PROJECT STARR

STATE OF TEXAS ADVANCED OIL AND GAS RESOURCE RECOVERY

PROGRESS REPORT

Principal Investigator
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Associate Director of Energy
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Researchers

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Assisted by

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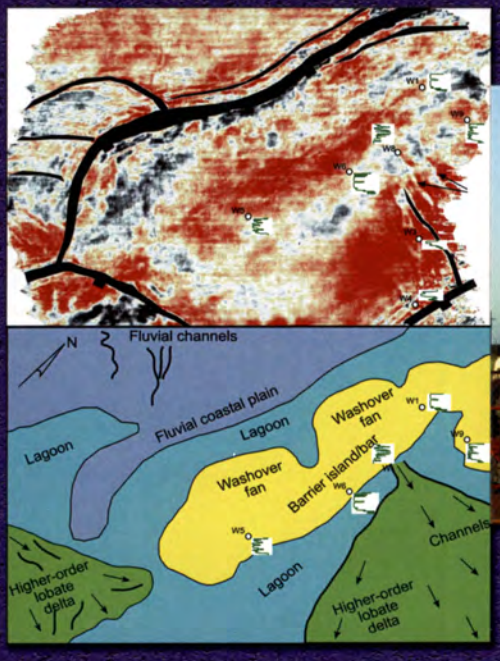

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Executive Summary

The State of Texas Advanced Resource Recovery program, Project STARR, has been successful in its major objective to increase royalty income to the Permanent School Fund through technological and research projects that promote the drilling of profitable oil and gas wells on State Lands and Waters.

The Bureau of Economic Geology (Bureau) currently receives funds from the State to analyze State Lands properties and then advise and assist operators on how to increase current production or discover new production. The State requires Project STARR to be revenue neutral—that is, Project STARR has to cause an amount of new revenue to flow into the State of Texas General Fund that equals or exceeds the amount that is appropriated to the program by the Legislature. This progress report summarizes and documents in detail the accomplishments of Project STARR over the last biennium (September 2004 through August 2006).

Over the last 2 years, Project STARR has helped companies with whom Project STARR has collaborated generate $25 million in royalties to the Permanent School Fund and $10.8 million in severance taxes to the State for a total value of $35.8 million. Relative to total income, Project STARR is revenue positive by a factor of 17.9. The high positive revenue factor is from 27 successful wells drilled in several fields in the State Waters, a successful tertiary recovery project in the Yates field in West Texas, and higher prices for oil and gas.

On State Lands, proven oil reserves total 270 million barrels (MMbbl), which is only 8 percent of the 3.43 billion barrels (Bbbl) of oil that is projected to remain within these properties at reservoir abandonment (Holtz and Garrett, 1997). Of the 3.43 Bbbl, 1.6 Bbbl is mobile oil that can potentially be recovered if advanced geological, geophysical, and engineering technologies are applied to State Lands reservoirs.

A similar picture emerges for natural gas in Texas State Lands fields. Cumulative gas production on State Lands is 10 trillion cubic feet (Tcf) (Holtz and Garrett, 1997). The amount of natural gas remaining in the largest State Lands gas reservoirs is estimated to be another 10 Tcf. The amount of natural gas projected to remain unrecovered at reservoir abandonment using currently deployed technology will almost equal the amount of gas produced to date. With regard to in-place volumes of oil and gas, State Lands reservoirs are nowhere near depletion, and many new deeper exploration targets exist. It is critical to apply new and advanced technologies to

finding and extracting these remaining hydrocarbons, and Project STARR provides the expertise to help operators effectively deploy these technologies. With funding from the State of Texas and support from the General Land Office and the Railroad Commission of Texas, Project STARR is designed to help operators capture a portion of the large volume of this unrecovered oil and gas remaining in State Lands fields.

Project STARR results have been used to recommend more than 71 infill wells, 57 recompletions, and 33 step-out wells over the project's 11-year duration. Project STARR has also identified and worked on several prospects in previously undrilled deeper strata. To date, Project STARR has completed studies or is currently working on 28 fields on State Lands, and these studies have created royalty revenue to the Texas Permanent School Fund and severance tax to the State in the amount of $35.8 million during the 2 years since the last Project STARR report. It commonly takes several years between the delineation of prospects and the actual drilling of wells; therefore, many more millions of dollars to the Permanent School Fund may result from Project STARR's recent recommendations and successes. Over the 11-year life of Project STARR, ~$117 million has been added to the Permanent School Fund from royalties and to the State from severance taxes on the increased production, an average of $10.6 million per year.

Introduction

Revenue income to the Permanent School Fund is derived largely from oil and gas royalties from Texas State Lands (Fig. 1). However, oil and gas royalty income has declined, even though a large hydrocarbon resource base remains on State Lands. In fact, State Lands fields and properties still contain more oil and gas than has been recovered over the decades-long history of State Lands production. Rather than being unobtainable, a large volume of this remaining oil and gas is recoverable through improved scientific understanding and strategic, targeted deployment of advanced recovery technologies. Advanced technology has historically been the realm of major oil and gas companies, but many large companies in their pursuit of economies of scale have abandoned development of mature Texas oil and gas resources. The departure of these large operators has created opportunities for the remaining smaller producers of State Lands fields. Independents, who have no advanced research or development capabilities, are requesting

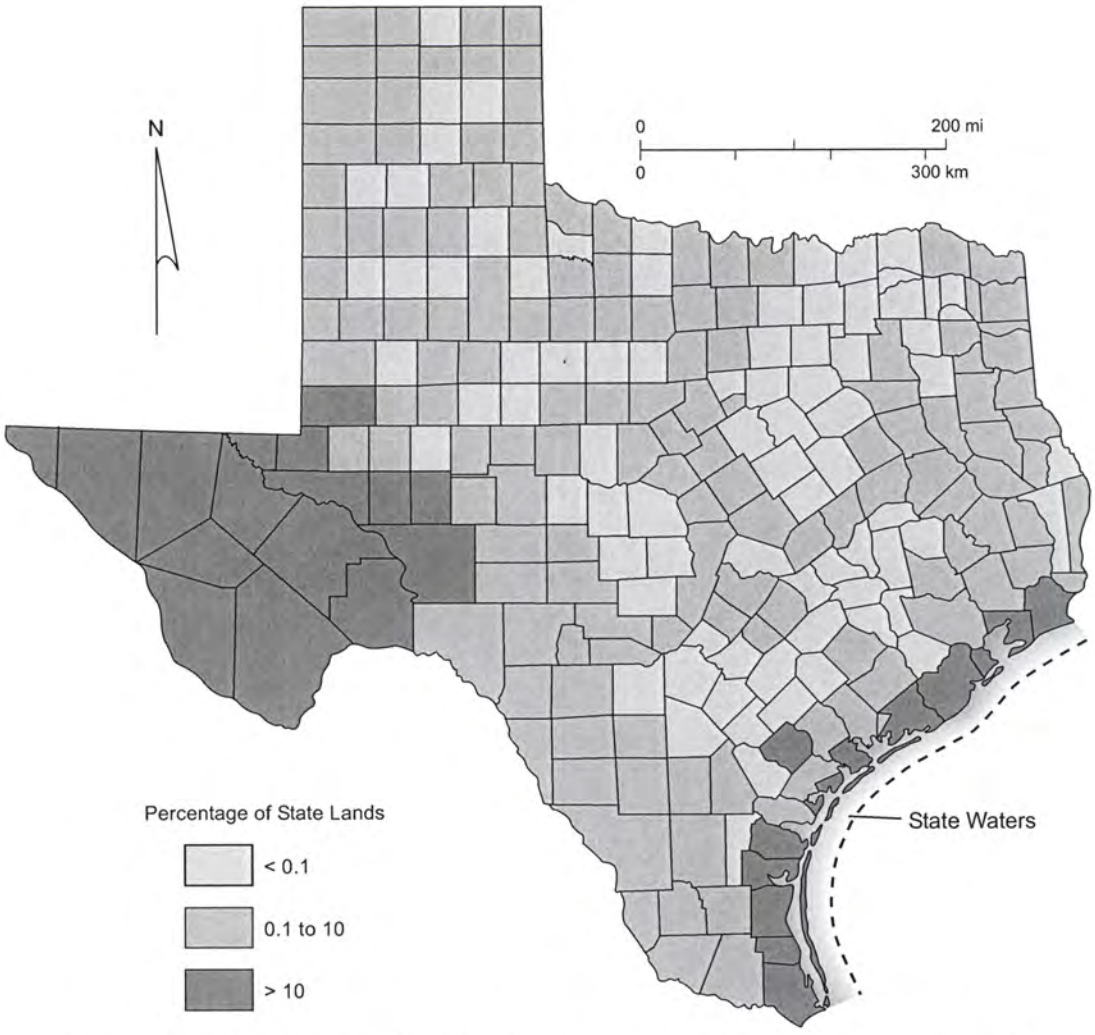


Figure 1. Location of Texas State Lands and State Waters. Onshore counties are shaded according to the percentage of area that is State Lands. The majority of onshore State Lands leases occur in the Permian Basin in West Texas and along the Gulf Coast. From Holtz and Garrett, 1997.

reservoir characterization and exploration assistance from the State of Texas Advanced Oil and Gas Resource Recovery Initiative (Project STARR) (see letters from partners in Appendix A). These independents recognize that without the advanced technology offered by Project STARR, they may miss producing substantial reserves and not recognize additional opportunities on their State Land leases. The Bureau of Economic Geology, The University of Texas at Austin, with funding from the State of Texas and support from the General Land Office and the Railroad Commission of Texas, strives to provide this requested technical support. Opportunities for increased production and associated reserves have been identified, and with the support of allied operators these opportunities have been or are being drilled. Recent projects are described in the present report.

To date, 28 fields have been chosen for assessment (Fig. 2 and Table 1); 24 Texas operators have been, or are currently, involved in Project STARR (Table 1). Project STARR studies have been used to recommend more than 71 infill wells, 57 recompletions, and 33 step-out wells over the project's 11-year duration (Bureau of Economic Geology, 1996; Tyler et al., 1998; Hardage et al., 2000; Loucks et al., 2002b and 2004; present report). Working closely with partners, Project STARR has also identified several prospects in previously undrilled, deeper strata. Of the targeted opportunities, at least 46 infill wells, 18 step-out wells, and 33 recompletions have been drilled on State Lands as a result of Project STARR interactions with operators. Several identified deeper targets are currently active prospects. Acknowledgment letters from 11 partners are presented in Appendix A. We are also now producing regional studies of conventional and unconventional hydrocarbon plays to promote increased production on State Lands.

In 2005 Project STARR received an increase in funding to $1.5 million annually to expand its program. Before this increase, the project concentrated mainly on reservoir characterization of known fields. Following the increase in funding, the project increased the number of reservoirs being characterized, and, in addition, it has started regional studies of conventional and unconventional hydrocarbon plays (Fig. 3). These new endeavors have required adding manpower to the project. We now have 11 geoscientists and 7 graduate and undergraduate student assistants with a broad range of skills pursuing different tasks. We are also in the process of hiring several more researchers, adding more skills.

The Reservoir Characterization Group is continuing to apply its advanced methods for identifying additional drilling and completion opportunities in known fields. Additional manpower has allowed us to increase the number of fields studied this biennium, as well as to apply new technology to these fields. Regional studies of hydrocarbon producing areas are being conducted by our New Ventures Group. This group is studying the upper Texas Gulf Coast Tertiary section (Fig. 3) using advanced stratigraphic methods partly developed by Project STARR. This study should increase interest in drilling for new objectives, especially stratigraphic traps and deeper prospects. Project STARR's new Unconventional Resource Group has also initiated studies in shale-gas systems (Fig. 3) and low-pressure gas resources. The largest gas field in Texas, Newark East field in the Fort Worth Basin, is a shale-gas reservoir. Shale gas is one of the "hottest" plays in Texas, with opportunities across broad areas of the state. Project STARR is adding to the momentum of this play. Low-pressure gas resources have

been an overlooked source of gas for Texas, and Project STARR is conducting studies to promote capturing this resource.

Highlights of the present biennium are listed below:

- Project STARR is revenue positive by a factor of 17.9 and has help generate $35.8 million to the Permanent School Fund and the State of Texas during the last biennium. The high positive revenue factor is from 27 successful wells drilled in several fields in the State Waters, a successful tertiary recovery project in the Yates field in West Texas, and higher prices for oil and gas.
- Study of the Barnett shale-gas play is being prepared to be disseminated to the public in a series of workshops in Midland and Houston (to be presented in November 2006). The study provides new data and concepts on the shale-gas play in the Fort Worth basin, and the data will be able to be applied to similar West Texas shale-gas plays where State Land leases are abundant.
- We initiated a study to develop a strategic program for capturing the large resource of low-pressure gas in the State of Texas.
- We initiated the first Project STARR regional petroleum system study that will aid exploration in the important upper Texas Gulf Coast Tertiary petroleum system.
- Project STARR produced a GIS map of Texas State Land Leases, which will aid in selecting areas for conducting regional studies. A derivate of this map will be issued to the public on a BEG Website.

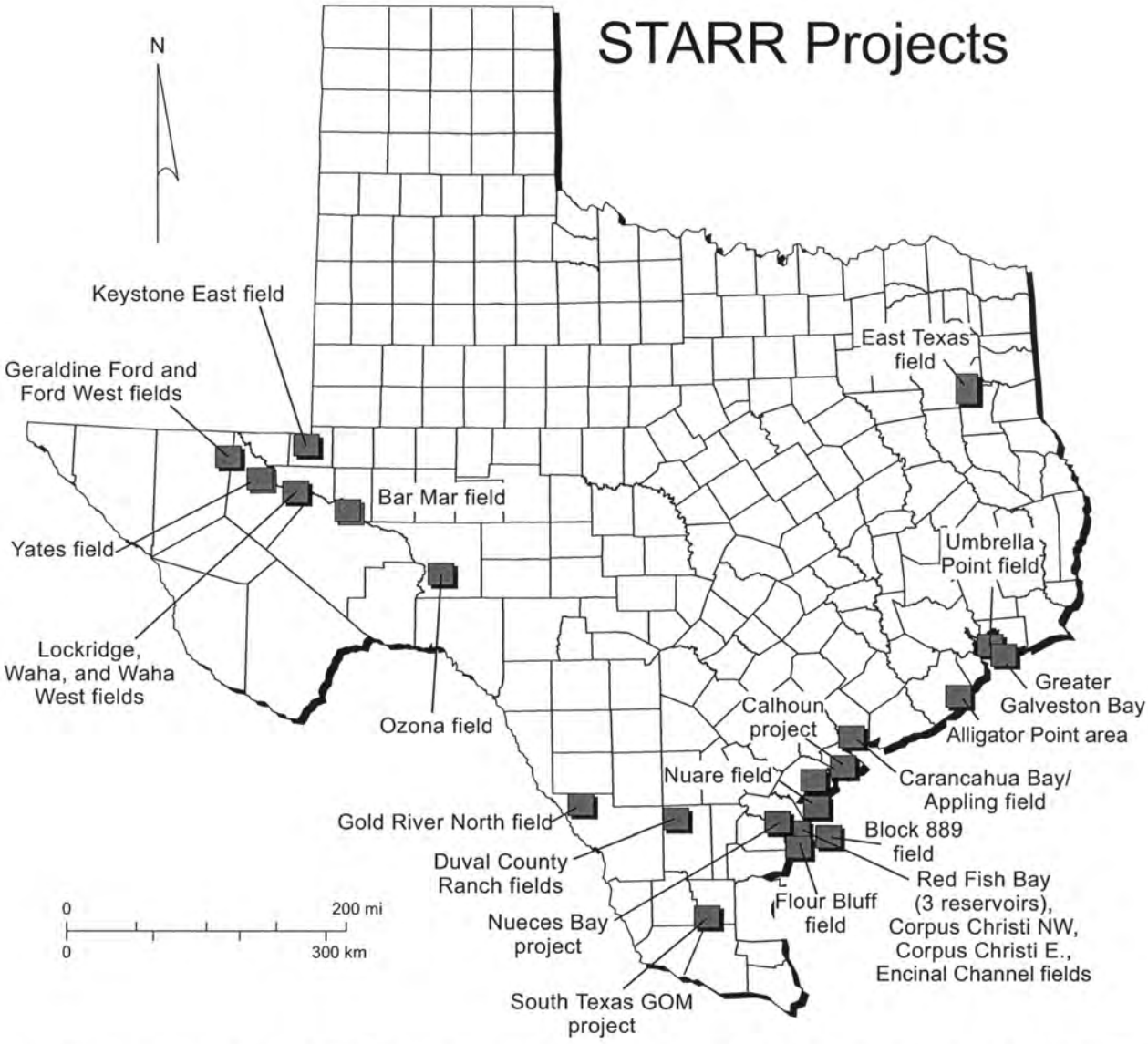


Figure 2. Map showing Project STARR field studies. Twenty-eight State Lands oil and gas fields have been or are being evaluated.

Table 1. Project STARR field studies.

Fields	Operator	Period of Project STARR Interaction
Keystone East field	Bass Enterprises, Hallwood Energy, Pioneer Natural Resources, Vista Resources	1995–1999
Geraldine Ford and Ford West fields: (primary funding by U.S. Department of Energy)	Conoco, Incorporated	1995–1997
Lockridge, Waha, and Waha West fields: (primary funding by U.S. Department of Energy and Gas Research Institute)	Shell Oil and Mobil Oil (now ExxonMobil)	1996–1998
Bar Mar field	Hanson Corporation	1997–1998
Ozona field	Union Pacific Resources (now Anadarko), Cross Timbers Oil Co.	1996–1998
Duval County Ranch field	Killam Oil	1998–1999
Umbrella Point field	Panaco, Incorporated	1995–1999
Red Fish Bay field (shallow Frio)	Pi Energy	1996–1997
Corpus Christi East field	Sabco Oil and Gas, Royal Exploration	1998–2000
Corpus Christi NW field	Sabco Oil and Gas , Royal Exploration	1998–2000
Encinal Channel field	Sabco Oil and Gas, Royal Exploration	1999–2000
Mustang Island 889 field	Sabco Oil and Gas	2000–2001
Red Fish Bay field (Middle Frio)	IBC Petroleum, Cinco	2001–present
Red Fish Bay field (Deep Frio)	IBC Petroleum	2003–present
Mustang Island Offshore	Cabot Oil and Gas	2003
Northeast Red Fish Bay Project	Cabot Oil and Gas	2003
North Padre Island (Frio)	Novus	2004-2005
Yates field EOR	Kinder Morgan	2004-present
Galveston-Bay Shelf area study	Santos USA Corp	2004-present
Carancahua Bay Project	Brigham Exploration Company	2004-present
Flour Bluff, Laguna Madre N (Frio)	Texas Crude	2005
Alligator Point field (Frio, Miocene)	Gulf Energy Exploration	2005-present
LaSalle, Calhoun offshore (Frio)	Gulf Energy Exploration	2005-present
Gold River North field (Olmos)	Huber Exploration	2006
South GOM	Sanchez Oil and Gas	2006-present
East Texas field		2006-present

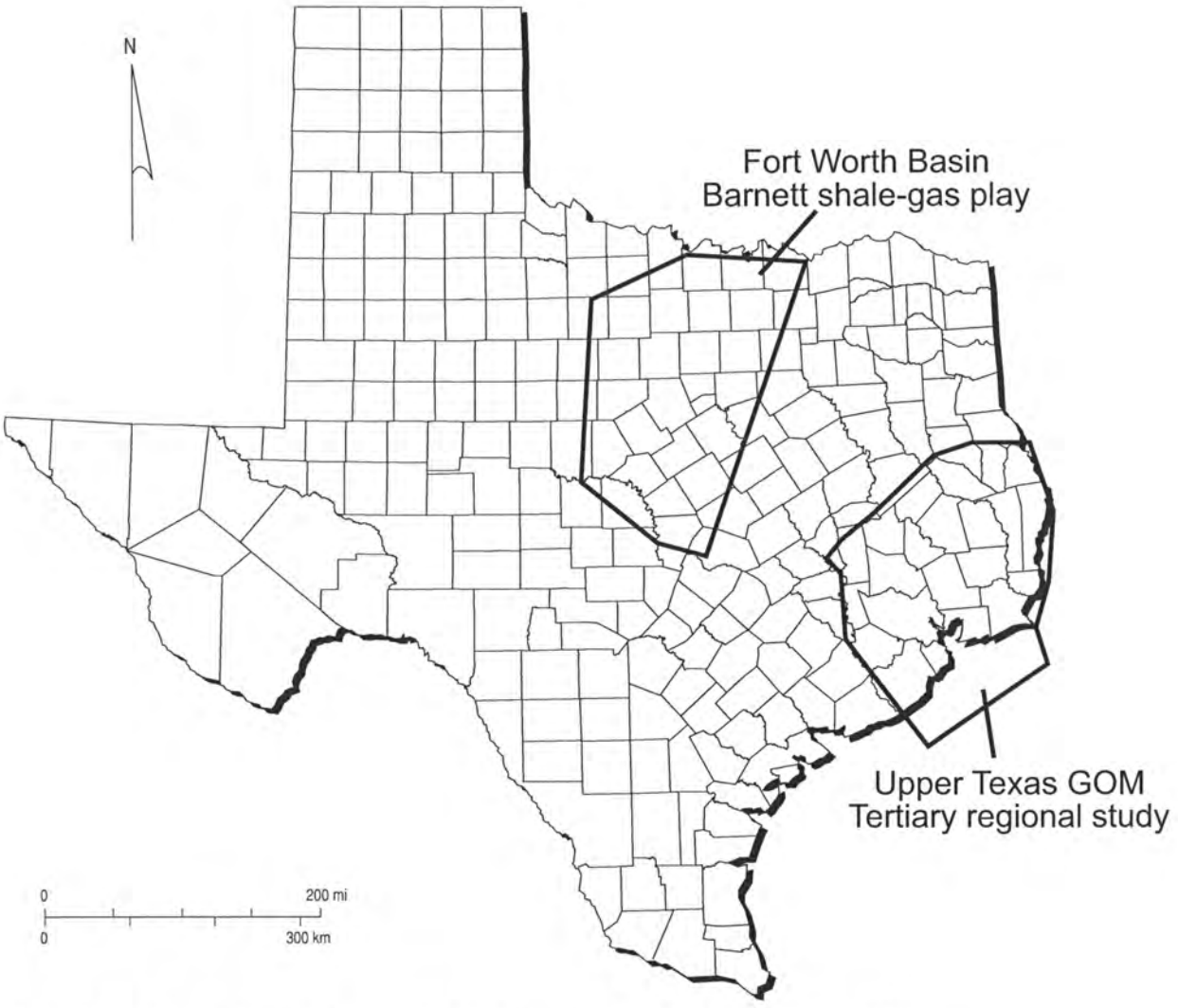


Figure 3. Map showing areas of regional studies of conventional and unconventional plays.

