OCS Study
BOEMRE 2011-001

Analysis of the Oil Services Contract Industry in the Gulf of Mexico Region

U.S. Department of the Interior
Bureau of Ocean Energy Management,
Regulation and Enforcement
Gulf of Mexico OCS Region

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Authors

Maureen F. Kaplan
Sara Giberson
Stacey Ferranti
Dina Metivier

Prepared under BOEMRE Contract
M08PC20031
by
Eastern Research Group, Inc.
110 Hartwell Avenue
Lexington, MA 02421

Published by

U.S. Department of the Interior
Bureau of Ocean Energy Management, Regulation and Enforcement
Gulf of Mexico OCS Region

New Orleans
June 2011

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Bureau of Ocean Energy Management, Regulation and Enforcement
Gulf of Mexico OCS Region
Public Information Office (MS 5034)
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CITATION

Eastern Research Group, Inc. 2011. Analysis of the oil services contract industry in the Gulf of Mexico region. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study BOEMRE 2011-001. 216 pp.

ACKNOWLEDGMENTS

The Eastern Research Group, Inc. team included COMM Engineering. Earl Thibodeaux, in particular, provided field experience perspective and knowledge to this project. The authors would like to thank Sindey Chaky, Harry Luton, Kristen Strellec, Kim Coffman, and Thierry DeCort, all of BOEMRE, for their helpful comments and assistance with preparing the report.

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1 EXECUTIVE SUMMARY

1.1 PURPOSE

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) plays a key role in America's energy supply by managing the mineral resources on nearly 160 million acres in the Gulf of Mexico (GOM) Outer Continental Shelf (OCS) region. Under the National Environmental Policy Act (NEPA), BOEMRE is required to integrate environmental values into its decision-making processes. The BOEMRE does this by preparing Environmental Impact Statements and other analyses that examine the impacts of its proposed actions and reasonable alternatives to those actions. The BOEMRE prepares site-specific analyses as well as Gulf-wide analyses to support the five-year schedule of federal oil and gas leasing required by the Outer Continental Self Lands Act (43 U.S.C. 1344).

To support these analyses, BOEMRE developed MAG-PLAN, a two-stage input-output model to estimate employment, personal income, and similar economic impacts from OCS activities (USDOI BOEMRE 2005a). MAG-PLAN's Stage 1 starts with BOEMRE' estimates of the level of exploration, development, production, and infrastructure associated with a proposed OCS lease sale or set of sales. The model allocates industry expenditures among IMPLAN industry sectors[1] and then distributes the expenditure-by-sector spending to onshore areas.

Nearly 60 percent of all offshore employment resulting from Stage 1 spending in the GOM goes to the oil services contract industry (Dismukes et al. 2003, Tables A1 and A2). This sector is distinct from the integrated and independent oil companies. The purpose of this project is to provide a better understanding of the wide variety of tasks subsumed under the term "oil services," examine the company ownership patterns, and develop an approach to provide a refined estimate of the onshore allocations. That is, the analysis provides a more complete understanding of the geographical distribution and firm diversity to create a more solid foundation from which to complete a socioeconomic impact assessment. Additionally, the sector characterizations will be used to update the MAG-PLAN model under a future project.

1.2 METHODOLOGY AND DATA SOURCES

Eastern Research Group, Inc. (ERG) identified 17 oil service industry sectors associated with searching for offshore oil and gas reservoirs, exploratory drilling, development drilling, and annual production. These are:

- Geological and geophysical prospecting (G&G)
- Contract drilling
- Drilling fluid supplies
- Drilling tools and supplies
- Mud logging

[1] IMPLAN industry sectors are consistent with NAICS codes, see http://implan.us/v3/index.php?option=com_docman&task=cat_view&gid=145&Itemid=138 for crosswalk tables.

- Measurement while drilling (MWD)
- Cementing
- Formation evaluation
- Completion
- Fishing (retrieval of lost or broken equipment from a borehole)
- Wellhead equipment
- Accommodations
- Air transport
- Water transport
- Catering
- Workovers
- Diving support

For the purpose of this report, ERG used separate categories for mud logging, MWD, and formation evaluation, though some of the literature considers the first two categories to be part of the last category. ERG did this for several reasons. First, some industry directories (see below) provide separate entries for these categories. Second, mud logging and MWD take place during the drilling operations while other specialties (e.g., formation evaluation through wireline logging, drillstem testing, or core sampling) happen after drilling is completed but before the decision whether to complete the well for production or abandonment.

ERG used multiple sources to develop lists of companies, their locations in the GOM region and, where possible, the number of employees and amount of revenue associated with each location:

- *Marine Yellow Pages—2008 Gulf States* (Marine Yellow Pages 2008)
- *The Oil & Gas Directory 2008* (Oil & Gas Directory 2008)
- *Subsea Oil & Gas Directory* (Subsea Oil & Gas Directory 2008)
- *2008 Gulf Coast Oil Directory* (GCOD 2008)
- *D&B Million Dollar Database* (D&B 2009)
- *Manta.com* (manta.com 2009)

ERG searched company websites and financial reports for public companies filed with the Securities and Exchange Commission (SEC) to restrict the companies to those that work in the offshore GOM. The time frame for the corpus is 2007, the more recent year for which data were available at the start of the study. To facilitate the use of these data by other researchers, Appendix A contains the detailed location tables for each industry sector. We did not impute or estimate missing data at the location level. This means that the numbers of employees and revenues might be underestimates but they form a lower bound that is clearly identifiable. There are multiple approaches to filling the missing data;[2] not filling these gaps means that future users of these data will not have to undo any imputations before using their own methods.

