled before any serious dollars are spent. Gas prices are set according to formulas that link LNG prices to oil prices, keeping them competitive and insulating them from subsequent decisions by buyers and sellers.

The LNG paradigm developed for two reasons: the huge capital costs of LNG projects and the inevitable interdependence of gas buyers and gas sellers. Simply put, there is no point in developing reserves if the market is not there—and vice versa. Supply and demand, according to the paradigm, need to be developed in tandem. The costs of LNG projects—which run from three billion to as much as ten billion dollars for a single project—mean that investors want to lock in future sales and revenue streams, protecting themselves from unanticipated or unpredictable shifts in the market.

This paradigm is very much at odds with the way the gas business has been organized in the United States since its deregulation in the 1980s. The U.S. market is anything but long term: it runs on spot and futures markets and short-term contracts. The mismatch between the LNG paradigm and the way the business works in the United States had led many observers to conclude that the United States is unlikely ever to import significant quantities of LNG. At least that was the view until very recently.

Guiding Light:

If there is a single thing responsible for the emergence of natural gas as a global commodity, it is the rising demand for electricity. Today, natural gas is the "fuel of choice" for meeting escalating electricity needs, whether in the developed or the developing world. In the United States, demand grows at a rate that is about two-thirds of the growth rate of the overall economy. In the developing world, growth rates are much higher. China's electricity consumption today is more than three times what it was in 1990; lately, it has been growing at an extraordinary 17 percent a year.

The "combined cycle gas turbine" (CCGT), a new technology for generating electricity that was borrowed from jet engines, has given gas a major advantage against its competitors—coal, nuclear power, hydropower, and oil. CCGT plants are easier to finance, quicker to build, and more efficient in their consumption of energy than existing coal plants. Environmental considerations also have reinforced the position of gas as the new fuel of choice. Of all the fossil fuels, it is the best suited to the post-Kyoto world: electricity generated from it emits only 40 percent of the carbon dioxide produced by electricity generated from coal. And because these gas-powered power plants are smaller and much cleaner, they can be located within or near cities, which obviates the need for long-distance power lines.

Looking into the Future:

What could capsize LNG's development? At a time when oil and gas prices are high, optimism about the prospects for a new LNG market is only to be expected. But the industry will not develop along a straightforward course; it will have to weather disruptions and make midcourse adjustments. Low gas prices, even if they are only temporary, could discourage investors and stifle growth. It takes more than growing demand, plentiful reserves, and competitive costs to make a global market. Private companies need to commit the necessary capital and human resources. State-controlled companies have to resolve the conflicts between the commercial attractiveness of LNG and other political and social imperatives. Banks and other lenders need to be confident about the projects' financial soundness. All participants need the ability to weather the ups and downs of a commodities market.

The natural gas business is on the brink of profound change. It is set to become global and to adopt a more flexible market model. Gas may indeed become the fuel that helps keep the world's lights on. But this development is not predetermined; the United States needs to embrace the LNG market to complete the transformation. That engagement is also necessary to meet U.S. energy and economic needs. Company strategies and government policies need to move forward together to make this happen. A variety of risks will come from increased interdependence, but, in a growing, diversified global market, they can be managed. And they are dwarfed by the much greater risk that the United States and Europe could face a persistent shortfall in natural gas. There is a growing urgency to make investments in LNG in the near term in order to avoid

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THE NEXT PRIZE (continued from page 4)

more serious disruptions in gas markets and economies later in the decade.

Daniel Yergin is Chair of Cambridge Energy Research Associates (CERA) and the author of *The Prize: The Epic Quest for Oil, Money, and Power.* Michael Stoppard is Director of Global LNG at CERA and co-author of *The New Wave: Global LNG in the Twenty-first Century.*

COTTONE (continued from page 1)

reports, facility security plans, designated security officers, exercises and drills, training, and record maintenance.

Mr. Cottone told the audience where to go for help. API Recommended Practice 70 and API security guidelines of March 2002, March 2003, and April 2003 provide guidance to offshore operators and contractors in assessing security needs, provide tools to conduct a security vulnerability assessment, provide criteria and contents for security plans, and provide a model security plan, among other helpful information.