Historical Background on the Permanent School Fund

In 1839 the Republic of Texas began designating public lands to be used to benefit public schools. The State of Texas now has more than 13 million acres set aside for revenue generation to assist public education (Fig. 1). In the 163 years since that forward-looking decision was made, billions in revenue for public schools have been generated by agricultural and mineral leasing of these lands, with most of the revenues being derived from royalties and rentals paid by oil and gas leases. At the end of fiscal year 2005 the fund was valued at $22.1 billion (Texas Permanent School Fund Annual Report, 2005). Land endowment income collected by the GLO, consisting principally of mineral royalties and bonus from oil and gas production, was $319.5 million for fiscal year 2005.

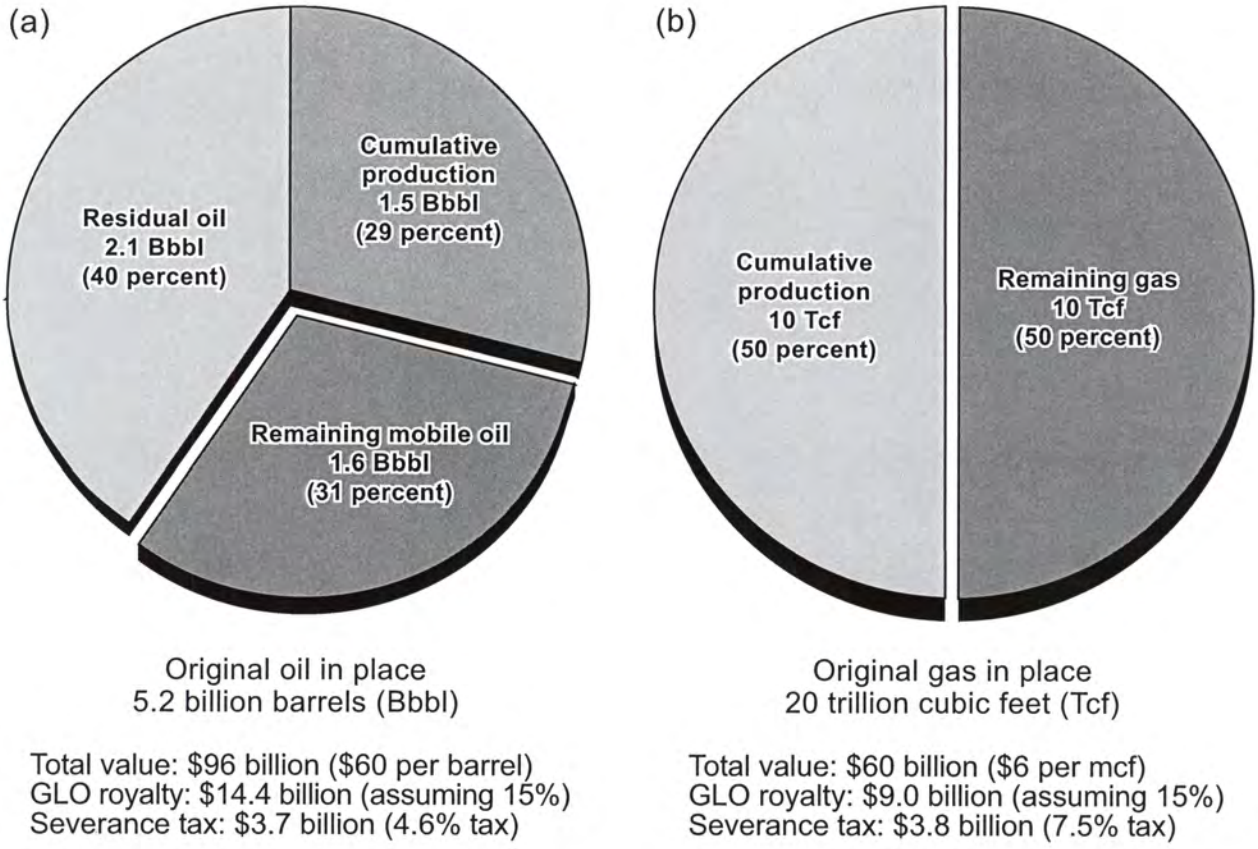
A vast volume of oil and gas remains in State Lands fields (Holtz and Garrett, 1997). Remaining mobile oil on State Lands is estimated to be 1.6 billion barrels (Bbbl) (Fig. 4a), and remaining gas is 10 trillion cubic feet (Tcf) (Fig. 4b). At a conservative value of $60/bbl oil at an average royalty of 15 percent, the potential estimated royalty to the Permanent School Fund on this oil is $14.4 billion. Similarly for gas, at $6/Mcf with an average royalty of 15 percent, the potential estimated royalty to the Permanent School Fund on this oil is $9.0 billion. The combined potential estimated severance tax to the State is approximately $7.5 billion. The hydrocarbons that remain are commonly trapped in geologically complex reservoirs, such as (1) tight-gas sandstones, cherts, and carbonates, (2) gas-shales, (3) deep, high temperature reservoirs, and (4) structurally complex reservoirs that require advanced technologies for successful, cost-effective recovery. The challenge for the State and for public education is that these oil and gas resources must be produced for their value to be realized. With support from the State of Texas, Project STARR and Texas operators are responding to this challenge.

Project STARR Methodologies

The philosophy of Project STARR is to work with State Lands operators to (1) deploy advanced recovery strategies and newly developed technologies on a field-by-field basis to ensure maximal recovery efficiency, (2) encourage exploration in underdeveloped areas or reservoir sections, and (3) to exploit unconventional hydrocarbon resources. The most volumetrically significant State Lands oil and gas resources are in the Gulf Coast and the Permian Basin (Fig. 5). Project STARR's approach is to concentrate on these two mature resource areas, where innovative and cost-effective strategies can best be deployed to stem the decline of production.

Twenty-eight State Lands fields (Fig. 2) have undergone, or are undergoing, characterization and extended development with the cooperation of State Lands operators. This maximization of oil and gas recovery from State Lands fields consists of three critical components: (1) reservoir characterization and advanced resource recovery technology deployment in key reservoirs, (2) identification of prospects in deeper untested sections, and (3) transfer of concepts and approaches about recovery optimization to State Lands fields and operators. Regional areas where more exploration is warranted are being selected for regional studies. These areas will be

analyzed with the latest sequence stratigraphic principles that will aid in understanding potential reservoir distribution and reservoir quality. The studies will also highlight under-drilled production trends and new exploration trends. Shale-gas plays and low-pressure gas resources are being investigated across Texas. These relatively new unconventional hydrocarbon resources will play an important role in generating future revenue to the Permanent School Fund.



Original oil in place
5.2 billion barrels (Bbbl)

Total value: $96 billion ($60 per barrel)
GLO royalty: $14.4 billion (assuming 15%)
Severance tax: $3.7 billion (4.6% tax)

Original gas in place
20 trillion cubic feet (Tcf)

Total value: $60 billion ($6 per mcf)
GLO royalty: $9.0 billion (assuming 15%)
Severance tax: $3.8 billion (7.5% tax)

Figure 4. Texas State Lands oil and gas volumetrics. (a) Despite a precipitous decline in revenues from State Lands oil production, only slightly more than one-quarter of the original oil in place has been produced. Remaining mobile oil is as large a recovery target as all the oil historically produced from State Lands fields. (b) These estimates of gas volume are conservative because they are based on relatively large gas fields. Cumulative production is only half of the original gas in place. From Holtz and Garrett (1997). Note: values beneath pie charts are for remaining mobile oil and gas.

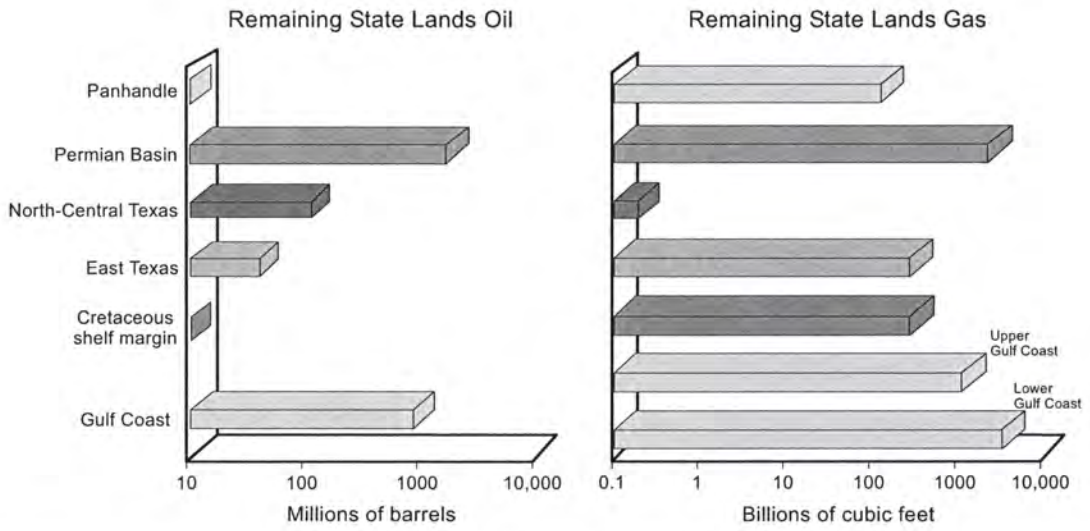


Figure 5. State Lands remaining oil and gas volumes. The Gulf Coast and Permian Basin regions have the most potential hydrocarbon reserves. From Holtz and Garrett, 1997.

Reservoir Characterization and Advanced Resource Recovery Technology Deployment

The advanced hydrocarbon recovery program applied by Project STARR is based on application of reservoir characterization techniques that delineate unrecovered oil and gas in selected State Lands reservoirs. Project STARR staff work with operators to deploy advanced reservoir exploitation plans that are based on a thorough understanding of the internal architecture of the reservoir and the effects that depositional systems have on oil and gas accumulation and distribution. Key to this effort is identification of oil and gas reservoirs that offer economic opportunities. Project STARR recruits field operators who are ready to address and redesign, as appropriate, development efforts currently in place on properties that contain these reservoirs. Detailed geologic and engineering characterization projects have created quantitative descriptions of several State Lands reservoirs, identified untapped and bypassed compartments of remaining oil and gas, and defined deeper reservoir targets to drill.

The above Project STARR studies include reservoir characterization analyses of the fields displayed in Figure 2 and listed in Table 1. The optimized recovery strategies recommended by Project STARR in these field studies include step-out wells, well deepening, recompletions, targeted infill drilling, injection profile modification, waterflood optimization, hydrofracing, and drilling untested deeper targets under producing fields.

New Venture Regional Studies

Project STARR regional studies are based on applying the latest methodologies for analyzing the stratigraphic architecture of a sedimentary basin. We are using sequence stratigraphic principles that have been developed in major oil company research centers over the past 20 years. We are also applying methodologies developed by Project STARR for Gulf of Mexico stratigraphy (Brown et al., 2004; Brown et al., 2005). The studies emphasize potential exploration trends and the characteristics of the reservoirs within these trends. Deep to ultradeep reservoirs, such as those in the higher risk, deep-shelf gas play (offshore Tertiary sandstone reservoirs between the depths of 15,000 to 35,000 ft), are an example where new studies are needed to encourage exploration and subsequent drilling.

Unconventional Resources

Unconventional hydrocarbon resources, such as shale gas, tar sands, tight gas sandstones, cherts, and carbonates, and low-pressure gas, are and will continue to be important hydrocarbon resources for the future of Texas. Shale gas is one of the most active exploration plays in Texas with prospects ranging from far West Texas to the Fort Worth Basin. This play is affecting large areas of State Lands in West Texas. Low-pressure gas recovery has yet come into its own because it is a combined complex geological, engineering, finical, and legal problem. Much work needs to be done to bring this valuable gas resource to the attention of operators. Project STARR is conducting preliminary studies on low-pressure gas to promote this resource as it should have a great impact on production of gas from State Lands.

Transfer of Project STARR Technology to Texas State Lands Operators

The success of the advanced recovery initiative, as measured in incremental barrels of oil in the tank and additional cubic feet of gas in the pipeline, is vitally important, but equally important is the transfer of successful approaches of improved oil recovery to operators of State Lands reservoirs. Because technology transfer can facilitate improved efficiencies in State Lands fields, Project STARR has developed a technology transfer approach that includes workshops, presentations, publications, and digital data sets (CD-ROM's).

In collaboration with the General Land Office and the Railroad Commission of Texas, Project STARR personnel from the Bureau of Economic Geology have provided assistance and advice to numerous operators on optimal development strategies, appropriate well-log suites, styles of reservoir heterogeneity and their effects on oil and gas recovery, evaluation of exploration targets, and approaches to problem solution.

Through the transfer of technology developed by Project STARR to Texas operators, it is envisioned that many of the remaining State Lands oil and gas reserves will be explored and developed in future decades to sustain the Texas Permanent School Fund. As a result of this State funding, Project STARR has received several awards (Appendix B) and have provided to the public numerous publications, workshops, and lectures (Appendices C and D). Since the last Project STARR report, we have published 9 professional papers, 12 abstracts, presented 27 talks, and given several workshops (Appendices C and D).

The Project STARR team has published two major papers since the last report: (1) 2004 American Association of Petroleum Geologists *Bulletin* "Understanding Growth-Faulted, Intraslope Subbasins by Applying Sequence Stratigraphic Principles: Application to the South Texas Oligocene Frio Formation" and (2) 2005 American Association of Petroleum Geologists *Bulletin* "Site-Specific Sequence-Stratigraphic Section Benchmark Charts are Key to Regional Chronostratigraphic Systems Tract Analysis in Growth-Faulted Basins." Three new papers have been submitted to the American Association of Petroleum Geologists for publication on the Barnett Gas-shale Play and one paper on seismic stratigraphy of the Corpus Christi Bay area.

Several public seminars were presented to introduce Project STARR to potential new operator partners. Project STARR also presented a workshop at the Gulf Coast Association of Geological Societies, in San Antonio in October of 2004, titled "Using Sequence Stratigraphic Wireline-Log Analysis to Develop Stratigraphic Architecture in Growth-Faulted Basins: Practical Application to the South Texas Offshore Frio Section." Two major seminars are planned for Houston and Midland in November 2006 on the Barnett Shale-Gas Play.

Project STARR has also been active in presenting seminars to industry partners. During the 2004-2006 biennium, Project STARR presented private seminars and workshops on State Lands geology to Gulf Energy Exploration, Brigham Oil and Gas Exploration Company, Vintage Oil and Gas, Novus, Sanchez Oil and Gas, Texas Crude, Santos USA Corporation, and Stone Energy.

Research Developed from Project STARR Program

Project STARR has made a major effort to produce research using the data available from our industry partners. Through our partners, Project STARR is able to review seismic, wireline-log, and core datasets that are not generally available to the public. With permission from the partner and seismic vendor, Project STARR received permission to publish some research results (see above section on Transfer of Project STARR Technology to Texas State Lands Operators).

Project STARR made several major contributions to the understanding of exploration and development of sandstone reservoirs on State Lands along the Texas Gulf Coast (onshore and offshore) and to the Barnett Shale Play in the Fort Worth basin:

1. *Understanding growth-faulted, intraslope subbasins by applying sequence stratigraphic principles*—We found through detailed analysis of Oligocene Frio Formation intraslope growth-faulted subbasins in the Corpus Christi, Texas, area that deposition during relative lowstands of sea level was the principal cause of growth faulting. Lowstand depocenters on the low-gradient upper continental slope comprising basin-floor-fan facies, slope-fan systems, and prograding lowstand delta systems exerted sufficient gravity stress to cause major sections of outer shelf and upper slope strata to fail and develop growth faults. The faults sole out deep in the basin, and rotation of hanging-wall blocks mobilizes deep-water mud and forces the mud bodies basinward and upward to form mud (sediment) ridges that constitute the basinward flank of intraslope subbasins above the footwall fault blocks. These subbasins have been prolific petroleum targets for decades and are now the focus of deep prospecting for gas. Lowstand sandstones are principal reservoirs, and synsedimentary tectonics produced anticlinal and fault traps and associated stratigraphic pinch-out traps on the flanks of the anticlinal structures. Understanding the origin of the faulted subbasins and their chronostratigraphic relationships and depositional processes provides a perspective that can improve deep gas exploration. We have presented these concepts at numerous professional meetings over the last several years, and have published our results in the November 2004 AAPG *Bulletin*.

2. *Site-specific sequence-stratigraphic section (S^5) benchmark charts as key to chronostratigraphic systems tract analysis in growth-faulted basins*—These benchmark charts are important tools for understanding the stratigraphic architecture that controls the accumulation and distribution of oil and gas reservoirs in Texas State Waters. The benchmark charts are based on composite wireline logs created by splicing unfaulted and relatively conformable log segments from the deepest wells in an area to provide a stratigraphic record that captures a complete succession of depositional and cyclic history. S^5 benchmark charts contain additional data that summarize available geologic information for a subbasin, site-specific area. Stratigraphic sequences and component systems tracts are basic information displayed on S^5 benchmark charts. This physical framework is calibrated with ages of sequences and bounding surfaces. Sequence-bounding unconformities and internal maximum-flooding surfaces delineated on S^5 benchmark charts, when correlated with other wireline logs and placed into the seismic time domain, produce a chronostratigraphic framework for an area. Comparison of S^5 benchmark charts among widely spaced or isolated sites provides a framework that temporally constrains systems tracts and regionally diachronous lithostratigraphic units. We have taught this approach to several companies, and have presented a short course at the October 2004 Gulf Coast Association of Geological Societies on the construction of S^5 benchmark charts.
3. *Barnett Shale-Gas Play*—Project STARR is conducting original research on this important shale-gas play. Not much has been published on the lithofacies, depositional systems, or structural overprint. These topics are important in understanding the play, and we have three papers in press with the AAPG *Bulletin* for publication in 2007. The titles of these papers are: (1) "Mississippian Barnett Shale: Lithofacies and Depositional Setting of a Deepwater Shale-Gas Succession in the Fort Worth Basin, Texas," (2) "Quantifying the Origin and Geometry of Circular Sag Structures in Northern Fort Worth Basin, Texas: Paleocave Collapse, Pull-Apart Fault Systems, or Hydrothermal Alteration?" and (3) "Natural Fractures in the Barnett Shale and Their Importance for Hydraulic Fracture Treatments."

Recent and Current Projects

Reservoir Characterization

Corpus Christi Bay Reservoir Characterization Project

A multi-field study across Corpus Christi Bay was initiated in 1999. The primary part of the project was finished in August 2000 and presented to Sabco Oil and Gas Corporation (operator) and Royal Exploration Company, Inc. (see Appendix A for a supporting letter by Sabco Oil and Gas). Work on the area continued through 2003. Collectively, these two companies are the largest State Lands leaseholders in Corpus Christi Bay; their major producing fields are Corpus Christi East and Encinal Channel (Fig. 6) with lesser production from Corpus Christi Northwest.

In September 2003, Project STARR held a workshop for Sabco Oil and Gas and Royal Exploration Company to update both companies on research that resulted from the Corpus Christi Bay study and subsequent studies in the region. S^5 benchmark charts, cross sections, and growth-fault-related sequence stratigraphic models were transferred to the companies to be used in future development and exploration.

During the 2004-2006 Biennium, Project STARR counted production from seven Corpus Christi Bay wells (Fig. 7) toward its revenue neutrality total because these wells began production late in the 2003-2004 biennium. See Table 4 for revenue neutrality methodology protocol.

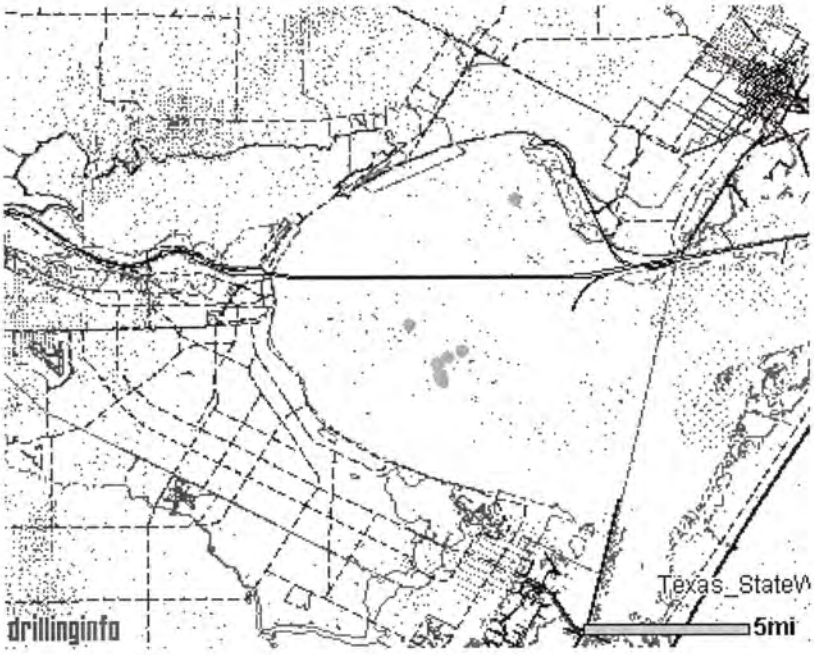


Figure 6. Corpus Christi Bay and productive Sabco and Royal wells (dots) included in the 2004-2006 biennium Project STARR totals.