[2] For example, such as dividing company revenues and the number of employees by the number of company locations to obtain the average revenues and number of employees by location. The average estimated would be used for each company location.

This study is a data-intensive effort with a focus on the role played by oil service contract industry in the economic web of onshore communities as reflected in MAG-PLAN. As such, it forms a companion study to Dismukes (2010) which provides a broader overview of oil services contract industry. In addition, although Chapter 4 illustrates how the contract services industry data might be incorporated with MAG-PLAN to a more explicit degree than it is currently, the calculation of updated onshore allocations will be completed in a future study.

1.3 SUMMARY OF FINDINGS

Table 1 summarizes the sector-by-sector totals for the number of locations, 2007 revenues, and 2007 employment. The line entries by sector will correspond to the totals seen on other tables for a sector. To estimate the entire contribution by oil service industries, ERG removed 52 duplicate entries where a location appeared in more than one sector. Oil and gas exploration and production contract service activities in the GOM support approximately 63,000 employees at about 1,140 locations, accounting for an estimated $19.3 billion in revenues. Some locations provided services for both onshore and offshore efforts, but there was insufficient information to prorate any of the employment or revenues to the offshore region.[3]

The term "coverage" is the ratio of the number of locations with at least employee or revenue data within a sector to the number of all locations within that sector. Some sectors have complete or near complete coverage (such as catering and drilling equipment suppliers); the sector with the worst coverage is air transportation.[4] As a whole, ERG found information for approximately 76 percent of the locations.

One result of the study is the realization that, although the oil services contract industry contains giants such as Halliburton and Schlumberger that provide thousands of jobs and earn millions in revenue, it also contains hundreds of small companies. Most of these are privately owned and play an integral part in the economic life of the communities in which they are located. Companies with a good idea and a handful of employees can and do carve niches in which to operate.

A second realization is the wide diversity of activities that support oil and gas operations in the GOM OCS—from preparing food, sailing vessels, building accommodations, flying helicopters, towing structures to final installation sites, and diving to using sophisticated mathematical algorithms to locate and characterize petroleum reservoirs. Rather than a broad brush stroke of a single color, a multi-colored palette is needed to illustrate the diversity and, in some cases, regionality of the industry subsectors. For example:

[3] ERG believes that the uncertainty of including locations that might offer services to onshore and offshore locations is smaller than the uncertainty introduced by the 24 percent of the locations for which no data could be identified.

[4] Due primarily, but not solely, to PHI not reporting revenue or employment data by location.

Table 1

2007 Locations, Revenues, and Employees in Oil Services Industries in the Gulf of Mexico Region

Service Sector	Number of Locations	Number of Locations with Data	Coverage	Total Reported Revenues (Millions)	Total Reported Employment
Geological & Geophysical Prospecting	104	87	84%	$2,942	5,883
Drilling	67	63	94%	$6,332	11,088
Drilling Fluid Supplies	89	58	65%	$846	1,303
Drilling Equipment	179	174	97%	$2,243	10,660
Mudlogging	14	13	93%	$69	652
Measurement While Drilling (MWD)	46	31	67%	$675	2,150
Cementing	21	14	67%	$114	1,018
Reservoir Evaluation	117	78	67%	$545	3,808
Completions	41	26	63%	$822	2,450
Fishing	11	11	100%	$61	402
Accomodations	21	13	62%	$168	1,338
Air Transportation	64	23	36%	$158	913
Water Transportation	144	106	74%	$794	5,055
Wellhead Equipment	110	85	77%	$1,334	4,523
Workover	86	59	69%	$557	6,617
Catering	21	21	100%	$439	4,270
Diving	60	51	85%	$2,073	3,567
Sum of All Sectors	1,195	912	85%	$20,173	65,697
Duplicates	52	41	79%	$847	2,676
Total	1,143	871	76%	$19,326	63,021

- The company locations of the G&G surveillance industry are primarily clustered in and around Houston, Texas, with about 90 percent or employees and 99 percent of identifiable revenue are attributed to locations in Texas. Lousiana claims only 17 out of the 102 locations. This sector includes some small companies with less than $1 million in revenue and as few as one or two employees, but there are also some giants with billions in revenue such as Schlumberger and Transocean. In general, the larger companies in this industry are public and the smaller are private.
- The contract services industry is dominated by the drilling sector, which claims about one-third of the reported revenues. Schlumberger is the dominant company in this sector. ERG identified 15 companies that do drilling in the GOM, of which 14 are public, one private, and five are foreign. Of the locations, 79 percent are in Texas, and these locations claim 75 percent of employees and 93 percent of the revenue. Most of the companies are large, with less than 25 percent of their employees at the GOM locations (except Spartan Offshore Drilling LLC and Pride International, Inc., which have 72.7 percent and 47.1 percent, respectively). This is consistent with the capital-

intensive and international natures of offshore drilling, particularly in deep water.