Quoting Spencer Abraham, Secretary, DOE, Mr. Cottone reminded the audience that every one of us is important to national security: "Critical to the development of these security policies and guidelines are the knowledge, expertise, and experience of the owners and operators of the Nation's energy facilities. Industry based development of these guidelines and practices is equally critical to their broad acceptance and rapid implementation. Moreover, any effort to enhance the physical and cyber security of the energy infrastructure that does not fully and cooperatively include industry from inception to execution cannot effectively accommodate the

Faces at the November Joint Meeting

DELTA CHAPTER

GOLF TOURNAMENT

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bernadette41@cox.net

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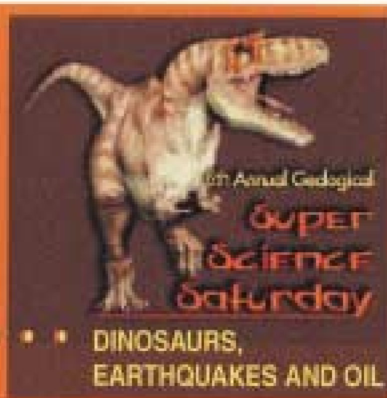
Presents . . .



**Saturday,
March 27th, 2004
10am - 2pm**

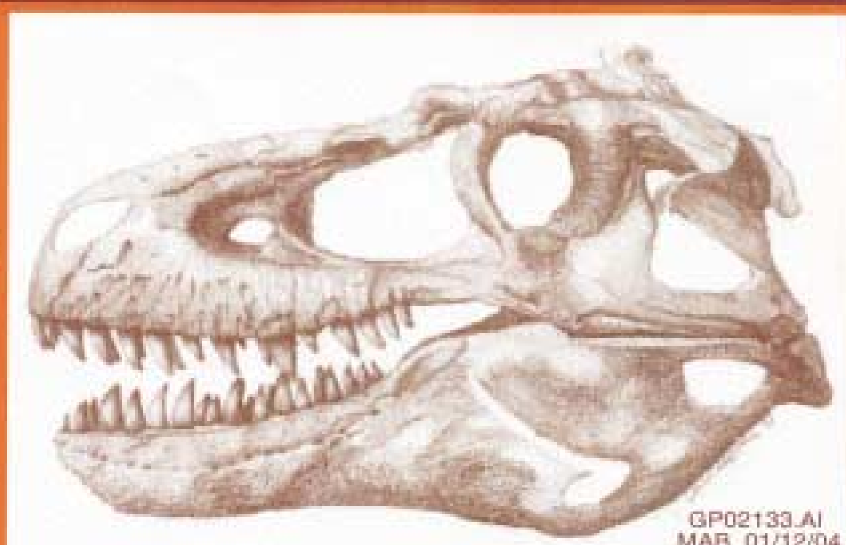
at the

Louisiana Children's Museum

Explore dinosaur worlds from the Jurassic and Cretaceous. Create your own earthquake, or drill into the deep for oil. No, you are not at the movies, but the **6th Annual Geology Super Science Saturday** at the **Louisiana Children's Museum!** Roam the vast hall with velociraptors searching out prey! Look out for the sharp teeth of Stan, the 5 foot t-rex skull. Puzzle at how to put together a duckbill dinosaur's real leg bone! Dig up dinosaurs in the sand, touch lots of real dino bones, stencil and paint their huge skulls. That's not all, create your own seismic earthquake or drill and find an oil field in the fun filled Gulf of Mexico oil finder game. Sponsored by the New Orleans Geological Society, American Petroleum Institute - Delta Chapter, Shell Offshore Inc. and the Southeastern Geophysical Society.

Mark your calendars for March 27th.
Tell your teachers and bring your kids and youth groups.

Contact:
Tom Bergeon at
thomas.bergeon@shell.com
or
504/728-6480
for more info.



Bottling The Hydrogen Genie

Frederick E. Pinkerton and Brian G. Wicke
Reprinted from February/March 2003 issue of The Industrial Physicist, American Institute of Physics

As the dawn of a new century approached, a transportation revolution was brewing. Visionary inventors and small companies, inspired by new technologies and driven by public outcry for relief from urban pollution, set out to remake an entire industry. Their goal was nothing less ambitious than the creation of a completely new transportation infrastructure.

One by one, the competing technologies fell by the wayside. Commercial experiments with electric batteries and even steam came and went. The winner? A nuisance byproduct of kerosene refining—gasoline. Cheap, plentiful, and easy to transport and dispense, its fast, hot flame made the internal-combustion engine practical. The burgeoning automobile industry provided people with unprecedented independence and vanquished one of the most serious pollution problems of its day—horse manure, 1,200 tons of it daily in New York City alone. Gasoline has dominated transportation for more than a century since. Its environmental, political, and social consequences, good and ill, have shaped our culture.