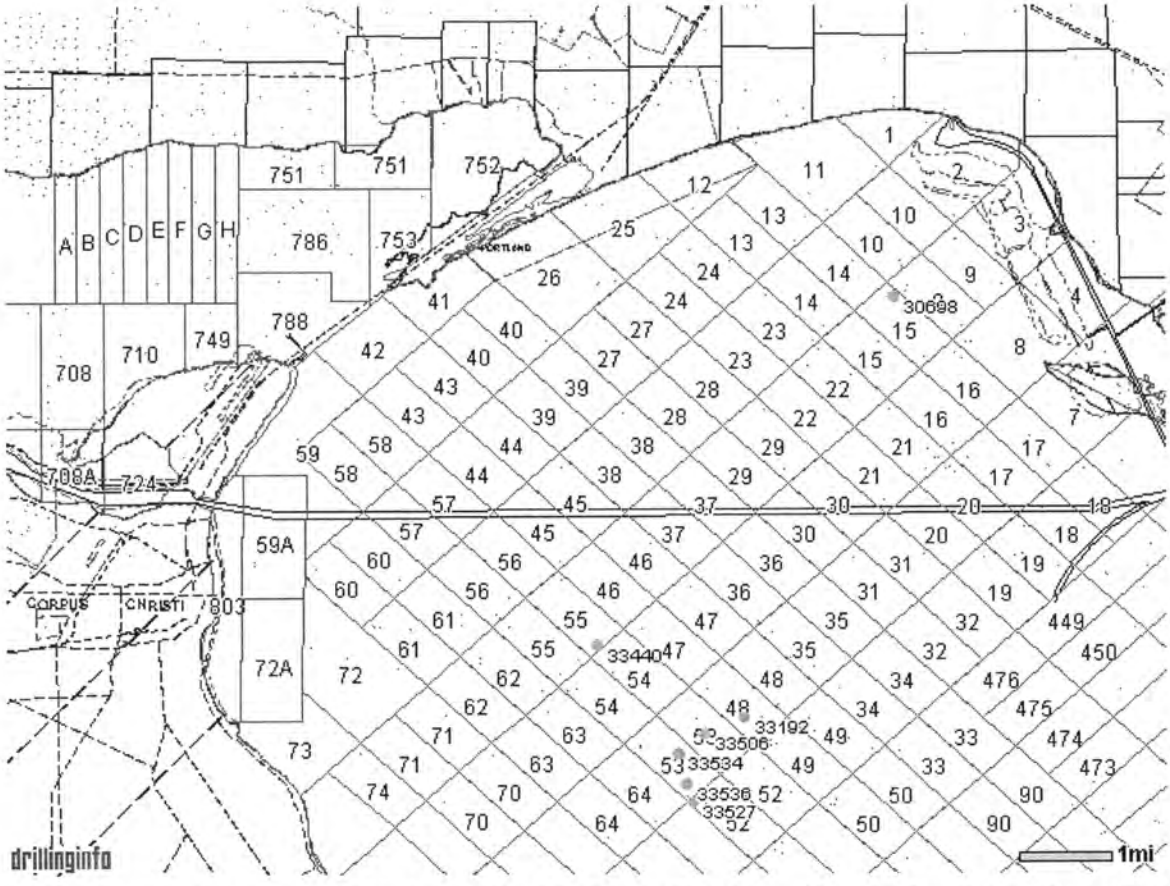


Figure 7. Productive Sabco and Royal wells (dots) in Corpus Christi Bay. Note the five-digit well-specific API number identifier for each well. The larger numbers denote state tracts.

Mustang Island Block 889 Reservoir Characterization Project

A reservoir characterization study centered on Mustang Island Block 889 (Fig. 2) was completed for Sabco Oil and Gas Corporation in 2002 (Loucks et al., 2002a) (Fig. 8) (see Appendix A for a supporting letter by Sabco Oil and Gas). Several infill and step-out drilling opportunities were generated, along with a lead on a deep-shelf gas prospect. The prime targets for additional wells are untapped fault compartments in the highly faulted Oligocene age Frio section.

Most of the hydrocarbon production in the Mustang Island Block 889 area results from traps in the footwalls of synthetic faults between two major growth faults. Several opportunities were delineated for future production in State Block 889. In late 2005, Sabco drilled a successful gas well, Sabco State Tract 889 #F1, based upon their collaborative work with and recommendations from Project STARR. Production from this well is being counted toward Project STARR's revenue neutrality total.

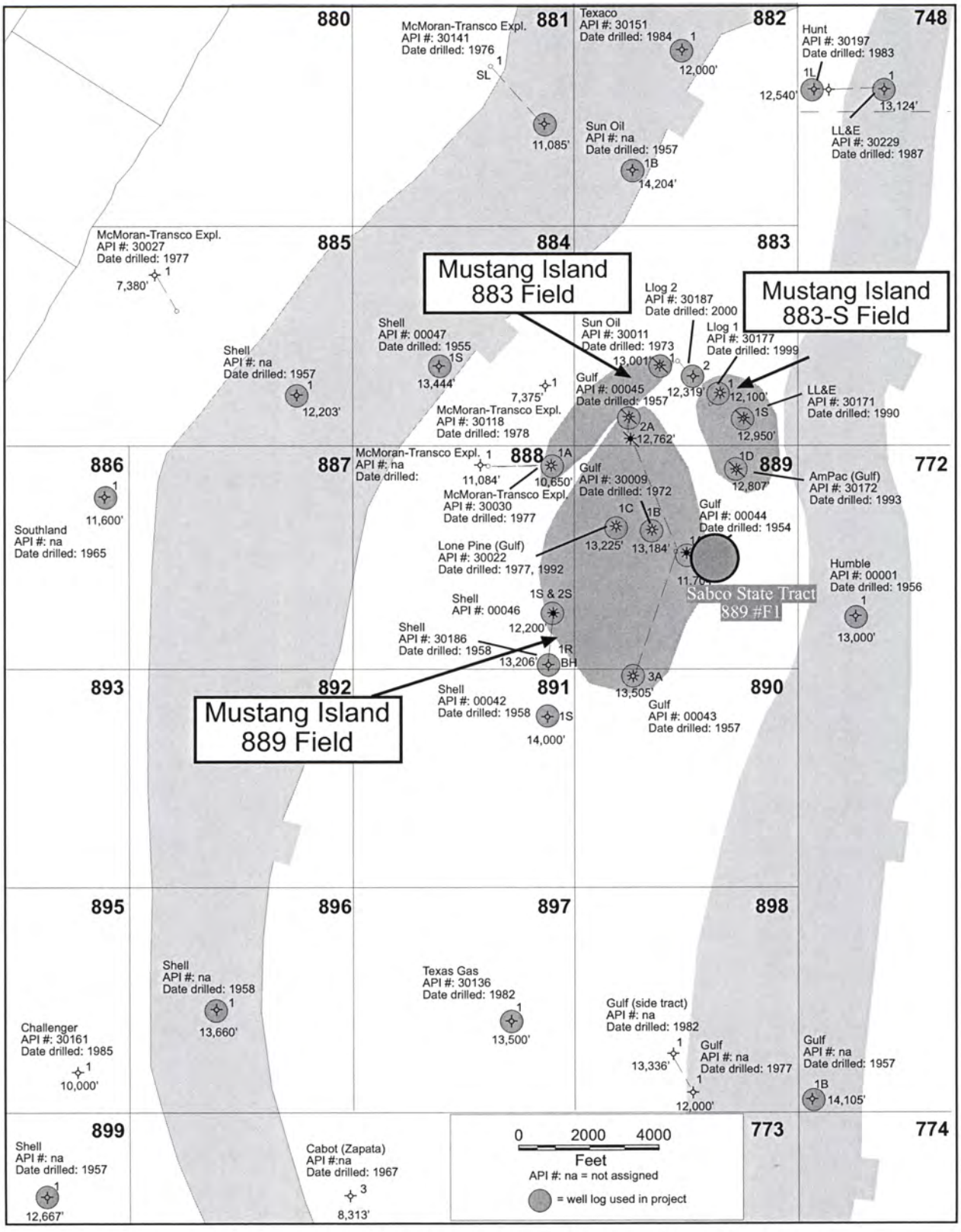


Figure 8. Location map of the Mustang Island Block 889 study area showing wells used in study and major growth faults. Gray circle in block 889 is the Sabco State Tract 889 #F1 well.

Yates Field, Pecos County, West Texas Enhanced Reservoir Recovery Project

Kinder Morgan is a pipeline company that specializes in enhanced oil recovery projects utilizing CO_2. Kinder Morgan acquired Marathon Oil Company's giant Yates field (Figs. 2 and 9) in 2002. A large part of the field is on State Lands. Kinder Morgan is currently converting the recovery process in the field from a nitrogen flood to a CO_2 flood for enhanced oil recovery. The field is currently producing 26,000 barrels of oil per day. However, without a continuous aggressive enhanced oil recovery program, the field would become uneconomical is less than 10 years. Kinder Morgan's plans are to keep production at today's rates or higher for many decades. Kinder Morgan estimates that its CO_2-pressure-maintenance-injection program for the Yates field will result in approximately 1 to 40 MMbbl of additional recoverable oil over the next 20 years. Even at the low end of this estimate, a successful enhanced oil recovery project would earn the Permanent School Fund $1.25 million per year in royalty. The Project STARR team has been working with Kinder Morgan since April 2004 to accomplish this goal (see Appendix A for supporting letters by Kinder Morgan).

Project STARR assisted Kinder Morgan in their geologic interpretation, reservoir characterization efforts, and data transfer. The San Andres reservoirs in the field have been worked intensively by Marathon Oil Company's Yates field team (previous operators) for many years. A reservoir characterization volume generated in Stratamodel^{TM} by Marathon geologists and engineers was transferred by the Project STARR team to the Roxar reservoir characterization software package accessible to Kinder Morgan. This was a major step in providing Kinder Morgan with up-to-date reservoir concepts in the field. A log database residing in Geolog-software files was transferred to a more readable format usable in different geologic interpretation software packages that will be used to develop a CO_2 flood for enhanced oil recovery. The data transfer was concluded in January 2005 and a final report was submitted. The Project STARR team also organized a 2-day workshop for Kinder Morgan led by a former Marathon geologist (current BEG geologist) to review the geology and engineering work performed by Marathon over the life of the field.

Continued interaction by Project STARR will assist Kinder Morgan on selected geological problems.

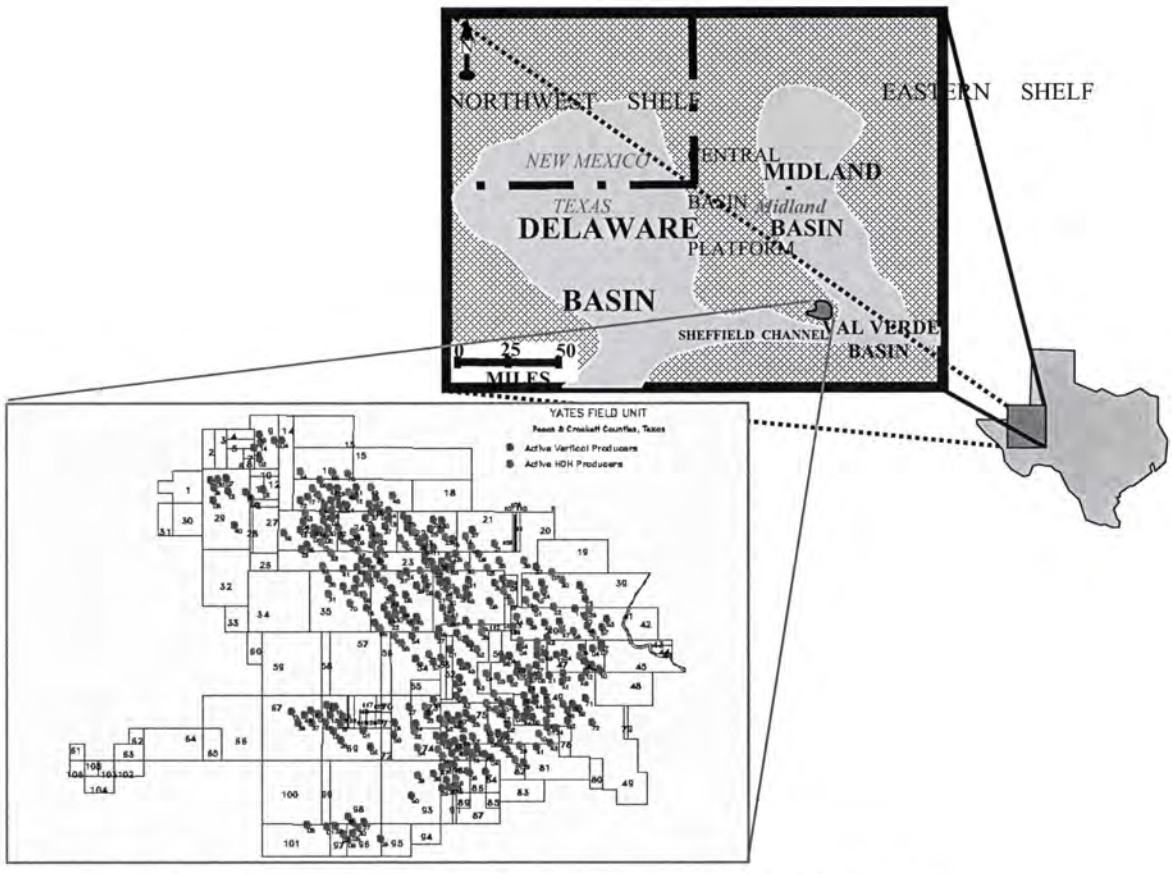


Figure 9. West Texas Yates field project location. Inset shows unitized area of field.

Carancahua Bay Reservoir Study

Brigham Exploration Company has been a partner with Project STARR since July 2004. The Project STARR team is supporting Brigham's exploration and development program in the Carancahua Bay/Matagorda Bay area of Calhoun and Jackson Counties (Figs. 2 and.10) (see Appendix A for a supporting letter by Brigham Exploration Company). Project STARR has been conducting an integrated sequence stratigraphic, structural, and reservoir characterization study in the deep Frio Formation of the Carancahua Bay State Lands area. A seismic survey was interpreted, seismic modeling was conducted, and wireline- logs were correlated. This study resulted in identifying additional leads in slope and basin-floor fans (Fig. 11). In addition, deeper prospects were identified for Brigham's consideration. Reservoir characterization was conducted by analyzing thin sections from a nearby core and rotary side wall cores in the ST 254 #1 well, correlating wireline logs to seismic, generating a S^5 benchmark chart, and sandstone isopach

maps. This study is currently being condensed into a final report. The Project STARR team will continue their collaboration with Brigham by conducting similar studies on different seismic surveys in the Matagorda Bay area.

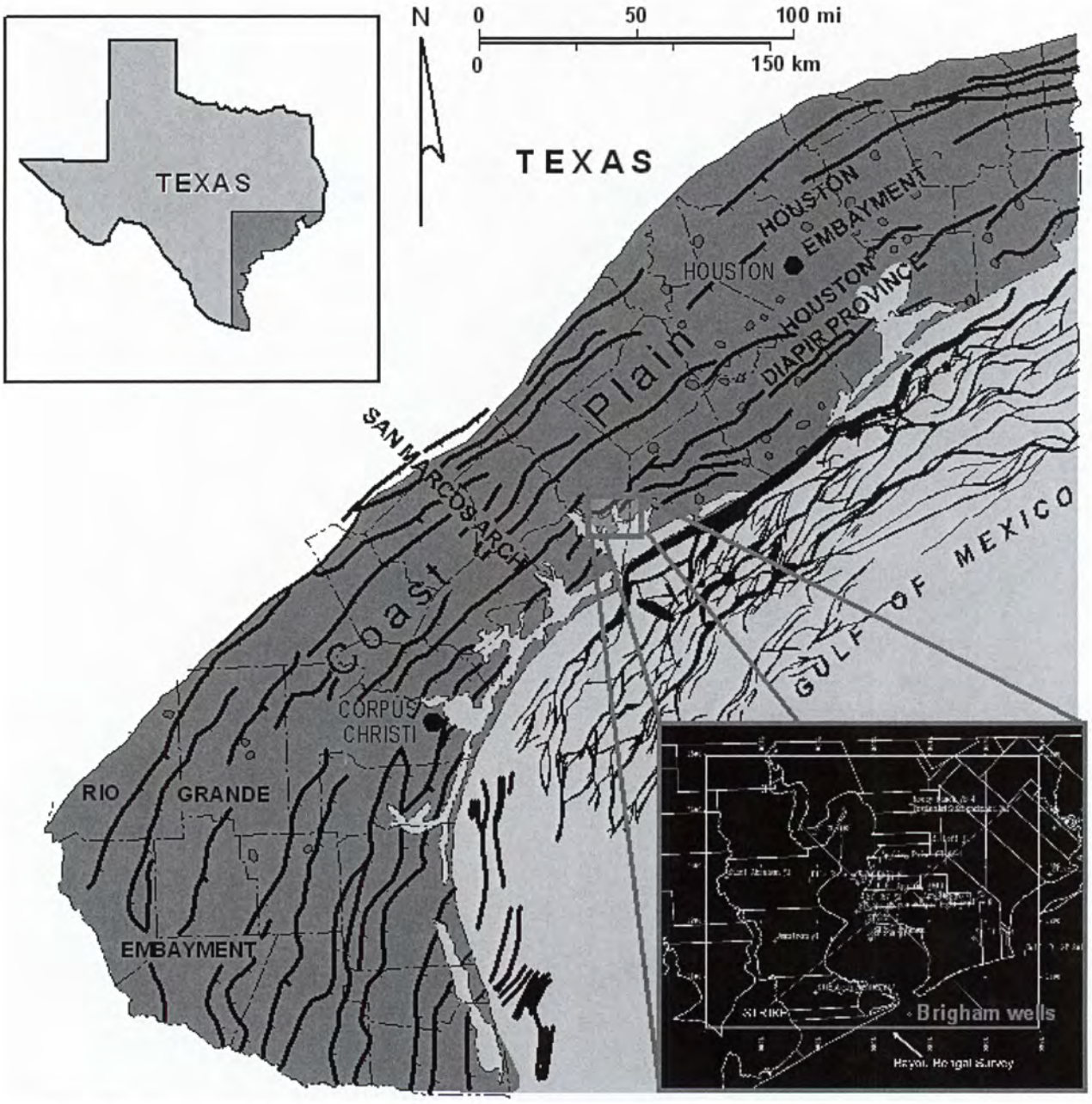


Figure 10. Brigham study area. Inset shows location of wells Brigham drilled in the Carancahua Bay area.

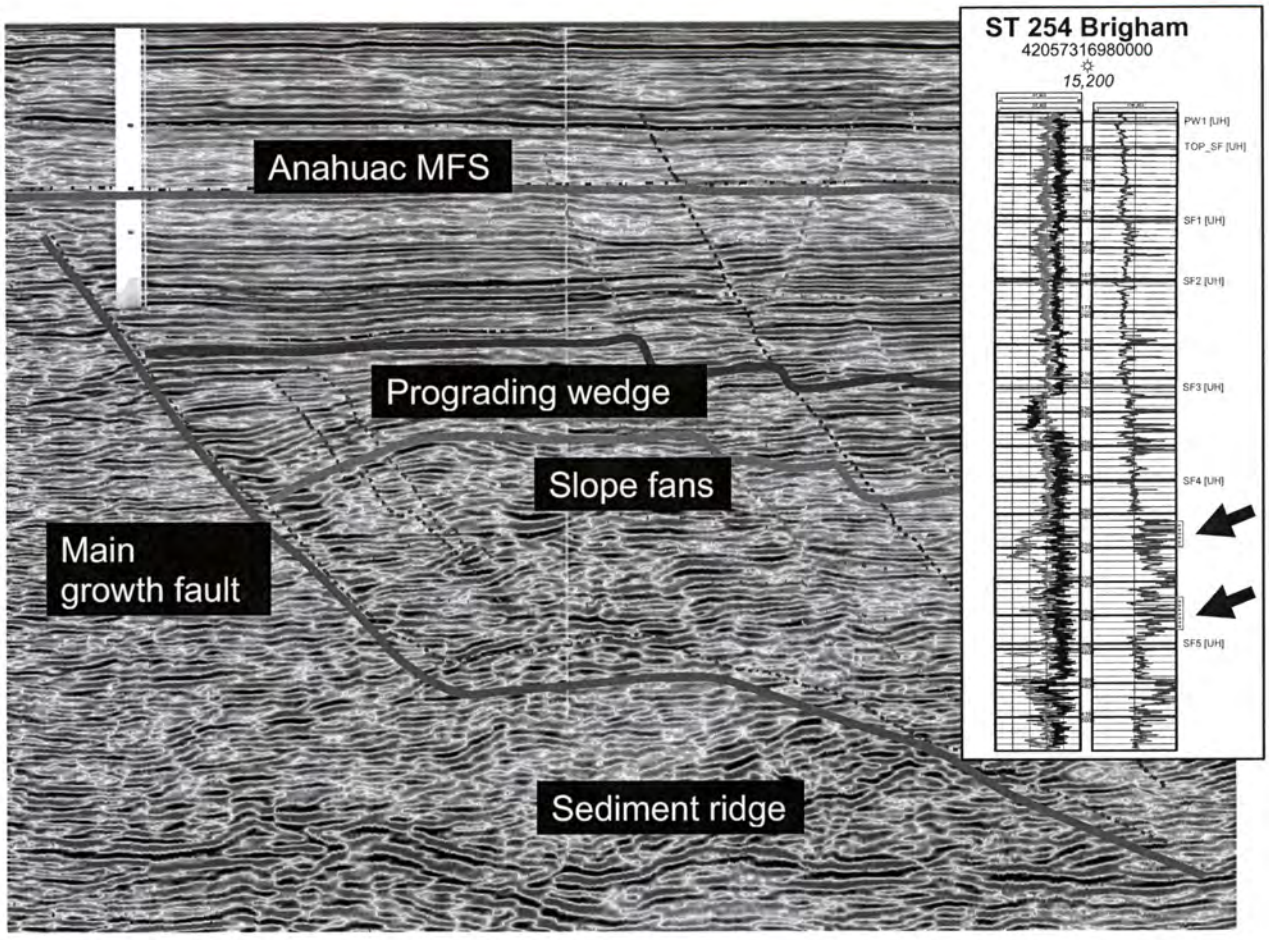


Figure 11. Seismic dip line through Carancahua Bay study area. Inset log shows producing zones in slope fans.