- The drilling fluid industry is fairly evenly split, with 46 locations in Texas and 41 locations in Louisiana. It also includes one location each in Alabama and Mississippi. Louisiana claims slightly more than half of the revenue and employees, and the companies involved range from Halliburton, with 0.05 percent of its employees at GOM locations, to three companies with 100 percent of their employees at GOM locations.
- The drilling tools and supplies industry is relatively evenly split between private and public companies, with six international companies. Texas has 99 out of the 179 total locations, with the rest in Louisiana and one location in Mississippi. Texas claims 75 percent or employees and 78 percent of the revenue attributed to this industry. Similar to the drilling fluid industry, the companies range from Halliburton, with 0.1 percent of employees at GOM locations to several companies with 100 percent of employees in the GOM region.
- The mud logging industry is composed of one large public company (Weatherford International) and a number of much smaller privately held firms, and all companies are domestic. This is a relatively small industry, with only 14 locations: nine in Texas and five in Louisiana. Employment is split basically in half between the two states, but Texas has almost 70 percent of the reported revenue in the industry.[5] One company has only 0.03 percent of its employees working in the GOM, but the rest have over 50 percent and six of the companies have 100 percent, reflecting that many of the businesses involved in this industry are small and local.
- The MWD drilling service industry is also evenly split between publicly traded and privately held firms, with four international companies. Of the locations, 63 percent are in Texas, and 37 percent are in Louisiana, with employment evenly split but 74 percent of the revenue in Texas. Company employment at GOM locations ranges from negligible to two companies, with 100 percent employment in the GOM region.
- The cementing services industry is composed of only four firms: two public, two private. There are 21 locations, distributed with 12 in Louisiana and nine in Texas, with a little over 60 percent of both employment and revenue in Louisiana.
- The reservoir evaluation industry is about one-third privately held, two-thirds publicly traded, with even foreign firms involved. Slightly less than half of both the 117 locations and total employment is in Louisiana, along with 63

[5] The imbalance between employment and revenues is caused, primarily, by two locations. Diversified Well Logging, Inc. in Reserve, Louisiana claims 125 employees and $7.8 million in revenues while The Mudlogging Company USA, L.P. claims 145 employees but $16.74 million in revenues, see Table A-5.

percent of the revenue. The rest of the employees and revenue are in Texas. Companies range from having 0.12 percent to having 100 percent of their employees at GOM locations.

- The well completion industry is about two-thirds public, and one-third private, with two international firms involved that are both privately held. Out of the 41 locations, 46 percent are in Louisiana and 54 percent are in Texas, with 86 percent of employment and 88 percent of the revenue in Texas, the remainder in Louisiana. Companies range from having 0.16 percent to 100 percent of their employees at GOM locations; most companies have fewer than 10 percent.
- The fishing industry is made up of four relatively small, privately held domestic firms. There are 11 locations: seven in Louisiana and four in Texas, but 84 percent of employment and 92 percent of the revenue in the industry is in Texas. Two out of the four firms have 100 percent of their employees at GOM locations.
- The accommodations industry has four public and seven private parent companies, with one international. Most of the companies in GOM locations are large, with only two out of 21 companies listing revenues less than $1 million.[6] The number of locations is evenly distributed between Louisiana and Texas, with one location each in Florida and Mississippi, but the majority of employees and revenue is found in Louisiana; Texas claims only 6 percent of the employees and one-quarter of the revenues.
- The air transport industry is composed entirely of domestic firms. Most locations are in Louisiana, with about one-third in Texas, four locations in Alabama, and one in Florida. About half of the companies are small, listing 100 percent of employees at GOM locations, and many claiming less than $1 million in revenue, in contrast to both wellhead and accommodations industries.
- The water transport industry is mostly private firms with two international parent companies. Out of 100 companies that ERG found offering water transportation services in the GOM, 80 are single-location companies. There are multiple companies claiming fewer than 10 employees, and a number claiming just one or two. 65 percent of locations and over 80 percent of employees and revenue are in Louisiana, with most companies employing 100 percent of their employees at GOM locations.
- The wellhead service industry is made up of about half publicly traded, half private companies, with two international parent companies. Most of the companies are large, with only one claiming 100 percent of employees in the

[6] The coverage of information is less than 100 percent, so this (along with all numbers in the summary) is likely to be a lower bound estimate.

GOM. The locations are fairly evenly split between Louisiana and Texas, but the majority of employees and revenue are found in Texas.

- The workover service industry is mostly made up of public companies with two international parent companies. The locations are relatively evenly distributed between Texas and Louisiana, with one location in Mississippi. The companies range from having only 0.4 percent to 100 percent of employees in GOM locations.
- Catering is dominated by private and domestic firms, with only three international and three public companies offering catering services. The companies range from having 0.1 percent of to 100 percent of their employees at GOM locations. Notably, over 90 percent of revenue and employees associated with catering are located in Louisiana.
- The diving industry has three international parent companies but mostly consists of domestic private firms. The locations are concentrated in Texas and Louisiana, with one location in Alabama and five locations in Florida. The companies range from having 0.5 percent to 100 percent of employees in GOM locations.

2 INTRODUCTION

2.1 BACKGROUND

The Outer Continental Shelf Lands Act (OCSLA), as amended, established a policy for the management of oil and natural gas in the OCS and for protection of the marine and coastal environments. The OCSLA requires the preparation and maintenance of a current five-year schedule of proposed lease auctions. The National Environmental Policy Act (NEPA) requires preparation of an environmental impact statement prior to any major Federal action including a five-year program, multi-region lease sales, and individual lease sales. The BOEMRE is the administrative agency responsible for leasing submerged Federal lands. The BOEMRE evaluates the environmental impacts of oil and gas activities in the OCS including onshore socio-economic impacts.

To support these analyses, BOEMRE developed MAG-PLAN, a two-stage input-output model to estimate employment, personal income, and similar economic impacts from OCS activities (USDOI BOEMRE 2005a). MAG-PLAN's Stage 1 starts with BOEMRE' estimates of the level of exploration, development, production, and infrastructure associated with a proposed OCS lease sale or set of sales (called an exploration and development, or E&D, scenario). The model allocates industry expenditures among IMPLAN industry sectors and then distributes the expenditure-by-sector spending to onshore areas. Stage 2 uses input-output multipliers from IMPLAN, a commercial regional economic modeling program, to estimate employment, personal income, and other economic effects associated with different E&D scenarios by onshore area and type or impact (direct, indirect, induced, and total).