As this new century unfolds, we stand on the threshold of another transportation revolution: the transformation from petroleum to clean hydrogen power. Success depends on three critical elements.

First, we must develop a clean, efficient, cost-effective hydrogen-fueled power source. Although an internal-combustion engine can burn hydrogen directly, the spotlight now focuses on electricity generated by proton-exchange-membrane (PEM) fuel cells. PEMs combine pure hydrogen fuel with oxygen from air with twice the energy efficiency of internal-combustion engines, and release only water vapor and heat as exhaust products. Second, the hydrogen revolution requires building an infrastructure to deliver hydrogen to the vehicle. And third, we need to find a means of storing useful quantities of hydrogen on-board vehicles.

Hydrogen vehicles can affect environmental cleanliness and energy independence only by entering the transportation mainstream; specialty and niche vehicles can make only incremental contributions at best. However, the uncompromised performance and reliability demanded by today's consumers mean that hydrogen fuel must offer the power, vehicle range, convenience, and affordability that people take for granted with gasoline. Only by more than satisfying the customer will hydrogen supplant gasoline.

VEHICULAR HYDROGEN-STORAGE SYSTEM REQUIREMENTS

METRIC	GOAL
Mass energy density	See Figure 1
Volumetric energy density	See Figure 1
Refueling time	<5 min
Durability (total distance maintaining 80% capacity)	150,000 miles
Hydrogen release rate (g/s/$kW_{fuel\ cell}$)	0.025 (1.5 g/s at 60 kW)
H_2 release temperature	<80 °C
Parasitic energy loss during H_2 release	<5%

This places tough requirements on the vehicular hydrogen-storage system (Figure 1 and table). One kilogram of hydrogen provides about the same chemical energy (142 MJ) as 1 gal of gasoline (131 MJ). Factoring in the greater efficiency of PEMs, we need to store about 1 kg of hydrogen for every 2 gal of gasoline on a similar internal-combustion-engine vehicle. For U.S. transportation, General Motors estimates that the entire onboard hydrogen fuel system—which includes the weight and volume of the hydrogen and its required fuel-delivery support such as the tank, pipes, pumps, and heat exchangers—must provide a volumetric energy density of at least 6 MJ/l and a gravimetric energy density of at least 6 MJ/kg energy equivalent of hydrogen to achieve significant market penetration. We will need about double those values to completely replace gasoline internal-combustion engines across the entire light-duty vehicle fleet.

These are system requirements; the hydrogen density, calculated from the weight and volume of the hydrogen alone (hydrogen basis) must be considerably higher to compensate for the weight and volume of the support hardware. Similarly, incorporating a hydride into an onboard storage system will substantially reduce its effective hydrogen density. There is no rule of thumb for the degree of reduction; it depends on the choice of storage medium and the required system design.

System safety is a given. Public perception and corporate citizenship will permit only an uncompromising attitude toward the safe implementation of a hydrogen economy. Fortunately, experts agree that hydrogen is inherently no more dangerous than gasoline, popular belief notwithstanding.

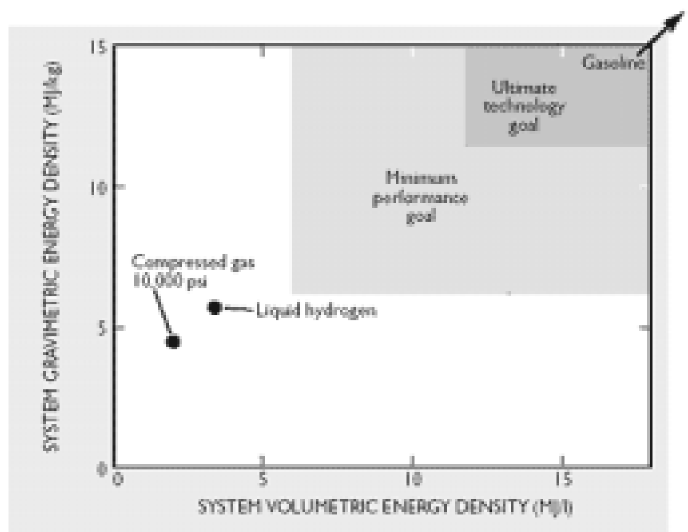


Figure 1. Existing hydrogen-storage systems using liquid, gas, or solid hydrides lack the gravimetric and volumetric energy density values to meet even the minimum performance goals required for vehicular transport.