Flour Bluff/Laguna Madre Reservoir Characterization Study

In the fall of 2004, Texas Crude Energy, Inc., approached Project STARR about conducting a stratigraphic study of the Flour Bluff and East Flour Bluff fields in and around Flour Bluff, Texas and the northernmost Laguna Madre, respectively (see Appendix A for a supporting letter by Texas Crude Energy). With Project STARR's experience and expertise in that region from three previous studies, we chose to undertake the study as a means to continue its work in the area and to work with an operator who was committed to drilling several deeper wells in fields that had historically produced significant quantities of both oil and gas since discovery of the fields in the 1930's.

The Project STARR study verified a sequence stratigraphic model, which Project STARR proposed in Brown et al. (2004). The model predicted that significant portions of sediment on

basinward sides of large growth faults are not equivalent in time to similar appearing rocks on the opposite sides of those faults. In the Flour Bluff/Laguna Madre study, such a growth fault is located between the Flour Bluff Field and the East Flour Bluff field. Therefore, correlations between the two fields must be conducted in the context of the Brown et al. (2004) model (Fig. 12).

Since the Project STARR study began, five wells have been drilled and have produced a total of 5,901 Bbbl of condensate and 721,391 Mcf of gas and have added an estimated $886,576 to state revenues ($516,107 in royalties and $370,469 in severance taxes).

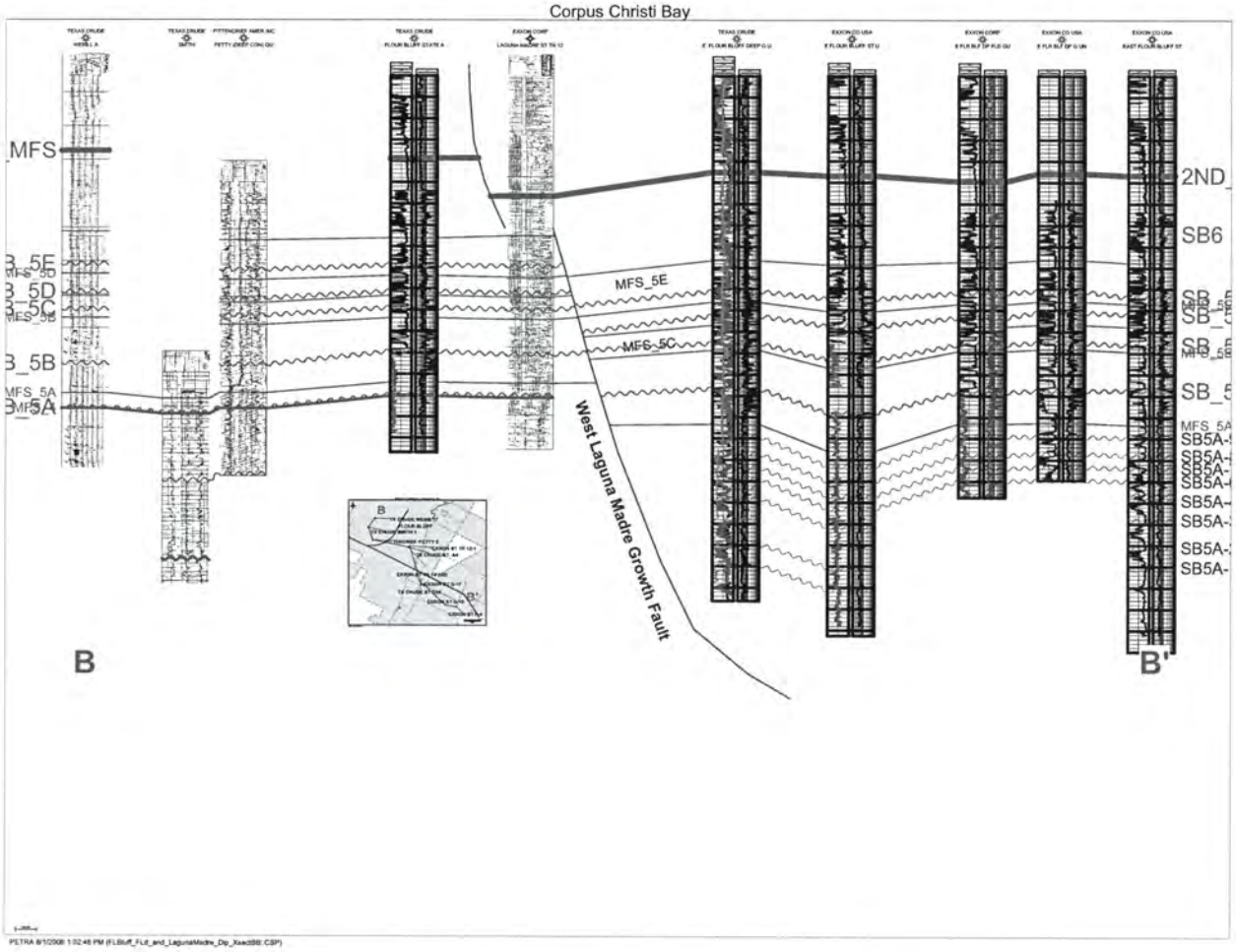


Figure 12. Cross section in Flour Bluff area showing growth fault separating two fields.

Calhoun Offshore Reservoir Study

The Project STARR team has collaborated with Gulf Energy Exploration Company (GEE, formerly known as Daystar Offshore) since fall 2005 in the Calhoun offshore area (Fig. 13) (see Appendix A for a supporting letter by Gulf Energy Exploration Company). GEE had acquired several leases in the offshore Calhoun County State Waters. Project STARR evaluated the area for sandstone reservoir development and prospect potential in the Oligocene-age Frio Formation and the younger Miocene section. A 3D seismic survey was interpreted and analyzed to construct structural and amplitude maps, which resulted in the identification of several prospect leads. The seismic interpretations were transferred to GEE's SMT/Kingdom Suite workstation. Sandstone maps and log correlations of the Miocene sections were constructed and important sand depositional pathways were identified. The Frio Formation has not been previously penetrated in this area. Therefore, interpretation of seismic was conducted and a S^5 benchmark chart was generated to predict the stratigraphy of the currently unexplored area. Gulf Energy Exploration expects to drill several wells by the end of 2006 or early 2007.

Alligator Point Reservoir Characterization Study

A second project is currently underway for Gulf Energy Exploration in the Chocolate Bayou/West Bay area of Brazoria and Galveston Counties (Fig. 13). Project STARR is currently conducting petrophysical log analyses and generating a S^5 benchmark chart for the area. A 3D seismic survey was also loaded and will be incorporated into the reservoir characterization study. More work will be completed on this project during the next biennium.

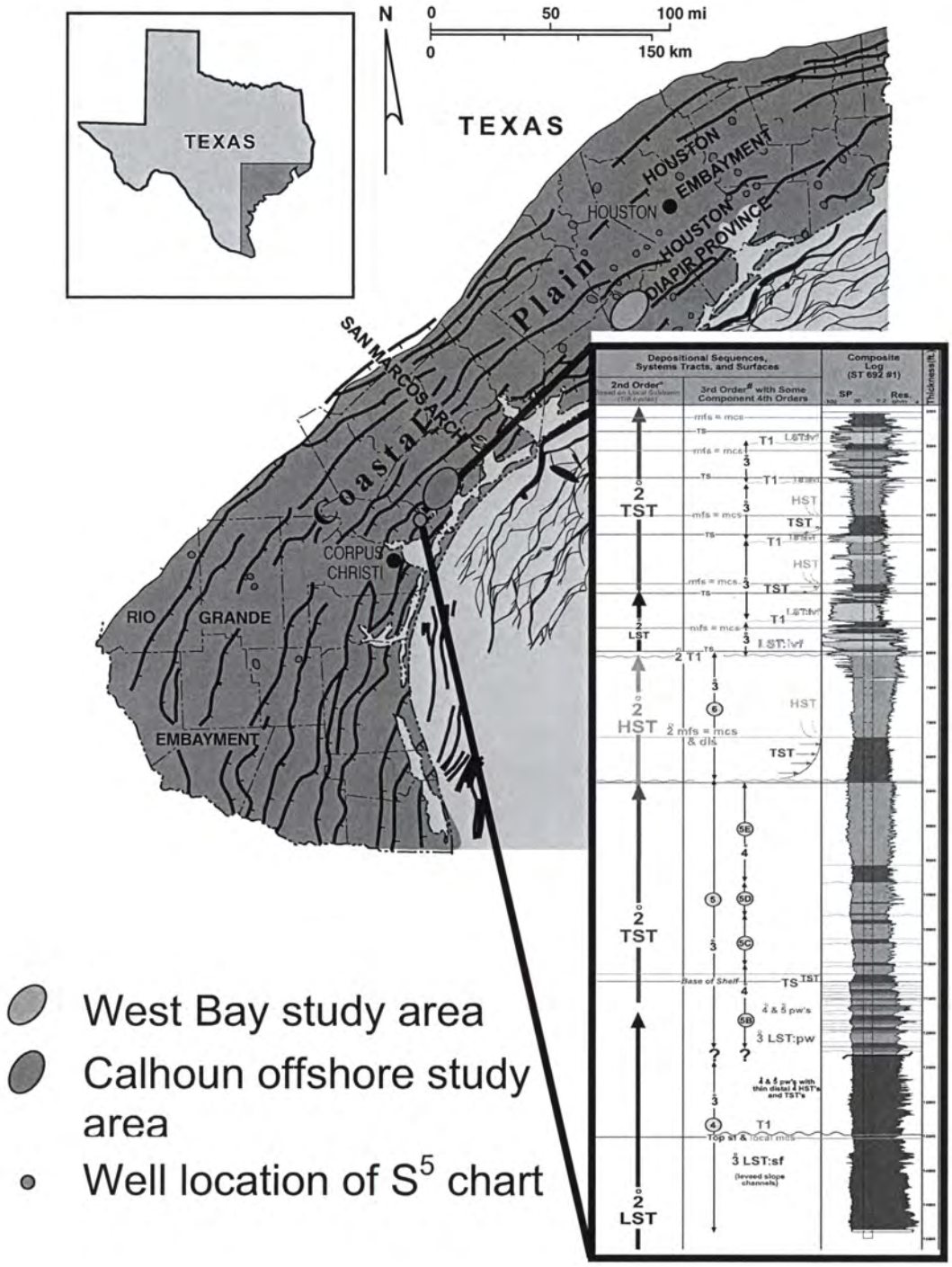


Figure 13. Calhoun offshore and Alligator Point study areas for Gulf Energy Exploration. Inset shows part of an S^5 benchmark chart used to correlate the Calhoun offshore area.

Middle Frio Red Fish Bay Reservoir Characterization Project

An area of approximately 115 square miles (6 miles east/west by 23 miles north/south) centered on the Red Fish Bay field (Figs. 2 and 14) was studied in detail for IBC Corporation, now called Boss Exploration and Production Company (see Appendix A for a supporting letter by IBC Corporation). The prime targets for additional wells were untapped fault compartments in the highly faulted Oligocene Frio section. The main tasks of the BEG study were to (1) describe the structural and stratigraphic architecture of the area, (2) define the sequence stratigraphy of the penetrated sedimentary section, (3) delineate reservoir compartmentalization, and (4) identify potential drilling opportunities or bypassed pay. These tasks were accomplished through the integration of wireline-log, seismic, and engineering/production data. Fifty-three wireline logs were used for construction of cross sections, petrophysical analysis, and integration with seismic data.

The Red Fish Bay area provides an array of development opportunities. Traditionally, most of wells have been drilled into fault-trapped reservoirs of the on-shelf systems tracts of the Frio Formation. The Project STARR reservoir study targeted sandstones in the deeper, off-shelf lowstand prograding deltaic wedges. The area of seismic coverage defined several untested fault compartment opportunities in addition to potential stratigraphic traps.

A number of leads and prospects were developed with Boss Exploration and Production Corporation. Identification of prospects is being kept confidential at the company's request. Seven wells have been drilled since the end of the Project STARR's study. Production from wells in State tract 343# 1 and #2 and 344 #1 and #2 totals 2.2 Bcf and 60,900 barrels of condensate.

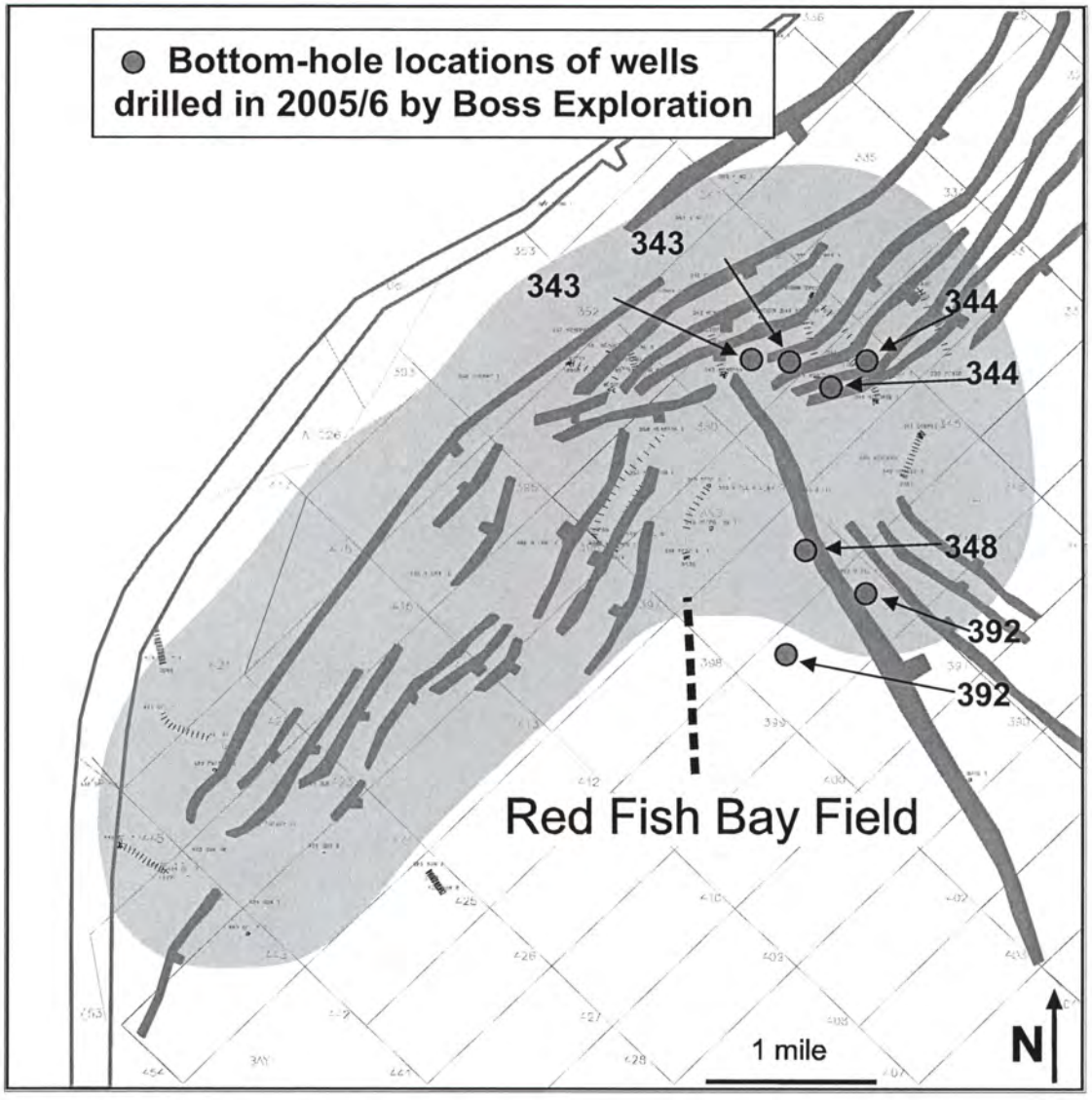


Figure 14. Map of Red Fish Bay field. Seven new wells were drilled by Boss Exploration and Production Company. Circles show bottom-hole locations.

Deep Frio Red Fish Bay Reservoir Characterization Project

Project STARR conducted a sequence stratigraphic, structural, and seismic study in the lower (deep) Frio Formation of the Red Fish Bay area (Fig. 14) (see Appendix A for a supporting letter by IBC Corporation). The goal of this study was to evaluate the exploration potential of the slope and basin-floor-fan depositional systems below the productive prograding-wedge complex. Deepwater deposits are prolific reservoirs worldwide. However, such plays are only recently becoming exploration targets in State Waters of the Corpus Christi Bay area.

Wireline-log and seismic data were correlated and analyzed throughout the Red Fish Bay area. Root-mean square (RMS) amplitude analysis reveals the presence of slope-fan deposits. These slope-fan channel sandstones are productive in a few wells, but they did not produce more than 3 Bcf over a 9-year production period. Project STARR's cooperative investigation with IBC has identified a large deep structure that could be productive in either slope or basin-floor-fan facies. In analysis of the basin-floor-fan prospect in the Block 889 area, the estimated size of the sandstone volume is approximately 18 Bcf. If similar sized reservoirs are discovered in the deep Frio sediment wedge, tens of millions of dollars would be added to the Permanent School Fund and to the State. The location and description of this structure are confidential. A report to IBC summarizing the conclusions developed by Project STARR was submitted in January 2005. The company drilled two wells in 2005 targeting the deeper Frio slope fan reservoirs (Fig. 14). These wells (State tracts 348 #4 and 392 # 5, #6) produced cumulatively 181 MMcf and 31,800 barrels of condensate.

Northeast Red Fish Bay Reservoir Characterization Project

Project STARR assisted Cabot Oil and Gas Company by evaluating the geology of prospects that were being developed in the northeast Red Fish Bay area (Fig. 15) (see Appendix A for a supporting letter by Cabot Oil and Gas). Project STARR provided Cabot Oil and Gas Company with a S^5 benchmark chart that compiled the prospective sandstone reservoirs into a sequence stratigraphic framework. The first well drilled in 2003, State Tract 277 #2, encountered productive sandstone in the lower section of the Frio prograding wedge. From September 2004 until June 2006, the well had produced 13.5 MMcf and 43 barrels of condensate. During the same time period, the second well, the State Tract 277 #3, had produced 530 MMcf and 9,030 barrels of condensate.

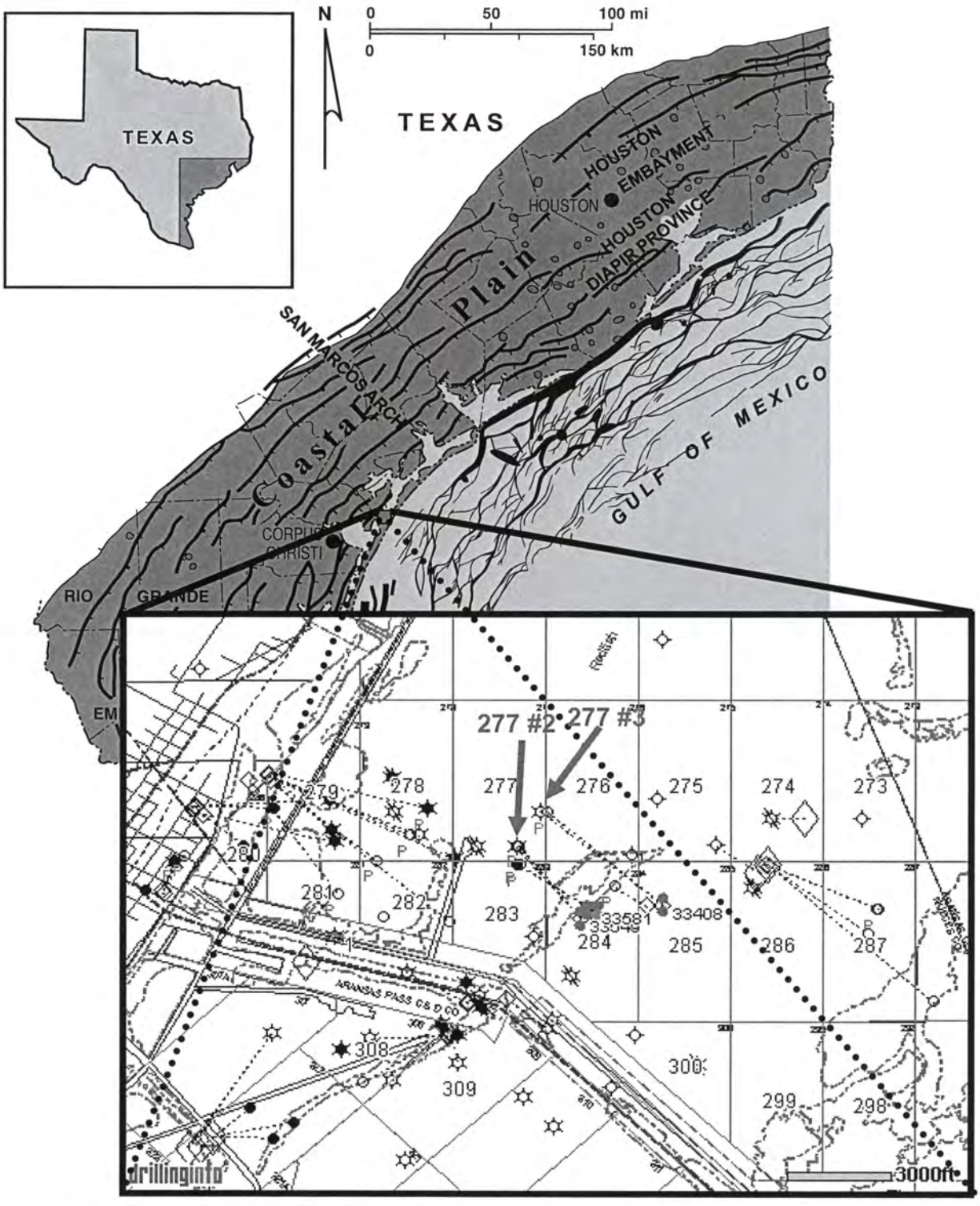


Figure 15. Northeast Redfish Bay study area for Cabot Oil and Gas Co. Arrows point to two wells drilled between 2004 and 2005.