Section 2.2 reviews MAG-PLAN's structure for socio-economic impact analysis and places the current study of the oil services contract industry within the larger analytical context of BOEMRE evaluations. Section 2.3 provides a brief overview of major stages in oil and gas exploration and development and describes the different oil and gas contract services industry sectors associated with each stage. The economic and financial characteristics as well as the geographical distribution of each oil and gas contract services industry sector are presented in Chapter 3. Chapter 4 illustrates how the information could be incorporated within the MAG-PLAN analytical structure.[7]

2.2 SOCIOECONOMIC ANALYSES AND MAG-PLAN

The starting point for the socioeconomic analysis is the set of E&D scenarios developed by the BOEMRE Resource Evaluation office. A typical scenario description provides a list of activities that occur each year. These activity types are modeled in MAG-PLAN as activity functions. Table 2, taken from the Study Plan, cross-references the activity types in the E&D scenarios with the activity functions in MAG-PLAN. The "cradle-to-grave" approach is characteristic of BOEMRE impact analyses.

[7] Actual implementation of any revisions or updates to MAG-PLAN would be directed by BOEMRE under a separate contract.

Table 2

Activity Function Codes and E&D Scenario Mapping

Activity Type in E&D Scenario	Activity Function in MAG-PLAN
Exploratory Wells Drilled	Geological and Geophysical Prospecting
	Exploratory Drilling
Non-Production Wells Drilled	Development Drilling
Production Wells Drilled	Development Drilling and Completion
	Production Operations and Maintenance (O&M) including workovers
Platforms Added	Platform Fabrication and Installation (Average cost)
	Platform Fabrication and Installation (Fixed Platform)
	Platform Fabrication and Installation (Compliant Tower)
	Platform Fabrication and Installation (Tension Leg Platform)
	Platform Fabrication and Installation (SPAR)
	Platform Fabrication and Installation (Floating Production, Storage, and Offloading)
New Gas Processing Facilities	Onshore Gas Processing Construction
Gas Production (Bcf)	Onshore Gas Processing O&M
New Gas Processing Facilities	Offshore Gas Processing Construction
Gas Production (Bcf)	Offshore Gas Processing O&M
Pipeline Miles Added	Pipeline Construction
Pipeline Miles Added	Pipeline O&M
Platforms Removed	Decommission Platform
Platforms Removed	Decommission Platform with Explosives
Oil Spill, Reaching Shore	Onshore Oil Spill
Oil Spill, Not Reaching Shore	Offshore Oil Spill

Source: Based on USDOI, BOEMRE (2005a).

As can be seen in Table 2, the activity types in an E&D scenario do not necessarily have a 1:1 correspondence to MAG-PLAN activity functions. For example, remote sensing to identify where to drill (i.e., geological and geophysical prospecting) might take place before before a lease bid, before drilling an exploratory well, or after an exploratory well if data collected while drilling the well (e.g., velocity) are used to process the G&G data properly (DeCort, personal communication, 2010).[8] Likewise, the type of platform added will depend, in part, on the water depth in which it is located.

Each activity function is characterized by estimates for:

- Total shock (i.e., the level of spending associated with each unit of activity such as drilling an exploratory well).
- Labor share.
- Economic sectors among which the non-labor spending is allocated.

[8] Sections 4.2.2 and 4.2.3 present ERG's rationale for including G&G as part of the activity function for drilling exploratory wells in MAG-PLAN

- Onshore areas among which the labor spending is distributed.

MAG-PLAN allocates industry expenditures among IMPLAN industry sectors, distributes the expenditure-by-sector spending to onshore areas, and uses input-output multipliers from IMPLAN to estimate direct, indirect, and induced effects on employment, personal income, and other economic parameters. This project focuses on how different oil services contract industry sectors feed into the various activity functions and the onshore areas among which the spending is distributed. In particular, this project focuses on the geological and geophysical prospecting, exploratory drilling, development drilling, and production operations and maintenance activities. The following section walks the reader through the different oil services sectors within the activity functions.

2.3 OVERVIEW OF SELECTED MAG-PLAN ACTIVITY FUNCTIONS

Section 2.3 provides a background description for each of the oil services contract industry sectors researched in this project. The section is organized by MAG-PLAN activity function:

- Section 2.3.1: geological and geophysical prospecting
- Section 2.3.2: exploratory well drilling
- Section 2.3.3: development well drilling
- Section 2.3.4: production and operations

2.3.1 Geological and Geophysical Prospecting

Section 2.3.1.1 reviews the geological and geophysical (G&G) methods that form the basis of the industry. Section 2.3.1.2 identifies three different areas of specialization within the industry. The data sources and processing methods used to identify firms within the BOEMRE GOM economic area are presented in Section 1.2. We focus the analysis on these firms because the expenses they incur have socioeconomic effects within the region. In contrast, firms that are based outside the region usually send in specialized teams to conduct G&G work. Much of the expenses incurred by these teams flow out of the region, with little impact on the regional economy.

In developing the profile for G&G, ERG also found entries for companies that manufacture instruments, such as gravimeters, that are used in the surveys as well as companies that write software to process such data but that do not offer data processing services. ERG excluded such companies because they support the G&G industry rather than collect, process, or broker the data. In addition, ERG excluded data storage companies that hold core samples and other data for third parties. The companies excluded show a mix of large and small companies similar to that seen in the companies retained for the analysis.