Storage challenges including solid hydride storage are discussed in this pertinent article.

The authors conclude that "the dawn of a hydrogen economy for mainstream vehicles may well depend on breakthrough research to find new storage materials or innovative

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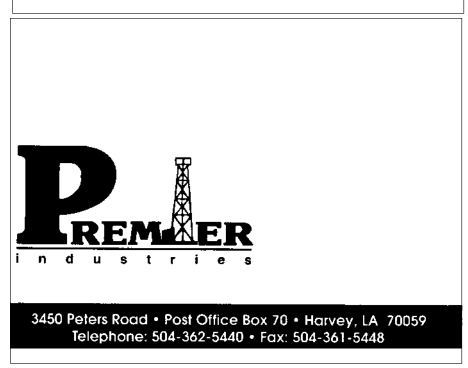
2003 Meritorious Awards (continued from page 12)

consultant, mediator, and in other capacities on energy public policy issues, including regulatory and royalty issues before Federal and State agencies. He speaks and participates in conferences and testifies before Congress.

Scott has been appointed by the last four U.S. Secretaries of Energy to the National Petroleum Council (advisory board to the Natural Gas Committee). Scott has worked in offices and by appointment for national, state, and local elected officials, including President Elect George Bush, Governor Mike Foster, Mayor Marc Morial, and Mayor Ray Nagin.

He continues to be the Regional Governor and on the National Board of Directors of the IPAA (Independent Petroleum Association of America) since 2000, and is involved with LIOGA (LA. Independent Oil and Gas Assoc.), the National Ocean Industry Association, the National Wildlife Refuge Association, the Chamber of Commerce Oil and Gas Cluster and the Small Business Administration. Scott is active as a volunteer, working with the Boy Scouts of America and the Friends of Bayou Sauvage National Wildlife Refuge as well as other civic organizations.

Congratulations to Scott Sewell for his accomplishments, success, and service to our industry. We look forward to Scott's acceptance of his award on February 18, 2003.



HYDROGEN

(continued from page 8)

storage concepts....the U.S. Department of Energy has issued what it calls a Grand Challenge for the research and development of hydrogen storage materials and technologies and has committed $150 million to it over the next five years. Only by answering this challenge can hydrogen take its place as the transportation fuel of the future. "

Pinkerton and Wicke are Technical Fellows at the General Motors Research and Development Center in Warren, Michigan.

Read the full article at http://www.tipmagazine.com/tip/INPHFA/vol-10/iss-1/p20.html

AMERICAN PETROLEUM INSTITUTE

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- ☐ Golf Tournament/Fund Raising

2003 MERITORIOUS SERVICE AWARDS
February 18, 2004

HAROLD J. ANDERSON

Harold J. Anderson has been in the petroleum industry for thirty-seven years as a landman, starting in 1967 as an Associate Landman with Texaco and becoming an Independent Landman in 1975. Harold has worked in all phases of land work, serving his clients with title and abstract work, and environmental services including site assessment and mitigation, keeping the oil and gas industry in tune with the environment and the public.

Harold earned a Bachelor of Arts in Business Administration from Southeastern Louisiana University in 1967 and a Masters Degree in Business Administration from Loyola University in 1972.

Anderson is a member of the American Association of Professional Landmen and has served that national organization on many committees and in several capacities. He is currently its first Vice-President. He has also worked tirelessly for the local landman's association (PLANO), repeatedly serving as president and in other capacities over the years.

Harold has contributed his time and effort to local groups such as Nunez Community College, the City Energy Club, Ducks Unlimited and he is a member of the New Orleans Chamber of Commerce, the Louisiana United Business Association and many other local, state, and national organizations. He is a husband and father of five.

Please join us on February 18, 2004 in honor of Harold and to thank him for his unrelenting service to our industry.

S. SCOTT SEWELL

Scott Sewell is the current President of Delta Energy Management, Inc. and the former National Director of the U.S. Minerals Management Service. He has also served with the Department of Interior as Principal Deputy Assistant Secretary (Acting Assistant Secretary) of Fish and Wildlife and Parks and Deputy Assistant Secretary (Acting Assistant Secretary) of Land and Minerals Management.

Scott attended LSU's College of Business, receiving a B.S. in Marketing in 1977. He attended Tulane Graduate School of Business. He was a Fellow of Loyola University's Institute of Politics in 1984.

In private industry, Scott represents clients as expert witness, transactional

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