Northern Laguna Madre/Padre Island

The Project STARR team interacted with Novus Oil and Gas Company on evaluating several prospects in the Laguna Madre and Corpus Christi Bay area (see Appendix A for a supporting letter by WestlawnGeo LLC). The team applied sequence stratigraphic concepts to the Frio strata and potential reservoirs (prospects) in the growth-faulted subbasins. The company was later sold and their assets were divided among several companies. Some of the Novus prospects we interacted on were subsequently successfully drilled. For example, the La Playa Mid Frio Unit #1 produced 10,800 barrels of condensate and 866 MMcf of gas as of June 2006 (Fig. 16).

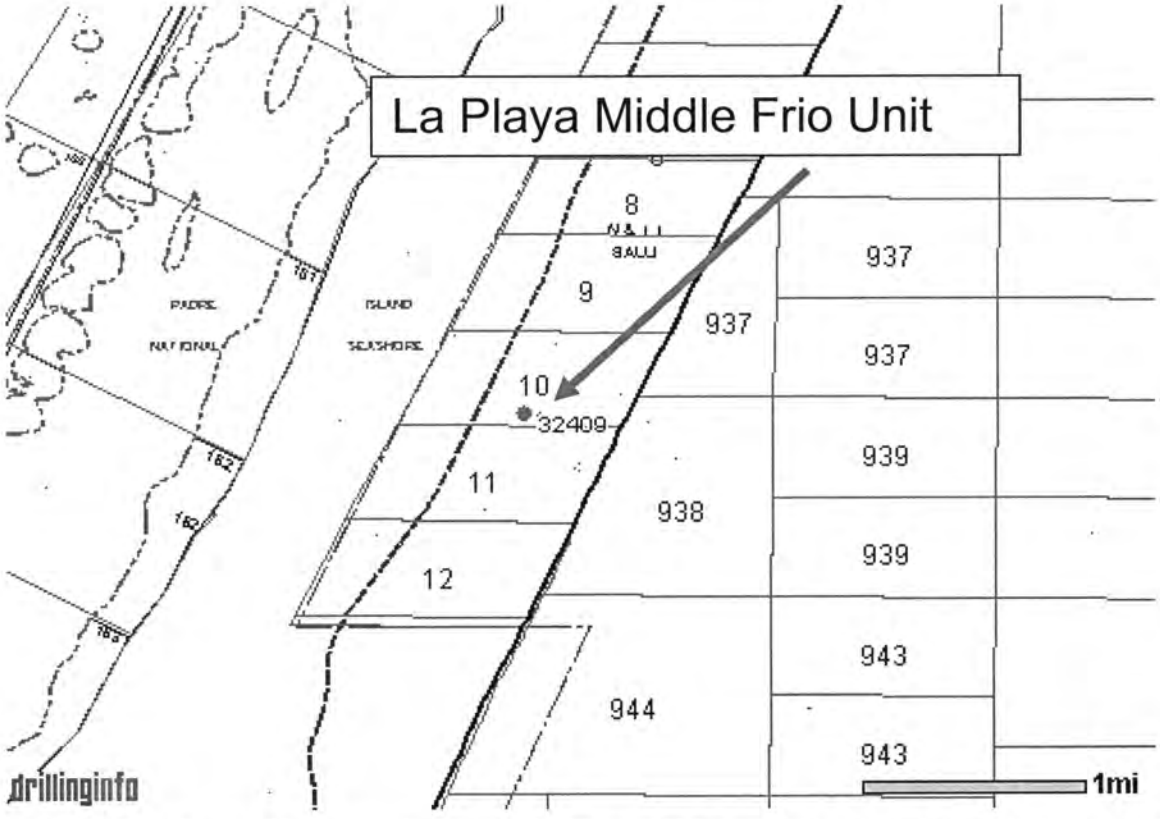


Figure 16. Northern Laguna Madre area showing the La Playa well that was drilled by BNP after acquiring the well prospect from Novus Oil and Gas.

Nueces Bay project

The Project STARR team supported Vintage Oil and Gas with several workshops on concepts for exploring in growth-faulted subbasins along the South Texas Gulf coast. Vintage's main area of interest was Nueces Bay. Project STARRR generated a S^5 benchmark chart and received their wireline-log database from Nueces Bay with the intent to conduct a comprehensive seismic and reservoir characterization study in this area. Before the seismic survey was transmitted to Project STARR, Vintage was sold to Oxy and the project has been put on hold.

Sabco State Tract 61-1 Study

In late 2005 Sabco Oil & Gas Corporation requested that Project STARR analyze a geologic problem centered on a deep test (~15,000 TD), which Sabco drilled in 2001. The well in question was the Sabco State Tract 61-1. The ultimate goal of Sabco's requested study was to help Sabco determine whether or not to drill another well higher on the structure tested by the 61-1 well. Sabco requested that Project STARR keep confidential all data from the 61-1 well. The results of this study will only be reported after Sabco gives permission for its release (see Appendix A for a supporting letter by Sabco Oil and Gas).

Gold River North Field (Olmos Formation) Reservoir Characterization Study

Project STARR commenced a study with Huber Energy in the fall of 2005, to enhance production of hydrocarbons in the Gold River North Field, Webb Co., south Texas (see Appendix A for a supporting letter by Huber Energy). The primary reservoir of interest is the Cretaceous Olmos Formation.

Project STARR used two conventional cores (Briscoe E-224 and Briscoe E-132), wireline-logs, and image logs to define the stratigraphic and structural architecture of the area. Project STARR conducted detailed analysis of the two cores (Fig.17) to delineate the depositional systems and sequence stratigraphy of the field area. Project STARR then linked these observations to wireline-log interpretations using Petra^{Tm} geologic interpretation software to improve the correlation of regionally significant sequence boundaries. Thin-section and X-ray diffraction analysis data were analyzed to establish reservoir quality (Fig. 18). Project STARR had several meetings with Huber geologists to review our findings and to discuss their implications in terms of reservoir location and quality across the field. Huber planned to drill

more wells during late 2006, and they intended to use the analysis Project STARR provided to help them optimize well locations. As of this writing, Huber is in the process of selling its Gold River North properties to Rockford Panhandle, LLC, and the study was put on hold.

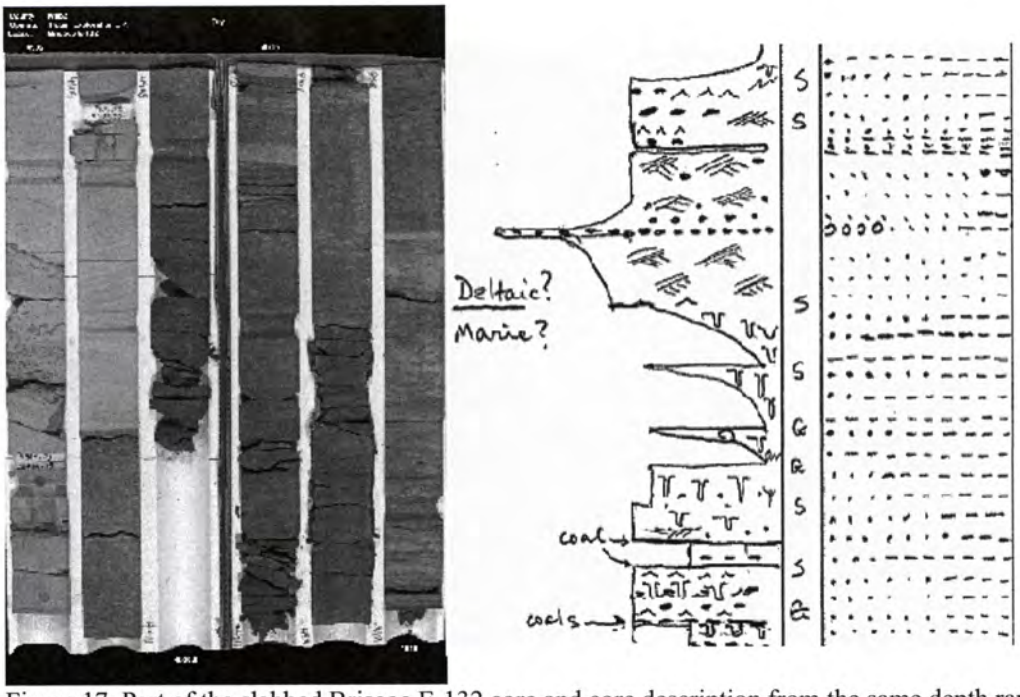


Figure 17. Part of the slabbed Briscoe E-132 core and core description from the same depth range showing a transition in facies, reflecting a change in environment from salt marsh to a channel. The channel sands are the producing intervals in this reservoir.

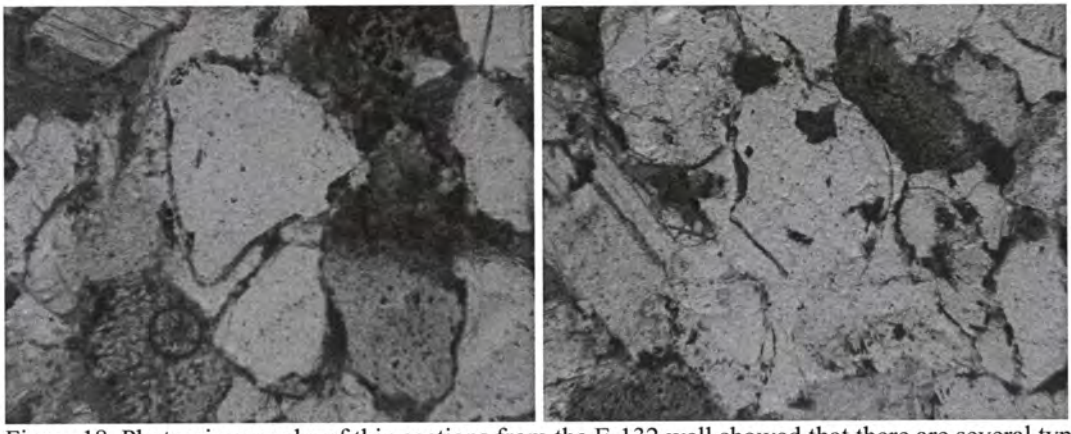


Figure 18. Photomicrographs of thin sections from the E-132 well showed that there are several types of porosity—some primary, much secondary, and some microporosity. Porosity is being occluded by quartz cement overgrowths, ductile compaction of lithic grains, clay cement in pores, and carbonate cements.

Sanchez Oil and Gas South Texas GOM

The STARR team has been a partner with Sanchez Oil and Gas since April 2006 (see Appendix A for a supporting letter by Sanchez Oil and Gas). We interacted with them on Frio growth-faulted subbasin exploration concepts and provided them with results from past studies that will aid in their production and exploration efforts. Their areas of interest are in the Laguna Madre close to the Mexico border. They are expected to shoot a 3D seismic survey which we plan to interact with them on interpretation and analysis. We are also currently generating a S5 benchmark chart for an area in Galveston County.

Santos USA Upper Texas Coast Exploration Study

Project STARR undertook a study for Santos USA, Inc. in the fall of 2004 (see Appendix A for a supporting letter by Santos USA). Santos provided several dozen wireline logs from the southern Galveston Bay area, which were interpreted using Petra geological interpretation software. Santos also provided online access to 2D regional seismic over the prospect area. With very few exceptions, there was no available seismic over the area of available wireline logs. The lack of seismic data necessitated regional wireline-log correlations. From wireline-log correlations and biostratigraphic data from older nearby wells, a S^5 benchmark chart (Fig. 19) was generated for the Eagle Bay area of Galveston Bay. Based on general regional structure maps, the S^5-benchmark-chart interpretation implied that the prospect area was part of Frio third-order sequences #3 or #4 depending on the number of intervening subbasins. The lack of seismic data between the Eagle Bay area and the prospect did not allow for a more exact age determination. Using the Brown et al. (2004) model, the number of growth-faulted subbasins existing between Eagle Bay and the prospect should equal a concomitant number of intervening third-order sequences.

Subsequently, Santos supplied Project STARR with wireline logs for a key offshore well: Houston Oil & Mineral ST TR 101 L-2 (HOM #2), on strike with their prospect and in a basinward (dip) direction from the Eagle Bay subbasin. Project STARR interpreted the sequence stratigraphy of the HOM #2 and identified one and possibly two basin-floor fans in the deeper portion of the well. Project STARR provided Santos with a petrophysical interpretation of the lowermost basin floor fan in the HOM #2. The petrophysical analysis indicated porosity in

excess of 20% (based upon acoustic log porosity). This agreed with data from Loucks et al. (1984) for porosity values in reservoirs deeper than 15,000 feet along the upper Texas coast.

According to the model of Brown et al. (2004), the slope fan and prograding wedge in the HOM #2 belong to Frio sequence #5, and the unexpanded sections below belong to Frio sequences # 3 and #4. The study indicated that the potential exists for multiple, high-porosity basin-floor-fan reservoirs in the prospect area.

The initial well in the area was not productive but the geology encountered was encouraging and Santos is evaluating whether the new data warrants a new exploration well.

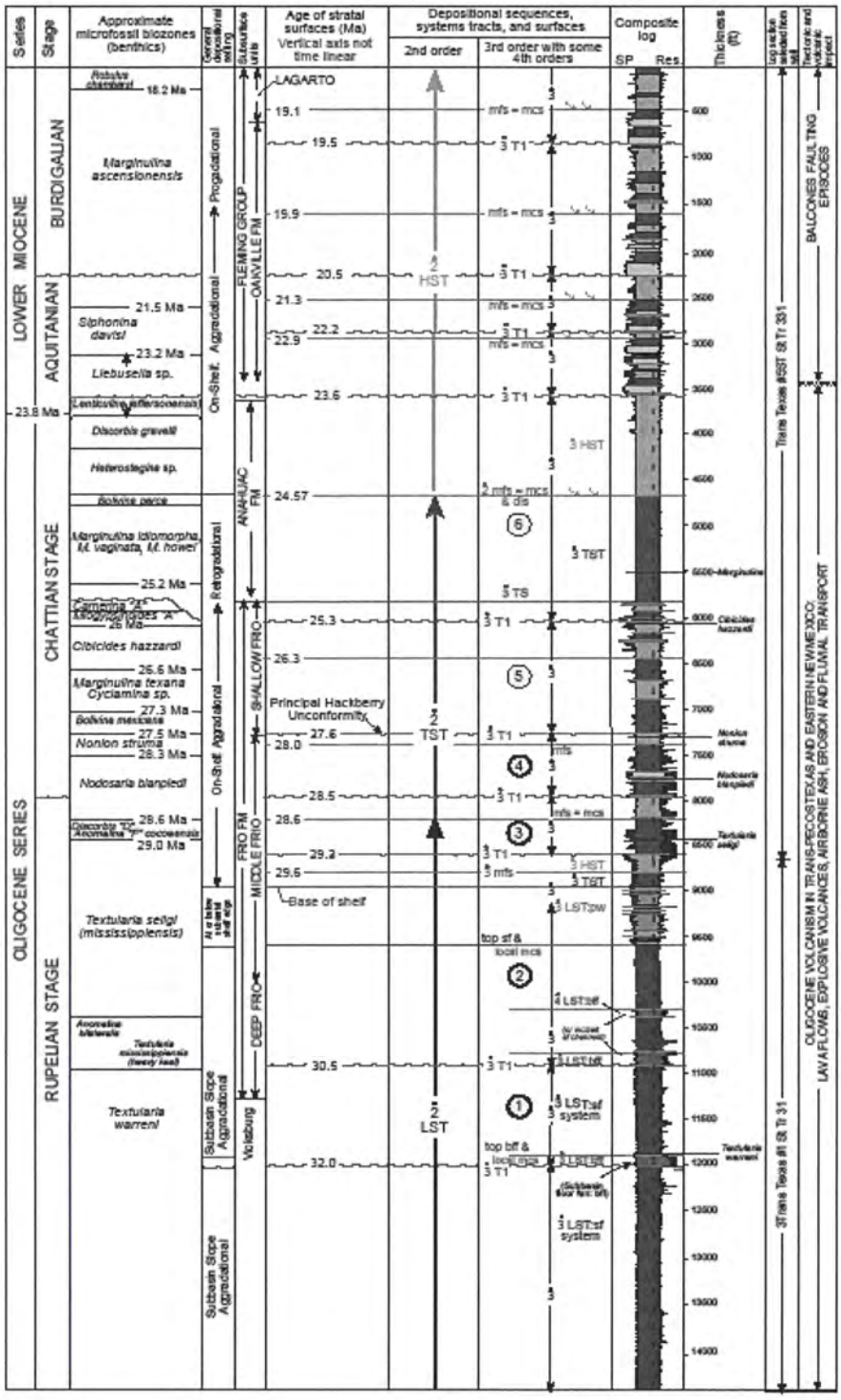


Figure 19. S[5] benchmark chart for the southern Galveston Bay area showing the six third-order sequences for the Frio Formation.

New Venture Regional Studies

Upper Texas Coastal Plain Tertiary New Venture Study

A study has been initiated on the complete Tertiary section along the upper Texas Gulf Coast (Fig. 20). The sandstones in this area have been producing hydrocarbons for many years and are still active exploration targets especially in State Waters. The Project STARR study will set this stratigraphic section into a sequence stratigraphic framework that will provide the most advanced correlation of the prospective sandstones. The proper integration of sedimentology, source rock, and structure will provide new insights on producing trends and new play opportunities.

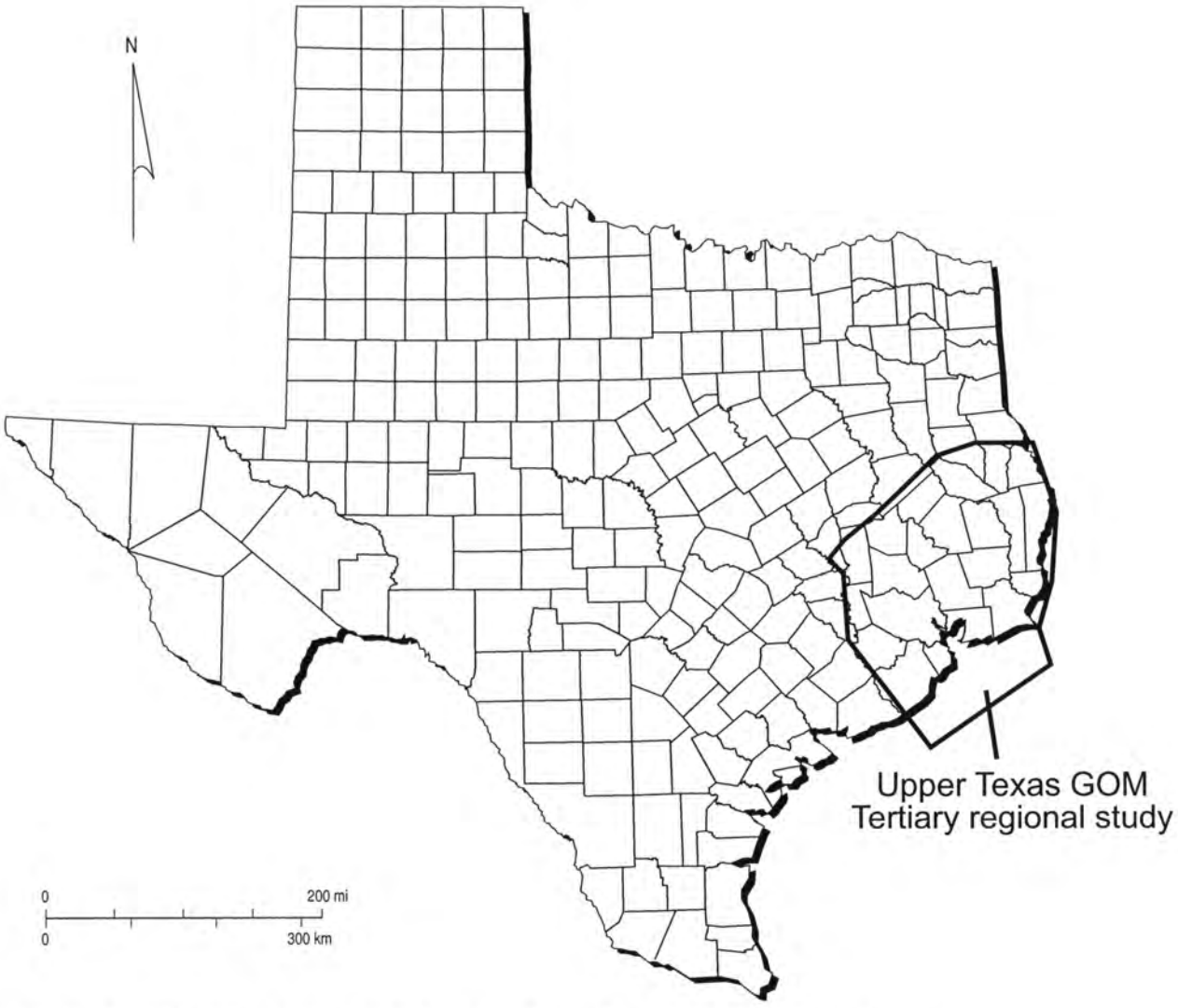


Figure 20. Map of Texas showing area of the Upper Texas Coastal Plain new venture study.

Woodbine Sandstone and East Texas Field New Venture Study

East Texas field, the largest oil field in Texas, covers portions of Gregg, Rusk, Smith, Upshur, and Cherokee Counties (Figs. 2 and 21). It has produced more than 5.3 billion barrels of oil since its discovery in 1930. Production from this mature, super giant oil field has had a very large impact on the Texas economy. Unfortunately, production has decreased dramatically from 65 million barrels (bbl) in 1977 to less than 4.7 MMbbl in 2004. New approaches to capturing more oil from the field are being investigated. Both engineering and stratigraphic architecture studies are being performed on a pilot basis.