2.3.1.1 Geological and Geophysical Survey Methods

2.3.1.1.1 Seismic

Seismology is the study of the vibration of the earth's interior caused by natural and unnatural forces. Within the earth's crust, different types of rock have different acoustical characteristics. As a sound wave passes through different layers, the way it is reflected back to the surface reveals some of the characteristics of the rock layers. In offshore surveys, the reflected sound

waves are picked up by hydrophones (sound detectors). **Figure 1** shows an offshore seismic vessel towing multiple lines of hydrophone streamers.

Source: Schlumberger (2009).

Figure 1. Marine seismic vessel towing multiple hydrophone streamers**.**

Seismic surveys can be conducted in two-dimensional (2D), three-dimensional (3D), and four-dimensional (4D) formats. In a 2D survey, the sound source and the hydrophones are moved along a straight line. The result is a vertical cross-section of the rock layers beneath the survey line. In a 3D survey, the sound hydrophones are spread out in a wide array, and the source is moved from point to point within the area. The result is analogous to a set of 2D surveys that form a cube representing the rock layers underneath the survey area. 3D surveys are considered to have superior resolution to 2D surveys. However, 3D surveys require more powerful computers to process the massive array of data. Time is the fourth dimension in a 4D survey. To create a 4D survey, a 3D survey is replicated at different points in time. 4D surveys are primarily used to map the movement of fluid in producing oil and gas reservoirs (USDOE, EIA 2009a).

2.3.1.1.2 Gravimetric

Variations in the earth's gravity field are caused by changes in the density and structure of the underlying rock layers. These minute variations are measured by a gravimeter, which contains a weighted spring that is minutely stretched downwards where the gravity is stronger. Gravimetric surveys can be conducted on the ground or from the air (USDOI BOEMRE 2009a; STA 2006).

2.3.1.1.3 Magnetic

A second method of exploration is the Magnetic method. Most oil occurs in sedimentary rocks that are nonmagnetic. Igneous and metamorphic rocks rarely contain oil and are highly magnetized. By conducting a magnetic survey over a given area, a prospector can determine where oil-bearing sedimentary rock is more likely to be found. Two types of magnetic

instruments are used to measure the slight difference in magnetism in rocks, the field balance and the airborne magnetometer. The field balance is used on the earth's surface to measure magnetism in specific locations. The airborne magnetometer is used to measure the magnitude of the earth's total magnetic field over a large area. Magnetic variations arise primarily from igneous basement rocks, so magnetic surveys are often combined with other geophysical prospecting methods to identify hydrocarbon bearing strata (STA 2006; ETI 1984).

2.3.1.2 Types of Geological and Geophysical Services

For the purpose of describing the geological and geophysical contract services industry, ERG identified three activities:

- Data acquisition
- Data processing
- Data brokering

The first subcategory consists of companies with the vessels, aircraft, and equipment to perform the surveys, such as Fugro International. As is evident from the survey descriptions, geophysical surveys can generate vast quantities of data that require intense, complex computational manipulation before they can be interpreted. The companies and individuals in the data processing subcategory specialize in such intellectual and computational capabilities. The geophysical data, whether in processed or unprocessed form, retain their value to anyone interested in a particular region. Data brokers develop libraries of seismic and other geophysical data and make them available for sale.

2.3.2 Exploratory Well Drilling

An oil and gas company (an "operator") bids for the rights to drill and produce oil and gas from the Federal Outer Continental Shelf in the GOM. The operator has obtained knowledge about the underlying formations and the potential for oil and gas through geological and geophysical surveying, as discussed above.

The operator first develops a drilling location, then a well drilling cost and then obtains approval to drill a well. At this point, the process of drilling an exploratory offshore well begins. Both Bommer (2008) and Van Dyke (1997) note that operating companies do not have the personnel, drilling rigs, and expertise for drilling operations and that this work is contracted out to drilling companies (see NAICS 213112). The operator first obtains a drilling permit, then develops the well prognosis, delineating specifics such as hole size by depth, drill bit by depth, mud weight and makeup at depth, casing design (size, weight, and thread type, along with specific setting depths), well logging program to be used, cementing design by casing and hole size, and directional well design if the hole is not straight. Then the operator and a drilling company sign a contract that delineates the well specifications and equipment and services to be provided by both parties, including specialized services provided by other companies. The drilling contractor might be paid per foot drilled (footage contract), per day (daywork contract), or per well (turnkey contract).

2.3.2.1 Mobile Offshore Drilling Units (MODUs)

The type of drilling rig used for an exploratory well depends, to some extent, on the water depth:

- **Barges.** Barges are the earliest type of MODU. The barge is floated to a shallow-water location and then ballasted to sit on the bottom (The Louis Berger Group 2004). Drilling barges can operate in water depths from 3 to 25 feet (Hercules Offshore 2009; Nabors Industries 2009). ERG examined the BOEMRE Platform Masters database and found approximately 900 structures located in water depths of 25 feet or less (USDOI BOEMRE 2009b). ERG also examined the activity by water depth within the last year and found that four leases and nine platforms had been activated and eight wells had been drilled in water depths of 16.5 feet (5 meters) or less. If we look at water depths between 0 and 33 feet (10 meters) for the same period, a total of 27 leases and 13 platforms were activated and 30 wells were drilled while for the 300 meter to 1,500 meter water depth (about 984 feet to 4,920 feet) 361 leases were activated and 100 wells were drilled (USDOI BOEMRE 2009c). Thus, it is appropriate to include contractors that operate drilling barges in the analysis although the highest level of interest is in the deep-water drill ships.