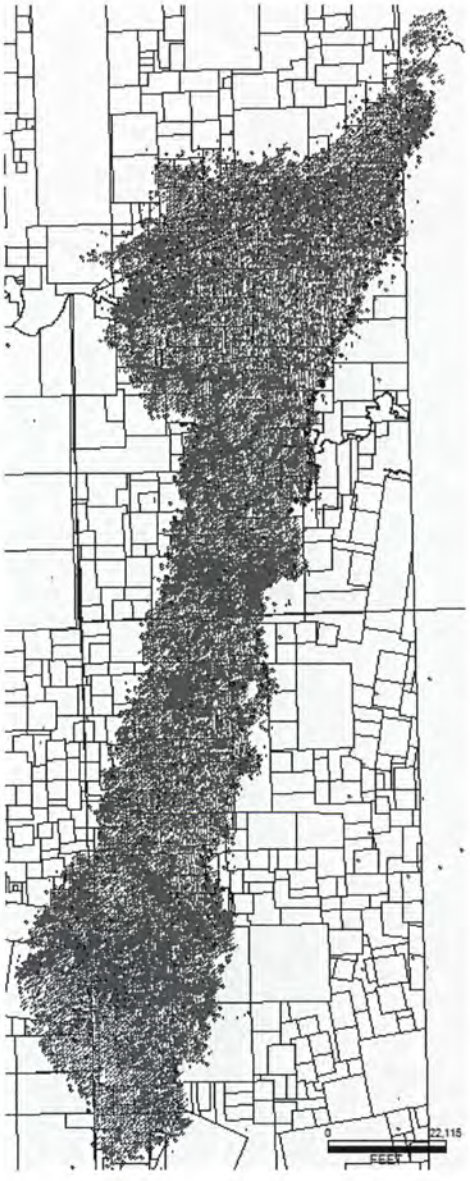


Figure 21. Approximately 31,000 wells have been drilled in the East Texas field since discovery in 1930. Seven billion barrels of oil were in place of which 5.3 Bbbl of oil has been produced.

Unconventional Resources

Fort Worth Basin Barnett "Shale–Gas" System Study (Unconventional Resources)

The Mississippian age Barnett Formation of the Fort Worth Basin (Fig. 22) is an unconventional "shale-gas" system in which the rock is the source, reservoir, and seal. The Newark East field, the largest currently producing gas field in Texas, is developed in this Barnett "shale-gas" system. The Barnett Formation continues to be an active target for shale gas in the Fort Worth Basin, as well as on State Lands in the adjacent Permian Basin. Much effort has been devoted to understanding exploration methods, completion techniques, organic content, and maturation in this system. However, little has been published on the sedimentology, lithofacies, or depositional setting of these rocks all of which are important for exploring the play. Our Project STARR study is providing the comprehensive geology, such as regional setting, lithofacies, natural fracture, and pore network analyses, that is necessary to extent this play to areas outside of the "core area" near Fort Worth (Fig. 22). Our data will also be of value to the Barnett and Woodford plays in far West Texas (Fig. 23).

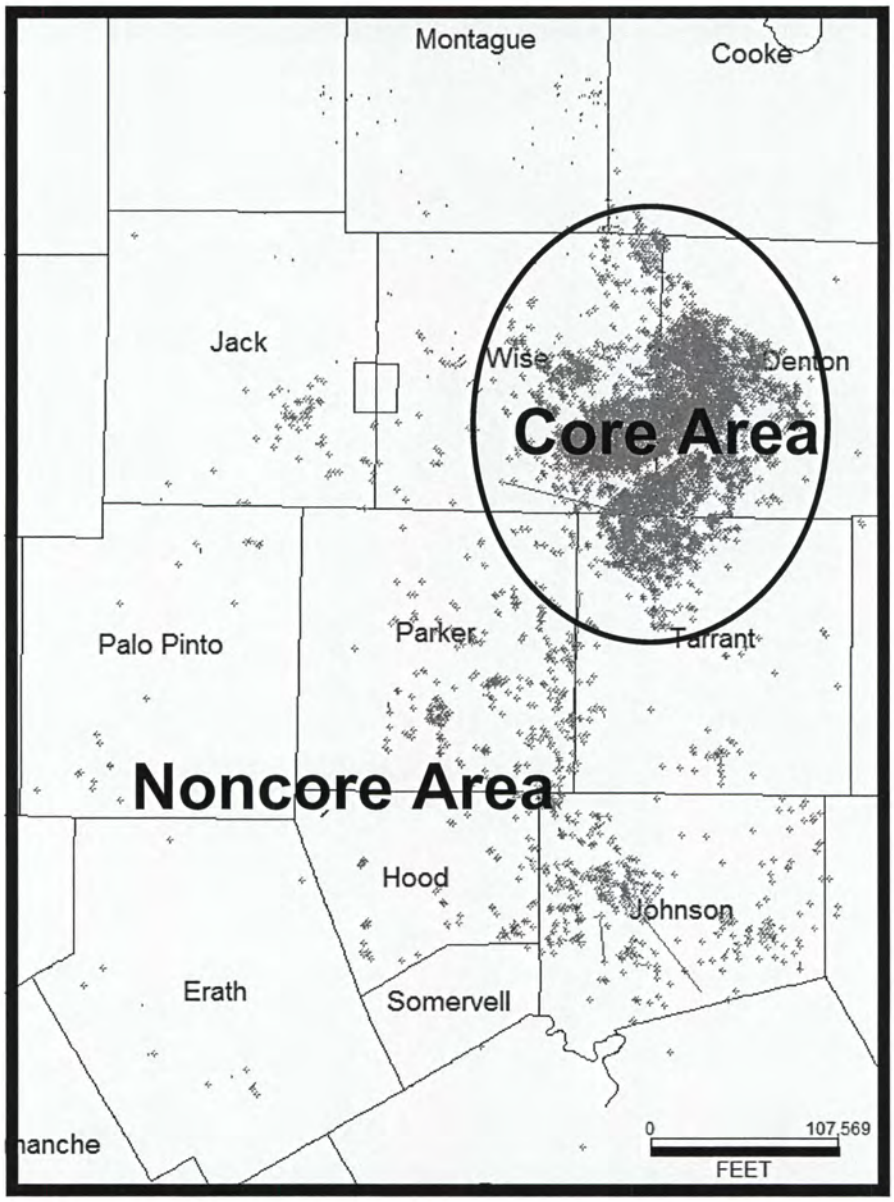


Figure 22. Barnett wells in the Fort Worth Basin. Numerous wells are drilled in the core area of Wise, Denton, and Tarrant Counties. Other counties in the basin are now being explored and drilled.

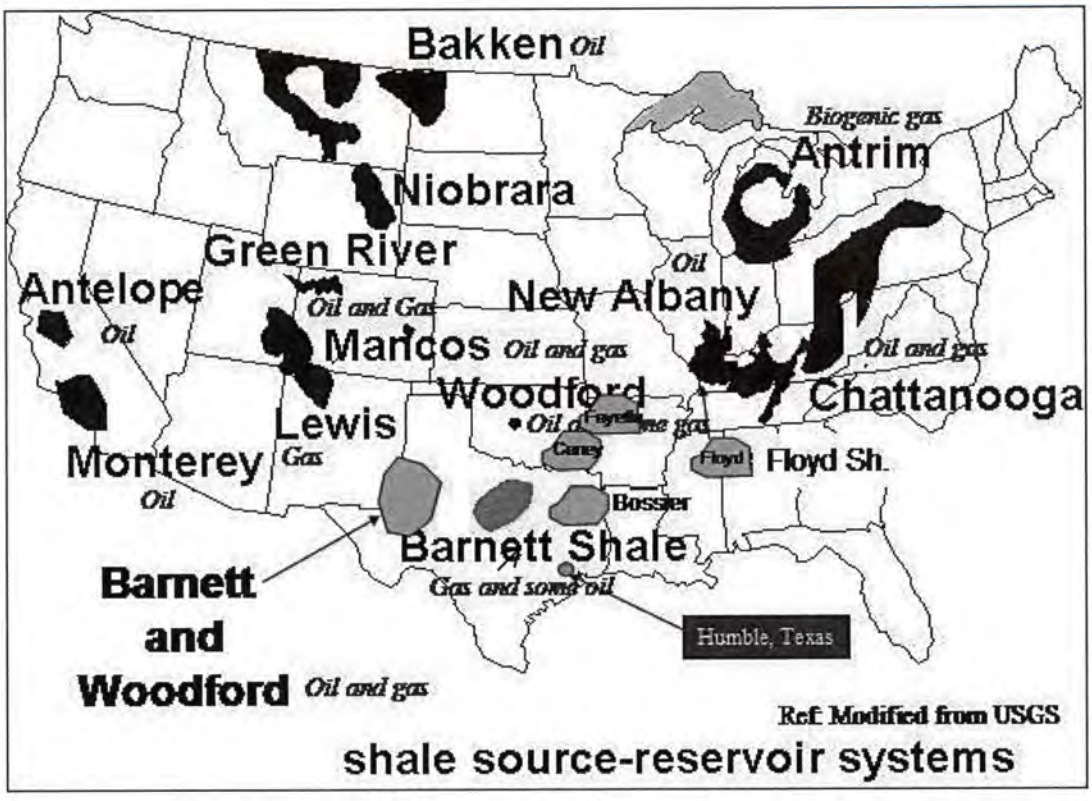


Figure 23. Map of gas-shale areas of the United States. In West Texas, the Woodford and Barnett Shales are exploration targets.

Barnett Shale Fracture Study

As part of Project STARR's study of the Barnett Shale we have examined the role of natural fractures during hydraulic fracture stimulation. There is evidence that, during stimulation, natural fractures are reactivated and enhance efficiency by widening the treatment zone (Fig. 24). Knowledge of subsurface stress, which controls the primary direction of hydraulic fracture propagation and the geometry of the natural fracture system, is therefore the key to effective hydraulic fracture treatment design. We characterized natural opening-mode fractures in four Barnett Shale cores in terms of orientation, size, and sealing properties (Fig. 24), and we measured a key rock property, the subcritical crack index, which governs fracture pattern development.

We are also developing a testing rig and protocol to measure tensile strength at the margins of calcite-filled fractures and of different lithotypes of the Barnett Shale (Fig. 25). We hypothesize that the fractures will prove to be weaker than the surrounding shale. If correct, this would provide an explanation of why natural fractures reactivate during hydraulic fracture treatments.

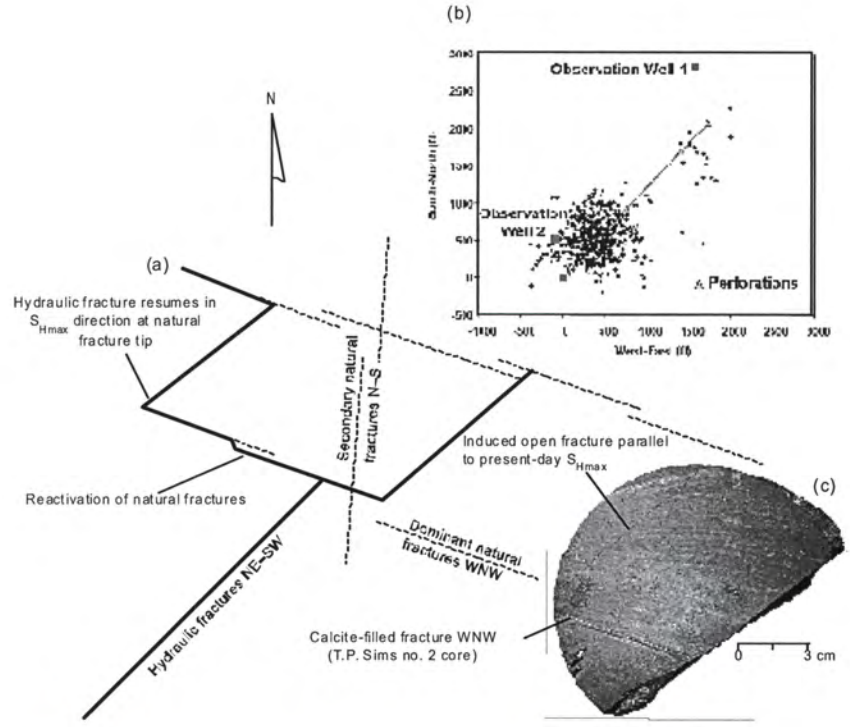


Figure 24. Diagrammatic representation of hydraulic fracture growth in Barnett wells showing why natural fracture systems are important. (a) Hydraulic fracture growth proceeds, reactivating natural fractures (dashed lines). Arrows show propagation direction of hydraulic fractures. (b) Map of microseismic data from Warpinski et al. (2005). (c) Natural and drilling-induced fractures in a disc from a Barnett Shale core.

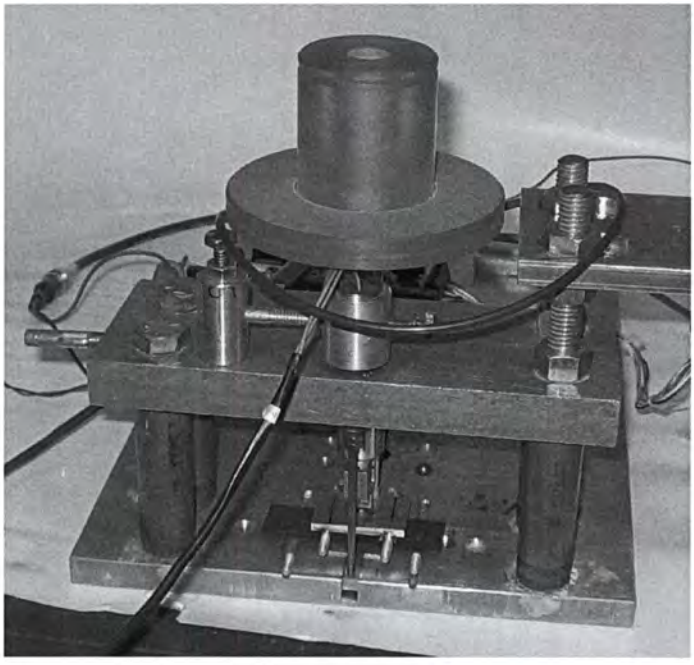


Figure 25. Testing apparatus for measuring tensile strength of fracture-host rock boundaries in Barnett Shale samples.

Low-Pressure Gas Resources (Unconventional Resources)

Significant gas resources are being prematurely abandoned in the State of Texas. Large amounts of gas resources have been and will be lost because low-pressure gas wells have been shut in and plugged owing to the absence of low-pressure gas pipeline and compression systems.

Low-pressure gas is defined as gas resources from existing wells that are at lower pressures than the surrounding pipeline and compression systems. To consider incentive alternatives for the efficient utilization of low-pressure gas resources, assessment of the value of this resource and existing pipeline infrastructure is to be investigated.

Natural gas resources face many hurdles before they can be developed into viable producers of natural gas. In the case of low-pressure natural-gas resources, the road to markets can require significant investments in compression. In addition, pipeline investments can also make the economic hurdle even more difficult to surpass. These economic hurdles can sometimes be overcome with the aggregation of production. This allows for economies of scale in compression and pipeline investments to provide viability. In some cases, the aggregation of production is not possible, and because of these economic hurdles, the gas will not be produced.

Advances in modular liquefaction technologies, in other words, small scale facilities that process natural gas and produce Liquefied Natural Gas (LNG) create an opportunity for small-scale, low-pressure gas resources to reach market. Decreasing liquefaction and LNG transportation costs can help overcome economic hurdles. In particular, technologies are being developed to target LNG production volumes of less than 10,000 gallons per day of LNG. This is equivalent to nearly 900 thousand cubic feet per day of natural gas production which is in the range for low-pressure gas resources.

As part of this effort, a preliminary review of technology providers has been performed for LNG production of up to 10,000 gallons per day. Five providers (Table 2), which handle different low-pressure gas streams as input, have been identified. In some cases, the natural gas can include impurities such as carbon dioxide. In other cases, preprocessing units will need to be incorporated.

Future work will determine the economic viability of the identified LNG options through further analysis that will identify the key variables that have unacceptable levels of uncertainty and through a the development of a proposal for field pilot test. This test will not only serve to validate the economics merits of using LNG as a means to bring low-pressure gas resources to market but also to identify operational windows for the technology tested.

Table 2. Providers which handle different low-pressure gas streams as input.

	Input	Unit Output (gallons per day)	Power Source	Physical Size	Cost ($USD)	Notes
Provider 1	20-60 psig of preprocessed NG	250 and 1,000+	NG	8' x 14' (1,000 g/d unit)	Research Unit	Liquefier only, can be scaled to 10,000gpd
Provider 2	50 psig, can handle high CO2 content	85+	NG	Size of 1-2 containers (5,000 g/d unit)	$1.3 MM (for 5000 g/d unit), plus genset	Complete system
Provider 3	Unprocessed NG	315+	Electricity (possibly NG)	Pickup truck mountable (315 g/d unit)	Unit cost of the facility is < $18 per MMcf	Complete system
Provider 4	Unprocessed NG from pipeline after a pressure letdown station	10,000+	Electricity (for control systems)	240 square feet (fits inside on standard shipping container	$2 Million for pilot test, estimated $450,000 after commercialization	Currently working on gas field applications
Provider 5	Preprocessed NG	<100	Electricity (possibly NG)	Desktop sized to 54 square feet	Research Unit	Liquefier only

Project STARR's Return on State Investment for Current Biennium

Production data from the Railroad Commission of Texas show that Project STARR-related wells have provided $25,007,697 in royalty revenue for the Permanent School Fund during the past 2 years (Table 3). The revenue numbers for Table 3 are calculated using royalty factors per lease (supplied by the Texas General Land Office) and estimated value of gas, condensate or oil during each month produced. We calculated the average monthly prices using data from the Website of the Energy Information Administration (EIA) of the U.S. Department of Energy (http://www.eia.doe.gov/). From that Website we downloaded two spreadsheets. One contained average monthly U.S. wellhead prices for natural gas. The other contained Cushing, Oklahoma, monthly prices for West Texas Intermediate crude oil. The production values per lease came from the Railroad Commission's "ACTI Texas Oil and Gas Production" database (http://driller.rrc.state.tx.us/ Apps/WebObjects/acti). Approximately $10.8 million (Table 3) in severance taxes associated with these wells has been collected by the State. Relative to royalty income, Project STARR is revenue positive by a factor of 17.8.

Table 3. Summary of royalty revenue to the Permanent School Fund and severance tax to the State. Credit is in accordance with metric metrology approved by the State of Texas Comptroller's office. Time period covered is 9/1/2004 to 8/31/2006.

Field Name	RRCID for each Well per Project	Lease Royalty Factor	Condensate \ Oil Wellhead Value	Condensate-Oil Royalty Value	Condensate-Oil Severance Tax	Gas Wellhead Value	Gas Royalty Value	Gas Severance Tax		
Encinal Channel	180008	16.67%	$546,071	$91,012	$20,933	$3,713,476	$618,914	$232,092		
	196653	16.67%	$0	$0	$0	$0	$0	$0		
	196661	16.67%	$94,792	$15,799	$3,634	$1,241,052	$206,842	$77,566		
	195078	16.67%	$449,772	$74,962	$17,241	$3,294,788	$549,132	$205,924		
	195038	25.00%	$0	$0	$0	$0	$0	$0		
	194843	16.67%	$47,883	$7,981	$1,836	$517,387	$86,231	$32,337		
	195589	18.91%	$45,103	$8,529	$1,682	$940,337	$177,818	$57,189		
	201321	12.50%	$431,482	$53,935	$17,367	$1,006,189	$125,774	$66,031		
				$252,218	$62,693		$1,764,711	$671,139	**$2,750,761**	CC Bay Total
Red Fish Bay	199935	20.00%	190,967	$38,193	$7,028	$1,322,636	$264,527	$79,358		
	111396	20.00%	$1,805,298	$361,060	$66,435	$7,104,505	$1,420,901	$426,270		
	206082	20.00%	$1,524,204	$304,841	$56,091	$7,400,049	$1,480,010	$444,003		
	44835	16.67%	$1,507,206	$251,202	$57,776	$1,347,462	$224,577	$84,216		
	13290	16.67%	$1,134,899	$189,150	$43,504	$899,329	$149,889	$56,208		
	215823	20.00%	$496,229	$99,246	$18,261	$1,586,155	$317,231	$95,169		
				$1,243,692	$249,095		$3,857,135	$1,185,225	**$6,535,147**	RF Bay Total
Nuare/Stedman Is.	202192	20.00%	$340,151	$68,030	$12,518	$2,112,560	$422,512	$126,754		
				$68,030	$12,518		$422,512	$126,754	**$629,813**	Nuare Total
Carancahua Bay	211785	20.00%	$177,852	$35,570	$6,545	$882,230	$176,446	$52,934		
	216389		$517,102		$23,787	$614,680	$0	$46,101		
	216627		$418,802		$19,265	$706,488		$52,987		
	217956	20.00%	$3,156,078	$631,216	$116,144	$5,379,641	$1,075,928	$322,778		
				$666,786	$165,740		$1,252,374	$474,800	**$2,559,700**	Carancahua Total
Block 889	217012	20.00%	$378,311	$75,662	$13,922	$1,775,075	$355,015	$106,504		
				$75,662	$13,922		$355,015	$106,504	**$551,103**	
Yates	24061	3.85%	$326,737,460	$12,595,380	$7,225,268				**$19,820,647**	Yates Total
Laguna Madre	165716	18.52%	$187	$35	$7	$303,161	$56,158	$18,525		
	215096	18.75%	$244,647	$45,871	$4,572	$1,672,654	$313,623	$101,927		
				$45,906	$4,579		$369,780	$120,453	**$540,718**	
La Playa	207584	26.13%	$996,282	$260,279	$16,928	$6,804,276	$1,777,617	$376,999		
				$260,279	$16,928		$1,777,617	$376,999	**$2,431,823**	La Playa Total
				$15,207,952			**$9,799,145**		**$35,819,713**	**Grand Total**
				$1,520,795	**$7,750,742**		**$979,914**	**$3,061,874**	**$13,313,326**	**Estimate of Revenue Neutrality**

The rate of decline in oil and gas production on Texas State Lands is symptomatic of the hydrocarbon production decline in the entire state and nation over the past few decades and is typical for mature provinces. In 1997, a report by the Railroad Commission of Texas titled "Texas Natural Resources Study: A Status Report of the Hydrocarbon Industries of Texas" (Matthews et al., 1997) projected that rates of hydrocarbon production will decline dramatically

to low levels within the next decade. Advanced reservoir characterization and technology can help reduce this rate of decline and aid in recovering more hydrocarbons from mature fields before abandonment. Current projections indicate that Project STARR is helping operators generate significant revenue for the Permanent School Fund. Within the last 2 years Project STARR results were used to drill 27 new wells in State Waters.

Project STARR's Projection on State Investment for 2007 to 2009 Biennium

Royalty revenue to the Permanent School Fund for the next biennium (2007 to 2009) from incremental oil and gas production could equal or exceed Project STARR's present excellent economic results. This estimate is based upon several infill wells that may be drilled in the Gold River North and East Flour Bluff fields. Several exploration wells are expected to be drilled in the State Waters offshore Calhoun County. The West Bay/Alligator Point area will experience several exploration wells in the deep Frio and up to 20 infill wells in the Miocene section. The greater Matagorda Bay area, including Carancahua Bay, will undergo infill drilling and drilling of several exploratory wells in the deeper Frio. Enhanced oil recovery activities will continue in the Yates field in West Texas. Several ongoing regional studies will simulate drilling of new step-out wells and new exploration targets, such as the Barnett shale-gas play in the Fort Worth Basin. The amount of revenue will depend on when the wells are drilled within the 2-year period and whether the wells produce as projected. The rates of actual and forecasted returns on Project STARR are excellent and fully satisfy Project STARR's revenue-neutral requirement for continued funding. Recent rates of return for the Permanent School Fund have been approximately 10 percent per annum. These rates of return go into the Available Fund of the Permanent School Fund and become part of the General Revenue Fund. Therefore, we estimate that wells affiliated with Project STARR contributed $2.5 million to the Available Fund during the 2005-2006 biennium. Consequently, total contribution to the General Revenue Fund (including severance taxes) from Project STARR affiliated wells is estimated to be $13.3 million (Table 3). This value is well above the amount necessary for revenue neutrality.

With sustained oil and gas development funding from the State of Texas, Project STARR has an ultimate goal of capturing an incremental 5 percent of the remaining mobile oil and gas resource on State Lands and Waters that probably would not be captured without the application of advanced technology. This estimate is based on our belief that we can apply advanced

technology to identify new reservoirs and apply better reservoir characterization principles than can be done by many of the smaller companies without research and technology resources. The mobile oil resource on State Lands is 1.6 Bbbl. Achieving the goal of 5 percent incremental oil would yield 80 million barrels and provide a return to the Permanent School Fund of $600 million, assuming an average present price of $60/bbl and a 12.5 percent royalty. Similarly, a capture of 5 percent of the 10 Tcf of remaining gas would yield 500 Bcf and generate $450 million for the Permanent School Fund, assuming an average present price of $6.00/Mcf and an average 15 percent royalty. By achieving these levels of incremental recovery, the Project STARR initiative could help generate $1,050 million in royalties to the Permanent School Fund over the long term.

The wellhead value of the additional oil and gas reserves would be $4.8 billion and $3.0 billion, respectively, for a total of $7.8 billion. Calculations based on the Railroad Commission of Texas "General Model of Oil and Gas Impact on the Texas Economy" derived from the Comptroller's Input-Output model of the Texas economy can be further utilized to estimate the overall effect of the additional oil and gas reserves in terms of economic value, taxes, and jobs created. The economic value of this potential future oil and gas as it cycles through the Texas economy is calculated as $22.7 billion (wellhead value multiplied by 2.91). Total potential taxes of $919 million are derived from severance (4.6 percent oil and 7.5 percent gas of wellhead value), ad valorem (3.95 percent of wellhead value), franchise (0.18 percent of economic value), and sales (2 percent of economic value) taxes. The number of potential additional jobs created equals 148,980, assuming 19.1 jobs are created per million dollars of wellhead value.

Project STARR Revenue Neutrality Metrics

Project STARR must demonstrate revenue neutrality to the State of Texas Comptroller's Office each biennium in order to be considered for funding in the next biennium. Both royalties to the Permanent School Fund and State severance tax can be accounted to the revenue neutrality calculations based on the metrics presented in Table 4. This metrics table was developed in conjunction with the State of Texas Comptroller's Office in 2004 and slightly modified following discussion with the controller's Office in 2006. Five major different types of projects are noted in Table 4.

Table 4. Project STARR revenue neutrality metrics.

Type of STARR Recommendation	Expiration period following recommendation (Initial/incremental production must begin before recommendation expires)	Time period for credit following initial production	Royalty Credit (Royalties to PSF)*	Severance Tax Credit
1. Drilling new infill or stepout well in established field	4 years	2 years	100%	100%
2. Drilling new infill or stepout well in established field with multiple reservoir intervals	4 years	2 years following completion of each additional reservoir interval	100%	100%
3. Recompletion - missed pay well in established filed	4 years	2 years	100%	100%
4. Enhanced oil recovery (EOR) field project	4 years	2 years following date selected by STARR within a 5-year period from initial operator action	100% of incremental production	100% of incremental production
5. Exploration well	4 years	2 years	100%	100%
5.a. Subsequent development wells following discovery of new field	2 years following initial production from exploration well	2 years	100%	100%
5.b. Copycat wells following discovery of new field	2 years following initial production from exploration well	2 years	25%	25%

* Project STARR only receives revenue neutrality credit for royalty that goes into the General Revenue Fund of the State of Texas. State Land royalties initially go into the Permanent School Fund and a percentage of that fund is transferred to the General Revenue Fund each year. Project STARR receives credit for the amount that is provided to the General Revenue Fund each year.

Recommendations

Project STARR has been very successful by focusing on field-scale studies that are limited in their geographic extent. This concentrated focus on small, reservoir-sized areas leads to immediate royalty revenue flow into the Permanent School Fund because specific areas and specific reservoir depths can be identified where State Lands operators can take recommended actions to increase production. The addition of regional (including unconventional)l studies will generate more funds as operators take advantage of research and leads offered by these studies.

We recommend that the Project STARR program remain at $1.5 million per year. The present funding is at a level that allows us to have a strong team with the necessary skills to generate prospects and regional studies.

Because of the strength shown by Project STARR, the Bureau of Economic Geology was able to initiate an independently funded 2-year industry consortium study titled "Stratigraphic Architecture and Sandstone Reservoir Quality in Deep-Shelf Gas Plays of Texas State Waters" that is directed toward reducing reservoir risk on new, very deep, and high-risk exploration targets on Texas submerged lands. This consortium supports the systematic application of state-of-the-science technology and methods to evaluate tracts of Texas submerged lands that have potential for successful prospecting by the private sector. This industry-funded study is augmenting Project STARR efforts in that it is stimulating the very deep shelf gas play under State Waters by reducing reservoir risk.

Overall, Project STARR has been very successful interacting with State Lands operators to help them increase their production. Our success rate with the operators has been excellent, as indicated by the revenue generated. We strongly believe that continued funding support for Project STARR will be more than offset by increase in royalties to the Permanent School Fund and severance tax to the State of Texas.

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Appendix A

2004–2006 Letters of Cooperation

The following are letters from partner companies with whom Project STARR has collaborated over the last several years. The letters support the strong interaction between Project STARR and industry.

BRIGHAM
Oil & Gas, L.P.

Brigham Oil & Gas, L.P. ◆ 6300 Bridge Point Parkway, Bldg. 2, Suite 500 ◆ Austin, Texas 78730
Phone (512) 427-3300 ◆ Fax (512) 427-3400

To: Bob Loucks, PI STARR Project.

Re: Acknowledgment of STARR support
Brigham Oil & Gas, L.P.
Bayou Bengal Project
Calhoun and Jackson, County, Texas

Dear Dr. Loucks:

On behalf of Brigham Oil & Gas, L.P. ("Brigham"), I would like to thank you and the STARR team for your ongoing support of our project in the Carancahua Bay area. We appreciate your insight in the regional geology and the detailed understanding of the local conditions. Brigham is particularly grateful for your assistance in understanding the depositional framework of the deeper, under-explored formations in the Carancahua Bay area, specifically in Apaling Field. The STARR team's structural and sequence stratigraphic interpretations of our seismic data have provided us with encouragement to drill more wells in the future.

Brigham is currently producing several wells that were drilled with encouragement from collaborative information, presentations and products the STARR team furnished in regard to the structural trapping style and reservoir characteristics of the project area. We look forward to more collaborate efforts with the STARR team on this project and future projects.

Sincerely,

John W. Plappert
Director of Geophysical Projects

Received December, 2006

Santos USA Corp
10111 Richmond Avenue
Suite 500
Houston, TX 77042-4207
Phone: 713-986-1700
Fax: 713-986-4200

Santos USA Corp

August 9, 2006

Dr. Robert Loucks
Senior Research Scientist
The Bureau of Economic Geology
University Station
PO Box X
Austin, TX 78713-8924

Dear Bob:

We at Santos USA, Corp. wish to acknowledge our interactions with the STARR team during the past two years. Specifically, STARR conducted a regional sequence stratigraphic study with us as part of our exploration program in state waters along the upper Texas coast. Santos thanks the B.E.G. and STARR for their support and contributions to our oil and gas exploration efforts, and we look forward to continued future collaboration.

Sincerely,

Herb Rohloff
Chief Reservoir Engineer
Santos USA Corporation

Gulf Energy
EXPLORATION CORP.

September 29, 2006

Dr. Robert Loucks, PhD
University Station, Box X
Austin, TX 78713-8924

Re: STARR Team

Dr. Loucks:

It has been my pleasure to work with Ursula Hammes and the Bureau of Economic Geology's STARR Team for the past year. I would like to thank you and the STARR team for your ongoing support of our project in offshore Calhoun Co. We appreciate your insight into the regional geology and the detailed understanding of the local conditions. The STARR Team has been a tremendous asset in understanding the geology of deeper, unexplored formations in our prospect area. Gulf Energy Exploration's seismic and log data, coupled with your studies of the area, have provided great encouragement to drill.

Additionally, the STARR Team's professionalism, credibility and knowledge add immeasurable value to our project. Their assistance has been a tremendous asset to the exploration efforts of Gulf Energy Exploration Corp., and I commend you on the program and the exemplary personnel on the team.

We take every opportunity to promote the STARR Team within the industry. Gulf Energy Exploration Corp. remains one of your staunchest supporters.

Regards,

Raymond Carlton
Chief Operating Officer

13809 Research Blvd., Suite 385
Austin, TX 78750
512 335 4800

Sabco

Oil and Gas Corporation

Dr. Robert Loucks
The Bureau of Economic Geology
University Station
PO Box X
Austin, TX 78713-8924

July 30, 2004

Dear Bob:

I hope all is going well at the BEG! We at Sabco Oil & Gas(Sabco) wish to express our gratitude for your interaction and help regarding our various drilling projects situated in Texas State Waters. A review of specific projects is given below:

Encinal Channel, Nueces County – We will be drilling three wells, two of which will be new fault block tests, beginning August 11, 2004. Current production from the Field, which is entirely on Texas State leases, is approximately 40,000 MCFD and 900 barrels of condensate per day. The technical review with the BEG last September was helpful in understanding the sedimentary and structural geology of the Encinal Channel area within the regional framework model developed by the BEG.

Mustang Island Block 889, Nueces County – Two wells are planned for drilling this year beginning in October. Both of these wells will be Marg Tex sand tests designed to test the entire massive low stand sand section. We are using the sequence stratigraphy principles and type log developed by the BEG as the basis for our sand/reservoir prediction model. Understanding the stratigraphy in this geologically complex sub-basin was the key element necessary to develop our drilling prospects. Sabco thanks the BEG for their fine work and many contributions to the understanding of the 889 area.

San Antonio Bay, Matagorda County – Two wells will be drilled this year beginning in August of this year. Paleo data provided to Sabco from the BEG was helpful in determining electric log correlations in the study area and regional Frio depositional models developed by the BEG were supportive of our exploration effort.

Once again, Sabco Oil & Gas thanks the BEG for their support and contributions to our oil and gas exploration efforts. We look forward to more successful collaborations in the near future!

Sincerely Yours,

Gary Biesiadecki

Gary Biesiadecki, Senior Geologist, Sabco Oil & Gas

1360 Post Oak Blvd., Suite 2300 • Houston, Texas 77056-3050 • 713.840.1980 • 713.840.0135 Fax

Sabco
Oil and Gas Corporation

July 19, 2006

Dr. Robert Loucks
Senior Research Scientist
The Bureau of Economic Geology
University Station
PO Box X
Austin, TX 78713-8924

Dear Bob:

We at Sabco Oil & Gas Corporation wish acknowledge our interactions with the STARR team during the past two years. Specifically STARR conducted a short stratigraphic and correlation study for us and our partners, Royal Exploration Company, Inc., in our state waters leases in Corpus Christi Bay. The BEG's evaluation of our State Tract 61-1 well was key in developing an adjacent prospect. Our permitted location for the State Tract 55-5 well, which will be drilled this winter, was based largely on the results of the State Tract 61-1. Sabco thanks the BEG and STARR for their support and contributions to our oil and gas exploration efforts, and we look forward to continued future collaboration.

Sincerely,

Ken Schubert

Ken Schubert
Geologist
Sabco Oil & Gas Corporation

1360 Post Oak Blvd., Suite 2300 • Houston, Texas 77056-3050• 713-840-1980 • 713-840-0135 Fax

DISCOVER. HUBER NATURAL RESOURCES

Dr. Robert Loucks
The Bureau of Economic Geology
University Station
PO Box X
Austin, TX 78713-8924

July 26, 2006

Dear Bob:

We at Huber Energy wish to express our gratitude for your interaction and help regarding our Gold River North Field project on Texas State Lands.

Technical reviews with the STARR team through the last year have enhanced our understanding of the sedimentary and structural geology of the Gold River North Field area. We particularly value their insights into depositional environments, and fracture and fault systems that they gained from detailed work on two whole cores from the field.

Huber thanks the BEG for their support and contributions to our oil and gas exploration efforts. We will be drilling six wells, beginning late August, 2006.

Sincerely Yours,

John Thompson
Senior Staff Geoscientist

Huber Energy
11451 Katy Freeway, Suite 400
Houston, Texas 77079

713-871-4400
713-871-4499 fax

IBC PETROLEUM, INC.

10010 San Pedro, Suite 360, San Antonio, Texas 78216
Telephone (210) 342-2225 Facsimile (210) 342-7408
michaelj@ibcsat.com

June 17, 2004

Dr. Robert G. Loucks
University Station
P. O. Box X\
Austin, Texas 78713-8924

Re: STARR Team Support

Dear Dr. Loucks:

On behalf of IBC Petroleum, I would like to thank you and the STARR team for your ongoing support of our project in Redfish Bay Field, Corpus Christi Bay, Nueces County, Texas.

We appreciate your insightful knowledge of the regional geology and your detailed grasp of the local conditions. Your help in understanding the geology of deeper, unexplored prospects in the field has been invaluable, and your studies of the area using our seismic data have prompted us to consider future drilling. We are currently completing a second well that we drilled with encouragement from the STARR team.

Sincerely,

IBC PETROLEUM, INC.

Michael J. Pawelek
Vice President

KINDER MORGAN

MEMO

Date: July 17, 2006

To: Dr. Bob Loucks, PI STARR Project
Bureau of Economic Geology
10100 Burnet Rd. Bldg 130
Austin, TX 78758

From: Fred H. Behnken, Kinder Morgan CO_2 Production Co., LP

RE: Acknowledgement of STARR support

On behalf of the Yates Team, Kinder Morgan CO_2 Production Co., LP I would like to thank you and the STARR team for your ongoing support of our Yates field project. We were in transition from the purchase from Marathon and the help of the STARR team made it possible for us to reach our goal of a usable Petra database in an extremely short time frame. This effort represented a considerable impact to our field reservoir management practices.

We appreciate your insight in the regional geology and the detailed understanding of the local conditions. We very much appreciated your help in transferring the reservoir model from the Stratamodel to Roxar's software and the support and clarification of model specifics. We also appreciated the transfer of the Geolog™ log database to a readable LAS format that could be imported into our Petra database.

We are looking forward to interact with you further on reservoir characterization and describing various cores from Yates field.

Sincerely,

Fred H. Behnken

Fred H. Behnken
Sr. Geologist, Yates Team

KINDER MORGAN
CO_2 COMPANY, L.P.

500 North Loraine, Suite 900 Midland, Texas 79701

Dr. Robert Loucks
Bureau of Economic Geology
The University of Texas at Austin
J.J. Pickle Research Center
10100 Burnet Road, Building 130
Austin, Texas 78758

September 2, 2004

Dear Dr. Loucks,

I would like to take a moment to say "Thank You" on behalf of Kinder Morgan CO_2 Company's Midland Production office for your efforts and the efforts of the other STARR team members. We appreciate your help in getting us started as we take over operations of the Yates Field Unit (YFU) in Pecos County. Due to your efforts, we have much more efficiently gained access to digital log data and to the geologic models built by the previous operator. You have helped us understand the model in use now, where it came from, and how it all fits together. The work done on the YFU Project will provide great benefits to us as we move this field into a more intense phase of tertiary recovery through the use of CO_2.

Because the State of Texas owns Royalty Interest at some level in literally half of our tracts (see image below), I believe that the value of this project to the State will also become apparent soon, and shall surely be seen as a tremendous investment of State funds. We look forward to continuing to work with the STARR team over the next year as I pass the geologic duties on to our new geologist, Fred Behnken. I'm sure Fred will find the interaction with your team just as helpful as I have to date.

Sincerely,

Michael A. Raines
Earth Sciences
Midland Office

Cc: Fred Behnken

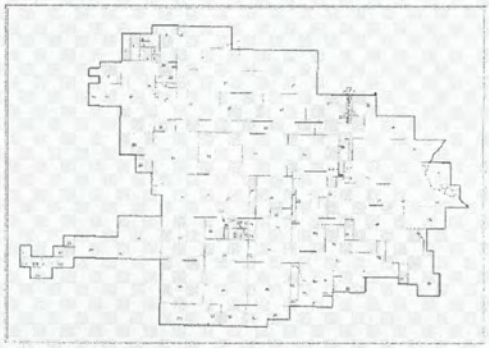

Figure 1: Yellow tracts contain State owned Royalty Interest.

SANCHEZ
OIL & GAS CORPORATION

July 14, 2006

Mr. Robert G. Loucks
Sr. Research Scientist, PHD
The University of Texas at Austin
Bureau of Economic Geology, Jackson School of Geosciences
P.O. Box X
Austin TX 78713-8924

Dear Bob,

We at Sanchez Oil & Gas Corporation would like to thank you for your support and cooperation over the past several months. On April 26th we spent most of the day interacting with you and your team in Austin. Several of your staff participated in a presentation to us of your "Project Starr" and "Deep Gas Consortium". You provided documentation on both, and several of your technical posters now adorn a prominent position on our office hallway wall. These presentations have caused us to take an active involvement with both projects. Your staff is preparing an S5 log for us as part of your Project Starr. Sanchez Oil & Gas has also committed to help fund both phases of your Deep Gas Consortium. We look forward to meeting with you here in Houston on September 20 for a progress report regarding the Deep Gas study. The second half of this study, which focuses on the southern portion of the Texas Gulf Coast, should help us evaluate the substantial amount of state leases we recently purchased in the Cameron County area. We also appreciate the delivery of the first half of the study (northern gulf coast), and have already put it to good use.

Mr. Sanchez and I plan to call you in the near future with the intent of "bouncing a few ideas off you" regarding new projects. Again, thanks for your help to date. We look forward to working with you in the months ahead.

Sincerely,

SANCHEZ OIL & GAS CORPORATION

Steven J. Hendrick
Sr. Vice President - Exploration & Land

cc: Mr. A.R. Sanchez, Jr.
cc: Tony Sanchez, III

1111 Bagby, Suite 1600, Houston, Texas 77002
TEL: (713) 783-8000 FAX: (713) 783-9993

1920 Sandman, P.O. Box 2986, Laredo, Texas 78044-2986
TEL: (956) 722-8092 FAX: (956) 718-1057

Texas Crude Energy, Inc.

(713) 599-9900 • Texas Crude Building • 2803 Buffalo Speedway • Houston, Texas 77098 • Fax (713) 599-9910
MAILING ADDRESS: P.O. BOX 56586 HOUSTON, TEXAS 77256-6586

Dr. Robert Loucks
The Bureau of Economic Geology
University Station
PO Box X
Austin, TX 78713-8924

July 12, 2006

Dear Bob:

We at Texas Crude wish acknowledge our interactions with the STARR team throughout the past year and a half. The exchanges of ideas and STARR's cross sections and "S5" sequence stratigraphic charts enhanced our understanding of the Flour Bluff and Flour Bluff East fields. Similarly, our recent discussions of Cretaceous and Paleogene geology in Texas were helpful to our understanding of regional geologic trends. Texas Crude thanks the BEG and STARR for their support and contributions to our oil and gas exploration efforts, and we look forward to future collaboration.

Sincerely,

Douglas E. O'Brien
Vice President, Exploration
Texas Crude Energy, Inc.

WestlawnGeo, LLC
2905 Maple Avenue
Manhattan Beach, CA 90266 310-546-2081

Bob Loucks, PI STARR Project
Bureau of Economic Geology
University Station
Box X
Austin, TX 78713-8924

Re: Acknowledgment of STARR support

Dear Dr. Loucks:

I am writing to acknowledge my appreciation for the contribution that you and the STARR team made to our project last year in the Laguna Madre area, while I was serving as VP Exploration for Novus Oil & Gas, Texas. Since that time, Novus was acquired by Medco, and I left to work on various interests in California. However, we at Novus appreciated your insight into the regional geology of coastal Texas.

Novus's Texas assets were subsequently purchased by Kindee Oil & Gas, and Kindee continues to explore the old Novus acreage. I am now consulting for Kindee. As a result, your team's sequence stratigraphic interpretation of the data Novus provided still impacts Kindee's regional model, and has had a direct bearing on Kindee's decision to spud its Plum well on South Padre Island. We appreciated the presentations and products you provided us for our use.

Sincerely,

Jerry Nichols
President
WestlawnGeo, LLC

BRIGHAM
Oil & Gas, L.P.