Source: rigzone.com 2009, Hercules 01

- **Jackups.** A jackup rig has a barge hull through which three or four legs can be jacked up or down. The legs might be open truss (with crisscross members) or columnar. Depending on the rig, it might be towed or move to the drill site under its own power while the legs are jacked up out of the water. Once on location, the legs are jacked down until they touch the seafloor. Reported water depth limits range from 350 feet (107 meters) to 535 feet (160 meters) depending on the source (Van Dyke 1997; The Louis Berger Group 2004).

Source: rigzone.com, Cecil Provine

- **Submersibles.** A submersible drilling rig is towed to the location and submerged until it sits on the seabed. This type of rig is limited to water depths of 80 feet or shallower (Dismukes 2010).


Source: Noble Corporation (2009).

- **Semisubmersibles.** Semisubmersibles' working decks are supported by columns on hulls or pontoons. Depending on the rig, it might be towed or move to the drill site under its own power. When on location, the hulls or pontoons are flooded such that most of the mass of the structure lies below the water surface. Because of this, the structure shows little front-to-back or side-to-side rolling or pitching. The up-and-down motion still continues, but this is addressed by the riser system (see Section 2.3.2.2). The structures either are anchored or use dynamic positioning to keep in place.

Source: Ocean Endeavor, Offshore Magazine (2008).

- **Drill ships.** A drill ship has a derrick near the middle and a "moon pool" below the derrick through which tools can be passed to the sea floor. These sometimes massive ships are very mobile and can drill in very deep water. The structures are either anchored or use dynamic positioning to stay in place. New drill ships might approach 835 feet in length, have quarters for 100 to 200 people, and be able to drill in water depths up to 12,000 feet, with a total drilling depth of 40,000 feet (Transocean 2010, Offshore Magazine 2008).

Source: Discoverer Enterprise, Offshore Magazine (2008).

An area of high interest is the deep-water GOM. As of July 2008, 31 vessels capable of drilling in 3,500 feet or more of water were in the GOM. Table 3 lists these ships, categorizing them by how they stay on location—by conventional mooring or by dynamic positioning.

2.3.2.2 Drilling Contractor

The drilling contractor provides a mobile offshore drilling unit, or MODU, suitable for the water depth and well type to be drilled. (Section 3.2 discusses the types of MODUs and drilling contractors in more detail.) Offshore drilling operations are distinguished by the need for a "riser" between the surface of the water and the seabed. A riser is a series of steel pipe with ball-and-slip joints that permit the pipe to move up, down, or bend to accommodate the wave-induced movement of the rig.

Table 3

Deep-Water Drilling Vessels in the Gulf of Mexico as of July 2008

Company	Name	Type	Water Depth Rating Equipped (ft.)	Water Depth Rating Design (ft.)	Drilling Depth Rating (ft.)
Conventionally Moored Rigs					
Atwood Oceanics, Inc.	Ocean America	SS	5,000	5,500	30,000
Atwood Oceanics, Inc.	Ocean Baroness	SS	6,500	7,000	35,000
Atwood Oceanics, Inc.	Ocean Quest	SS	3,500	4,285	25,000
Atwood Oceanics, Inc.	Ocean Valiant	SS	5,000	5,500	30,000
Atwood Oceanics, Inc.	Ocean Victory	SS	5,000	6,000	25,000
Atwood Oceanics, Inc.	Ocean Endeavor	SS	8,000	10,000	35,000
Atwood Oceanics, Inc.	Ocean Monarch	SS	8,000	10,000	35,000
Noble Drilling Corporation	Noble Amos Runner	SS	6,600	6,600	30,000
Noble Drilling Corporation	Noble Paul Romano	SS	6,000	6,000	28,000
Noble Drilling Corporation	Noble Jim Thompson	SS	6,000	6,000	25,000
Noble Drilling Corporation	Noble Clyde Boudreaux	SS	7,500	10,000	35,000
Noble Drilling Corporation	Noble Lorris Bouzigard	SS	4,000	4,000	25,000
Transocean Inc.	Deepwater Nautilus	SS	8,000	8,000	30,000
Transocean Inc.	Transocean Marianas	SS	7,000	7,000	25,000
Transocean Inc.	GSF Celtic Sea	SS	5,750	5,750	28,000
Transocean Inc.	Henry Goodrich	SS	5,000	5,000	30,000
Dynamically Positioned Rigs					
Diamond Offshore Drilling, Inc.	Ocean Confidence	SS	10,000	10,000	35,000
Dolphin Drilling Ltd.	Belford Dolphin	DS	10,000	10,000	37,000
ENSCO Offshore Company	Ensco 7500	SS	7,500	8,000	35,000
Transocean Inc.	Discoverer Clear Leader	DS	10,000	12,000	40,000
Transocean Inc.	Discoverer Americas	DS	10,000	12,000	40,000
Transocean Inc.	Discoverer Inspiration	DS	10,000	12,000	40,000
Transocean Inc.	Deepwater Millennium	DS	10,000	10,000	35,000
Transocean Inc.	Discoverer Enterprise	DS	10,000	10,000	35,000
Transocean Inc.	Discoverer Spirit	DS	10,000	10,000	35,000
Transocean Inc.	GSF C.R. Luigs	DS	10,000	12,000	35,000
Transocean Inc.	Deepwater Horizon	SS	10,000	10,000	30,000
Transocean Inc.	GSF Explorer	DS	8,000	10,000	30,000
Transocean Inc.	Development Driller I	SS	7,500	7,500	37,500
Transocean Inc.	Development Driller II	SS	7,500	7,500	37,500
Transocean Inc.	Cajun Express	SS	8,500	8,500	25,000

Notes: SS: semisubmersible
DS: drill ship

Source: Offshore Magazine (2008).

The drilling contractor provides the following personnel:

- A rig supervisor (toolpusher).
- A driller, who operates the controls and thus is directly responsible for the operations on the rig floor.
- A derrickman, who watches the condition of the drilling fluid and, if there is no automated pipe handling system, handles the top of the pipe when putting it into or taking it out of the hole.
- Rotary helpers (floormen), who handle the bottom of the pipe when putting it into or taking it out of the hole, including working the tongs (large wrenches) to screw or unscrew the pipe.
- Roustabouts, who load and unload equipment and supplies from the boat that brings them to the offshore rig. They are also responsible for maintaining, repairing, and cleaning the rig.

Ancillary commodity businesses support the drilling contractor: retailers of drilling fluid (also called "mud") and specialty chemicals to tailor the drilling fluid to the physical and chemical characteristics of the different geological strata through which the hole is drilled. Even if the muds and chemicals are manufactured outside the GOM economic area, the retailer's portion of the cost would circulate to local households. Drilling fluid companies and suppliers are discussed in Section 3.3.

Similarly, offshore drilling operations need drill bits, tubulars, and other downhole materials that are used in both offshore and onshore operations. Future efforts in this area might involve discussions with Minnesota IMPLAN Group, Inc. (the developers of IMPLAN) and the Census Bureau to ascertain the extent to which these commodities are included in IMPLAN Sector 27 and NAICS 213111. Companies that offer drilling equipment are discussed in Section 3.4.

2.3.2.3 During Drilling

As the hole is being drilled, several specialties might come into play. A "**mud logging**" company monitors the condition and content of the drilling fluid and drill cuttings as it surfaces and crosses the mud shaker. The cuttings can be examined for parameters such as porosity, the composition of the drill cuttings (to indicate what zone is being drilled), or traces of oil (indicating a potential productive zone). The returning drilling fluid might contain gas from a productive formation; this is often checked by chromatographic analysis at the site. A mud log will also record the drilling rate: by the time the cuttings reach the surface, the drill bit is deeper than their source, and a mud logger will calculate this delay to determine the correct depth for the cuttings. Section 3.5 discusses companies that offer mud logging services. Van Dyke (1997) and Bommer (2008) are the sources for Section 2.3.2.3.

"**Measurement while drilling,**" or MWD, is a guidance system that measures the direction of the hole as well as a data collection system. A nonmagnetic drill collar is placed just behind the drill bit. In it are accelerometers, magnetometers, and batteries that transmit the data as a series of pulses (sonic or pressure) in the returning mud. At the surface, a transducer records the pulses and a computer program calculates the direction of the well while it is being drilled. MWD

systems measure temperature and pressure while some also measure formation characteristics through resistivity, porosity, and sonic velocity. MWD makes it unnecessary to stop drilling in order to update these measurements (Schlumberger, 2010). Section 3.6 summarizes the companies that offer MWD services.

At some depth, possibly specified in the drilling contract, drilling is stopped and the drill string is removed ("tripped out"). The bore hole still contains the drilling fluid, which prevents it from collapsing. A **surface casing**—a large-diameter steel pipe—in set into the hole ("tripped in"). This task involves special elevators that hold a piece of casing so that it can be lowered into the hole, a float collar for the cementing operation placed one or two pipe lengths above the guide shoe (a fitting placed at the bottom of the casing with a rounded profile to prevent the pipe from hanging up on irregularities in the bore hole), slips (wedge-shaped pieces of metal with teeth or other means of preventing the casing from slipping down the hole), and tongs to provide the correct torque on the casing string. Attachments to the casing string might include centralizers to center the casing pipe in the middle of the borehole, and scratchers to remove the filter cake that forms on the wall from the drilling fluid so the cement can make a better bond. While onshore operations frequently make use of companies that specialize in setting casing pipe, this operation is more commonly handled by the offshore drilling contractor.

Cementing the casing is another task that might be performed by a separate contractor or by drilling contractor personnel.[9] The cement performs several functions. It supports the casing and bonds it to the bore hole. It seals the space between the casing and the hole (annulus), thus preventing fluids from one rock layer migrating to another and prevents and fluids sent down the well bore from migrating into a rock layer (lost circulation). A good cement job will have cement completely surrounding the casing pipe with no voids or weak spots. Equipment that is used in the well is hung from the casing, so it must be securely sealed and set. A bottom plug precedes the cement, forced down the center of the casing pipe by high-pressure pumps. The bottom plug separates the cement from the drilling mud to avoid any cross-contamination. As the cement moves down, the drilling fluid is forced out of a hole in the shoe and flows up the annulus. When the bottom plug reaches the float collar, pressure is increased to break a membrane in the plug. The cement moves down the last length or two of casing, out the bottom hole, and up the annulus. A solid top plug follows the last of the cement and is forced down the casing pipe by displacement fluid. When the top plug reaches the bottom plug, the pumps are stopped and the cement is prevented from flowing back into the casing by the one-way valve in the float collar and the weight of the displacement fluid. Section 3.7 presents the companies that provide cementing services to the offshore oil and gas industry.

After the cement has hardened, blowout preventers (BOPs) and the first part of the wellhead are installed on the casing at the seafloor.[10] After pressure testing indicates that there are no leaks, drilling continues with a smaller-diameter drill bit. The smaller bit drills through the float collar, cement in the last lengths of casing pipe, and the casing shoe, and begins making a new hole. One or more additional casings are set as the well is drilled to final depth. Complete wellhead

[9] In deep water operations, cementing is frequently performed by the drilling contractor.
[10] Risers connect the BOP to the vessel.

installation occurs at the point when a well is put into production. The companies offering wellhead equipment are discussed Section 3.11.