Brigham Oil & Gas, L.P. ◆ 6300 Bridge Point Parkway, Bldg. 2, Suite 500 ◆ Austin, Texas 78730
Phone (512) 427-3300 ◆ Fax (512) 427-3400

To: Bob Loucks, PI STARR Project

Re: Acknowledgment of STARR support
Brigham Oil & Gas, L.P.
Bayou Bengal Project
Calhoun and Jackson, County, Texas

Dear Dr. Loucks:

On behalf of Brigham Oil & Gas, L.P. ("Brigham"), I would like to thank you and the STARR team for your ongoing support of our project in the Carancahua Bay area. We appreciate your insight in the regional geology and the detailed understanding of the local conditions. Brigham is particularly grateful for your assistance in understanding the depositional framework of the deeper, under-explored formations in the Carancahua Bay area, specifically in Appling Field. The STARR team's structural and sequence stratigraphic interpretations of our seismic data have provided us with encouragement to drill more wells in the future.

Brigham is currently producing several wells that were drilled with encouragement from collaborative information, presentations and products the STARR team furnished in regard to the structural trapping style and reservoir characteristics of the project area. We look forward to more collaborate efforts with the STARR team on this project and future projects.

Sincerely,

John W. Plappert
Director of Geophysical Projects

Appendix B

Project STARR Awards

Project STARR has been honored to receive several excellence in geoscience awards. These honors are listed below:

A. I. Levorsen Memorial Award for "Depositional setting, lithofacies, and pore networks of the Mississippian deepwater Barnett Shale facies in the Fort Worth Basin" was given to Robert Loucks and Steve Ruppel by the 2006 Southwest Section of American Association of Petroleum Geologists in Midland, Texas (oral presentation)

Third Place, Gordon I. Atwater Best Poster Award for "Correlating sandstones within and between growth-faulted intraslope subbasins; rules and common correlation pitfalls" was awarded to Brown, L. F., Jr., Loucks, R. G., and Treviño, R. H., by the 2004 Gulf Coast Association of Geological Societies Convention in San Antonio, Texas (poster presentation)

Best Paper Award for "Petrophysics of the Ramsey Sandstone, Ford Geraldine Unit, Reeves and Culberson Counties, Texas" was presented to George Asquith at the 1997 West Texas Geologic Society Fall Symposium, Midland, Texas

Best Poster Award for "Project STARR—State of Texas Advanced Oil and Gas Resource and Recovery Program" was given to Roger Tyler at the 1997 GCAGS Convention, New Orleans, Louisiana

Best Paper Award for "Resources Optimization through Characterization of Downdip Frio Shoreface/Shelf Sandstone Reservoirs: Red Fish Bay Field, South Texas" was presented to Roger Barnaby at the 1994 GCAGS Convention, Austin, Texas

Appendix C

One of the major goals of Project STARR is to disseminate results and new concepts developed by the program. During the last biennium, produce the following articles, abstracts, and lectures:

ARTICLES

Brown, L. F., Jr., Loucks, R. G., and Treviño, R. H., 2004, Correlating sandstones within and between growth-faulted intraslope subbasins; rules and common correlation pitfalls: Gulf Coast Association of Geological Societies Transactions, v. 54, p. 91–97.

Brown, L. F., Jr., Loucks, R. G., and Treviño, R. H., 2005, Site-specific sequence-stratigraphic section benchmark charts are key to regional chronostratigraphic systems tract analysis in growth-faulted basins: American Association of Petroleum Geologists Bulletin, v. 89, no. 6, p. 715–724.

Brown, L. F., Jr., Loucks, R. G., Treviño, R. H., and Hammes, Ursula, 2004, Understanding growth-faulted, intraslope subbasins by applying sequence-stratigraphic principles: examples from the south Texas Oligocene Frio Formation: American Association of Petroleum Geologists Bulletin, v. 88, no. 1, p. 1501–1522.

Brown, L. F., Jr., Loucks, R. G., Treviño, R. H., and Hammes, Ursula, 2006, Understanding growth-faulted, intraslope subbasins by applying sequence-stratigraphic principles: examples from the south Texas Oligocene Frio Formation: Reply: American Association of Petroleum Geologists Bulletin, v. 90, no. 5, p. 799–805.

Hammes, Ursula, Loucks, R. G., Brown, L. F., Treviño, R. H., Remington, R. L., and Montoya, Patricia, 2004, Structural setting and sequence architecture of a growth-faulted lowstand subbasin, Frio Formation, South Texas: Gulf Coast Association of Geological Societies Transactions, v. 54, p. 237–246.

Hammes, Ursula, Zeng, Hongliu, Brown, L. F., Jr., Loucks, R. G., and Montoya, Patricia, 2005, Seismic geomorphology of Oligocene Frio lowstand slope and basin-floor sedimentary bodies in growth-faulted subbasins in South Texas: Gulf Coast Association of Geological Societies Transactions, v. 55, p. 278–282.

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Treviño, R. H., Brown, L. F., Jr., Loucks, R. G., and Hammes, Ursula, 2005, "Wheeler diagrams": a useful exploration tool in the Gulf of Mexico: Gulf Coast Association of Geological Societies Transactions, v. 55, p. 830–834.

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ABSTRACTS

Hammes, Ursula, Zeng, Hongliu, Brown, L. F., Loucks, Robert, and Montoya, Patricia, 2005, Control of third-order growth faulting on lowstand slope and basin-floor sedimentation: a geomorphologic evaluation of Oligocene deep Frio strata, south Texas Gulf Coast (abs.): American Association of Petroleum Geologists Annual Convention abstracts volume, v. 14, p. A57.

Hammes, Ursula, Loucks, Robert, Fouad, Khaled, Treviño, Ramon, and Brown, Frank, 2006, Shale-ridge and fault geometries in growth-faulted subbasins along the central and south Texas Gulf Coast (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 41.

Loucks, R. G., 2005, How important are secondary dissolution pores in siliciclastic sandstones? Data from the Tertiary sandstone section along the Texas Gulf Coast (abs.): American Association of Petroleum Geologists Annual Convention abstracts volume, v. 14, p. A82.

Loucks, R. G., 2006, Reservoir-model analog and pore-network summary for Ellenburger coalesced collapsed paleocave systems (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 66.

Loucks, R. G., and Ruppel, S. C., 2006, Sedimentology and depositional setting of the Mississippian Barnett Shale, Wise County, Texas (abs.): Geological Society of America, South-Central Section, Abstracts with Programs, v. 38, no. 1, p. 3.

Loucks, R. G., and Ruppel, S. C., 2006, Depositional setting, lithofacies, and pore networks of the Mississippian deepwater Barnett Shale facies in the Fort Worth Basin (abs.), *in* Southwest Section AAPG annual meeting: Permian Basin oil: good to the last drop, May 22–24, Midland, Texas, unpaginated.

McDonnell, Angela, Dooley, Tim, and Loucks, Robert, 2006, Collapse/sag features in northern Fort Worth Basin, Texas: suprastratal deformation associated with coalesced paleocave system collapse or wrench fault sags? (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 71.

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Ruppel, S. C., and Loucks, R. G., 2006, Stratigraphy and depositional history of the Barnett Formation and equivalent Mississippian rocks in the Ft. Worth Basin (abs.): Geological Society of America, South-Central Section, Abstracts with Programs, v. 38, no. 1, p. 3.

Treviño, R. H., Brown, L. F., Jr., Loucks, R. G., and Hammes, Ursula, 2004, Sequence of the South Texas Oligocene: understanding the relationship between shale tectonism and lowstand deposition (abs.), *in* CCGS/CBGS Joint Meeting, Corpus Christi. Also in Bulletin of the Corpus Christi Geological Society and Coastal Bend Geophysical Society, December, p. 8, 10.

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WORKSHOPS

Robert Loucks and L. Frank Brown, Jr., Understanding the origin and sequence stratigraphy of growth-faulted, intraslope subbasins: examples from the South Texas Oligocene Frio Formation: presented to San Antonio SIPES Chapter, San Antonio, Texas, September 17, 2004

LECTURES

L. Frank Brown, Jr.

Understanding growth-faulted, intraslope subbasins and associated reservoir targets by applying sequence stratigraphic principles: examples from the South Texas Oligocene Frio Formation: presented at the Houston Geological Society North American Explorations dinner meeting, Houston, Texas, September 27, 2004.

Julia Gale

Barnett Shale fracture overview: presented at Permian Basin Geological Synthesis Project Annual Meeting, Austin, Texas, February 27, 2006.

Ursula Hammes

Hammes, U., 2005, Gas Reservoir Compartmentalization in Lowstand Prograding-Wedge Deltaic Systems: Oligocene Upper Lower Frio Formation, South Texas: Baylor University, Dept. Geol. Sci. seminar series, February 18, 2005.

Hammes, U., April 2005, Sequence architecture and structural setting of a growth-faulted subbasin, Frio Formation, South Texas: BEG Friday seminar series, Austin, Texas.

Understanding growth-faulted, intraslope subbasins and associated reservoir targets by applying sequence stratigraphic principles: examples from the South Texas Oligocene Frio Formation: presented at the Houston Geological Society North American Explorations dinner meeting, Houston, Texas, September 27, 2004.

Hammes, U., Khaled Fouad and Bob Loucks, 2005, Review of Carancahua Bay study for Brigham Exploration Co., November and December 2005.

Presentations to various industry partners (Daystar, Brigham, Novus, Sanchez, Vintage) on exploration in growth-faulted subbasins.

Robert Loucks

Project STARR: presented to the Texas Budget Board, Austin, Texas, August 9, 2006
Depositional setting, lithofacies, and pore networks of the Mississippian Deepwater Barnett Shale facies in the Fort -+resented at Southwest Section AAPG Annual Meeting, Midland, Texas, May 22–, 2006.

Understanding the origin and sequence stratigraphy of growth-faulted, intraslope subbasins: examples from the South Texas Oligocene Frio Formation: invited talk presented at the Texas A&M ConocoPhillips Lecture Series, College Station, Texas, October 6, 2005.

Revisiting the importance of secondary dissolution pores in Tertiary sandstones along the Texas Gulf Coast: invited talk presented to Corpus Christi Geological Society & Coastal Bend Geophysical Society, Corpus Christi, Texas, October 19, 2005.

Three-dimensional architecture of a coalesced, collapsed paleocave system in the lower Ordovician Ellenburger Group, Central Texas: luncheon talk presented to Dallas Geological Society, Dallas, Texas, January 11, 2005.

Regional controls on reservoir quality in shallow buried lower Tertiary sandstones along the Texas Gulf Coast: presented to Pioneer Oil Company, Dallas, Texas, October 19, 2004.

Approaches to reservoir quality prediction: presented to Veritas DGS, Houston, Texas, October 29, 2004.

A multiple origin approach to understanding the development of breccias and fractures in Ordovician carbonate reservoirs: presented at South Texas Geological Society meeting, San Antonio, Texas, October 7, 2004.

Regional controls on reservoir quality in shallow buried lower Tertiary sandstones along the Texas Gulf Coast: presented to Veritas DGS, Houston, Texas, October 29, 2004.

Understanding growth-faulted, intraslope subbasins and associated reservoir targets by applying sequence stratigraphic principles: examples from the South Texas Oligocene Frio Formation: presented to the Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, October 18, 2004.

Project STARR: presented to the San Antonio SIPES Chapter, San Antonio, Texas, September 17, 2004.

Project STARR: presented at the Houston Geological Society North American Explorations dinner meeting, Houston, Texas, September 27, 2004.

Understanding growth-faulted, intraslope subbasins and associated reservoir targets by applying sequence stratigraphic principles: examples from the South Texas Oligocene Frio Formation: presented at the Houston Geological Society North American Explorations dinner meeting, Houston, Texas, September 27, 2004.

Regional controls on reservoir quality in shallow-buried, lower Tertiary sandstones along the Texas Gulf Coast: presented at Brigham Oil and Gas Luncheon Seminar, Austin, Texas, September 2004.

Angela McDonnell

Paleocollapse megastructures (suprastratal deformation) related to Lower Ordovician Ellenburger coalesced, collapsed-paleocave systems in the northern Fort Worth Basin, Texas: presented to ExxonMobil, Houston, June 12, 2005

Ramon Trevino

Sequence stratigraphy of the South Texas Oligocene: the relationship between shale tectonism and lowstand deposition: presented to Austin SIPES, Austin, Texas, April 20, 2005.

Sequence stratigraphy of the South Texas Oligocene: understanding the relationship between shale tectonism and lowstand deposition: presented to Corpus Christi Geological Society, Corpus Christi, Texas, December 15, 2004.

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Hongliu Zeng

Incised valleys from seismic geomorphology and stratal slicing, a Gulf Coast example: presented to the Austin chapter of SIPES (Society of Independent Professional Earth Scientists, Austin, Texas, January 9, 2005.

Mapping sandstone distribution in high-frequency sequences using seismic sedimentology in Corpus Christi Bay, Texas: presented at BEG seminar, Austin, Texas, September 30, 2005.

Mapping sandstone distribution in fourth- and fifth-order sequences using seismic sedimentology in Corpus Christi Bay, Texas—an exploration tool: presented at DOGS soft rock seminar, Austin, Texas, October 3, 2005.

Seismic sedimentology for high-resolution reservoir imaging: presented to Schlumberger/WesternGeco, Houston, Texas, November 9, 2005.

Past Publications of Project STARR

Asquith, G. B., Dutton, S. P., and Cole, A. G., 1997, Delaware effect and the Ramsey Sandstone, Ford Geraldine Unit, Reeves and Culberson Counties, Texas, in DeMis, W. D., ed., Permian Basin oil and gas fields: turning ideas into production: West Texas Geological Society Publication 97-102, p. 71–74.

Asquith, G. B., Dutton, S. P., Cole, A. G., Razi, M., and Guzman, J. I., 1997, Petrophysics of the Ramsey Sandstone, Ford Geraldine Unit, Reeves and Culberson Counties, Texas, in DeMis, W. D., ed., Permian Basin oil and gas fields: turning ideas into production: West Texas Geological Society Publication 97-102, p. 61–69.

Barnaby, R. J., Ramamoorthy, R., and Holtz, M. H., 1994, Resource optimization through characterization of downdip Frio shoreface/shelf sandstone reservoirs: Red Fish Bay field, South Texas: Gulf Coast Association of Geological Societies Transactions, v. 44, p. 71–77.

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Brown, L. F., Loucks, R. G., and Treviño, R. H., 2003, Using S5 benchmark wireline logs to characterize the sequence stratigraphy of depositional systems in growth-faulted intraslope basins (abs.): American Association of Petroleum Geologists Annual Convention Official Program, v. 12, p. A20.

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Appendix D

Project STARR Workshops and Presentations

"Understanding the origin and sequence stratigraphy of growth-faulted, intraslope subbasins: examples from the South Texas Oligocene Frio Formation presented by Robert Loucks and Frank Brown to San Antonio SIPES Chapter, San Antonio, Texas, September 17, 2004.

"Reservoir Characterization of the Red Fish Bay Field in the Corpus Christi Area, Oligocene Frio Formation": presented by Ursula Hammes to the STARR/PTTC forum at the Bureau of Economic Geology Houston Research Center, 2004.

"Overview of the Block 889 Area, Offshore Mustang Island, Texas": presented by Ramon Treviño to the STARR/PTTC forum at the Bureau of Economic Geology Houston Research Center, 2004.

"Origins of growth-faulted subbasins in South Texas and sequence stratigraphic analysis of the associated sediment fill": presented by Bob Loucks to the STARR/PTTC forum at the Bureau of Economic Geology Houston Research Center, 2004.

"STARR Program": presented by Bob Loucks to the STARR/PTTC forum at the Bureau of Economic Geology Houston Research Center, 2004.

"Origins of growth-faulted subbasins in South Texas and associated hydrocarbon reservoirs": presented by STARR Group to Cabot Oil Co. Houston, TX, 2003.

"Origins of growth-faulted subbasins in South Texas and sequence stratigraphic analysis of the associated sediment fill": presented by Bob Loucks at the University of Oklahoma's Shell Oil Company Invited Colloquium series, Norman, OK, 2003.

"Sequence stratigraphy of growth-faulted subbasin in the Frio Formation along south Texas Gulf Coast": presented by Frank Brown to the Bureau of Economic Geology Research Seminars, 2003.

"STARR Program": presented by Ramon Treviño and Ursula Hammes to the General Land Office 2003 Summer Lease Sale, 2003.

"Identifying fault compartmentalization in the middle Frio sandstones, Redfish Bay, South Texas": by Randy Remington to the Bureau of Economic Geology Research Seminars, 2002.

"Project STARR—The State of Texas Advanced Resource Recovery Program": presented by Robert Loucks at the Texas Alliance of Energy Producers Annual Convention, Wichita Falls, Texas, April 2002.

"Project STARR—The State of Texas Advanced Resource Recovery Program": presented by Robert Loucks at the Desk and Derrick Club Annual Convention, Austin, Texas, April 2002.

"Reservoir characterization and advanced resource recovery technology on Texas State Lands": poster session presented at the Gulf Coast Association of Geological Societies Annual Convention, Corpus Christi, Texas, October 1998.

"STARR—The State of Texas Advanced Resource Recovery Program": presented by Roger Tyler at the Society of Independent Professional Earth Scientists (SIPES) Convention, July 23, 1998, Durango, Colorado.

"State of Texas Advanced Resource Recovery Project (STARR)": presented by Roger Tyler at the Railroad Commission of Texas, Regional Technology Transfer Conference, Midland, Texas, May 13, 1998.

"Integrated Strategies for Carbonate Reservoir Reserve Growth: An Example from the Ellenburger Group, Permian Basin, West Texas": presented by R. P. Major, G. B. Asquith, B. A. Cain, B. A. Hardage, D. E. Lancaster, and H. Zeng: sponsored by the West Texas Geological Society, Midland, Texas, April 23, 1998, and Houston Geological Society, Houston, Texas, June 25, 1998.

"Reservoir Characterization of Keystone East Holt field; Modeling restricted platform carbonate": presented by Mark Holtz at the Bureau of Economic Geology Seminar, April 22, 1998.

"Slope and Basin-Floor Depositional Systems, Ozona Sandstone, Val Verde Basin, Southwest Texas": presented by Scott Hamlin at the Bureau of Economic Geology Seminar, April 15, 1998.

"State of Texas Advanced Resource Recovery Project (STARR)": presented by Roger Tyler at the Railroad Commission of Texas, Regional Technology Transfer Conference, Houston, Texas, April 8, 1998.

"Reservoir Characterization of Keystone East Holt field": presented by Mark Holtz at the Southwest Section of the American Association of Petroleum Geologists, March 31, 1998, Wichita Falls, Texas.

"Reservoir characterization of a deep-water channel-levee and lobe system, Bell Canyon Formation, Ford Geraldine Unit, West Texas (Delaware Basin)": core display presented by S. P. Dutton on February 26, 1998, at the Permian Basin Section SEPM core workshop on DOE-Sponsored Studies of Permian Producing Fields, Midland, Texas.

"Incorporation of core data into reservoir characterization of a deep-water channel-levee and lobe deposit, Ford Geraldine Unit, Delaware Basin": core display presented by S. P. Dutton at the Sixth Archie Conference on Improving Reservoir Productivity Using Static and Dynamic Delineation Methods, February 10, 1998, Kerrville, Texas.

"Petrophysics of the Ramsey Sandstone, Ford Geraldine Unit, Reeves and Culberson Counties, Texas": presented by G. B. Asquith at the Permian Basin Well Log Society, January 15, 1998, Midland, Texas.

The "Reservoir Characterization Ford Geraldine Unit: Permian Bell Canyon Formation, West Texas" workshop was held on November 21, 1997, in Carlsbad, New Mexico. The workshop was followed by a two-day field trip titled "Facies Architecture of Submarine Channel-Levee and Lobe Sandstones: Permian Bell Canyon Formation, Delaware Mountains, West Texas." The U.S. Department of Energy, the State of Texas Advanced

Resource Recovery Project, and the Petroleum Technology Transfer Council jointly sponsored the workshop and field trip.

"Reservoir characterization of a deep-water channel-levee and lobe system, Bell Canyon Formation, Ford Geraldine Unit, West Texas (Delaware Basin)": presented by S. P. Dutton to Texas Tech University, Geoscience Colloquium, November 14, 1997, Lubbock, Texas.

"State of Texas Advanced Oil and Gas Recovery Program—Project STARR": presented by Roger Tyler at the Society of Independent Professional Earth Scientists, November 13, 1997, Austin, Texas.

"Petrophysics of the Ramsey Sandstone, Ford Geraldine Unit, Reeves and Culberson Counties, Texas": presented by G. B. Asquith on November 12, 1997, at the Amarillo chapter of the Society of Professional Well Log Analysts, December 2, 1997, at The University of Texas at El Paso, and December 3, 1997, at New Mexico State University at Las Cruses.

"Reservoir characterization of channel-levee and lobe deposits Bell Canyon Formation, Geraldine Ford field, West Texas (Delaware Basin)": presented by S. P. Dutton at the Bureau of Economic Geology Seminar, November 12, 1997.

"Reservoir characterization of Keystone East field, STARR Project": presented by Mark Holtz at the West Texas Geological Society Fall Symposium, October 31, 1997, Midland, Texas.

"Methodology of 3-D computer modeling in restricted platform carbonate reservoirs, example from Keystone East Holt field": presented by Mark Holtz at the West Texas Society of Petroleum Engineers meeting, October 2, 1997, Midland, Texas.

"Reservoir Characterization of Permian Deep-Water Sandstones, Bell Canyon Formation, Geraldine Ford Area, West Texas (Delaware Basin)" was held in Midland in March 1997. This workshop was co-hosted by the West Texas Geological Society. It was attended by approximately 90 people, who received a set of workshop notes.

"Identifying Reserve Growth Potential through Integrated Geologic and Engineering Reservoir Characterization" was held at the 1996 Annual Convention of the Gulf Coast Association of Geological Societies (GCAGS) on October 2–4, 1996, in San Antonio, Texas. The short course provided an examination of subsurface reservoir analogs to the State Lands Gulf Coast and West Texas oil and gas reservoirs.

"Canyon Sandstones—a Geologically Complex Natural Gas Play in Slope and Basin Facies, Val Verde Basin, Southwest Texas": presented by Scott Hamlin to the South Texas Geological Society, San Antonio, Texas, March 1996.