2.3.2.4 Evaluating the Formation

Once the well is drilled to final depth, the operator must decide whether the well has struck oil or gas that can be produced economically. If so, the well will be completed and put into production. If not, the well will be plugged and abandoned. Several methods are used to evaluate formations, such as wireline logging, drill stem testing, and core evaluation. Companies offering such services are discussed in Section 3.8. Van Dyke (1997) and Bommer (2008) are the sources for Section 2.3.2.4.

Wireline logging involves lowering instruments to the bottom of the hole on a wire or line. As the instruments are slowly reeled back up to the surface, they measure and record data on the properties of the different rock layers. The data are transmitted back to a mobile computer laboratory, where they are displayed, printed on log forms, or transmitted elsewhere for further analysis.

Drill stem testing is another method of evaluating the potential production from a formation. In this case, the instrumentation is attached to the end of the drill stem and lowered to the bottom of the hole. Once in place, the crew expands a packer to seal off the formation of interest and opens ports in the testing tool. Fluids flow through the ports into the drill stem, where the flowing pressure is measured. (The fluids can be gas, oil, water, or a mixture thereof.)

Cores taken from the side of the borehole are a third method of formation evaluation. A "sidewall core gun" is lowered into the hole on a wireline. The "gun" has a series of metal tubes that are connected to the gun barrel by a steel cable. Behind each tube is an explosive charge. When the gun is in position, the crew sends a signal down the wire to ignite one of the charges. The tube is driven into the wall of the borehole. As the gun is winched out of the hole, the connecting cable pulls the rock sample out of the wall and brings it to the surface.

2.3.2.5 Completing/Abandoning the Well

Having determined that the formation would be economical to produce, an operator might take one of several actions.

If the well is in shallow water, it might be completed as a productive well protected by a caisson, a single pile driven over the well that supports a boat landing with navigational aids. Such a structure contains no production equipment, nor is it connected to a larger platform that has production equipment (USDOI BOEMRE 2002). The drilling crew runs the last set of pipe, called the **production tubing,** into the hole. The production tubing may be jointed pipe or coiled tubing; the latter comes to the drilling site coiled on a large reel. For offshore operations, the tubing has a subsurface safety valve that shuts in the event of a severe storm to prevent the loss of hydrocarbons if the wellhead or structure is damaged or lost. The BOPs are removed and replaced with a production wellhead from which the production tubing is hung. The collection of valves on top of the wellhead that control the flow is called a wellhead or "Christmas tree."

If the well is in deeper water and productive, it may be **temporarily abandoned.** In this case, all productive zones are isolated by plugs. It is understood that the bore hole will be entered at some

point in the future (USDOI BOEMRE 2002). For offshore operations, a productive exploratory well might be temporarily abandoned while the company has the production structure designed, built, and installed.

If the well is deemed not productive, it might be **permanently abandoned.** Specific requirements regarding abandonment are given in 30 CFR 250.1710–1717 (USDOI BOEMRE 2002). Cement plugs are placed to isolate salt water, fresh water, and uneconomical hydrocarbon intervals from leaking to and contaminating other strata. The intervening gaps between the plugs are filled with drilling fluid. The surface casing is cut back to the seabed and a cap is placed on the stub.

Because an exploratory well has the potential to be completed, ERG discusses companies that offer these services in Section 3.9. If the well is temporarily or permanently abandoned, the plugging is often done by cementing specialists (see Section 3.7). Services for completing the well, i.e., putting it into production—such as perforating the casing, acidizing, and/or fracturing the well—are discussed in Section 3.8.

2.3.2.6 Unusual Operations

Sometimes a piece of pipe or equipment gets stuck in the hole. This can happen for a number of reasons, such as:

- Part of the hole can collapse around the pipe, such as when the water in the drilling fluid interacts with shale in the formation. The shale expands and the debris fills the hole.
- The hole has an unintended bend ("dogleg"). The drill pipe rubs against a side of the dogleg, creating a smaller hole in the side of the main borehole (a "keyseat"). Because the keyseat is narrower in diameter than the main borehole, the drilling collar jams when the drill string is pulled from the hole.
- The drilling fluid is at higher pressure than formation pressure. The mud builds up on the wall of the borehole such that the diameter of the hole is reduced. Once the pipe stops rotating (e.g., when another length of pipe is added to the drill string), the pressure of the drilling fluid forces the drilling collars and/or pipe into the mud and sticks them firmly to the wall of the hole.
- A pipe parts due to fatigue, overpulling, or thread damage. This can leave drilling bits and equipment stuck in the borehole. The crew must fish the metal out of the hole.

For the first three situations, the drilling crew will attempt to free the stuck pipe. This might involve pumping a lubricant down the drill stem and up the annulus to where the pipe is stuck. Oil was once used as the lubricant, hence the term "spotting oil" to describe the activity. In a second approach, a device called a drilling jar, hydraulic jar, or bumper sub is attached to the top of the drill stem and allows very heavy blows to be struck upward or downward on the pipe. If a combination of spotting oil and jarring is not sufficient to free the pipe, the driller might position a "string shot" a few lengths above the point at which the pipe is stuck. The driller rotates the drill string to unscrew the joint as the charge is set off. The drill crew brings the portion of the

drill string above the sticking point out of the hole. At this point, events proceed as in the fourth situation above—in which a piece of pipe or equipment is stuck in the hole (Van Dyke 1997).

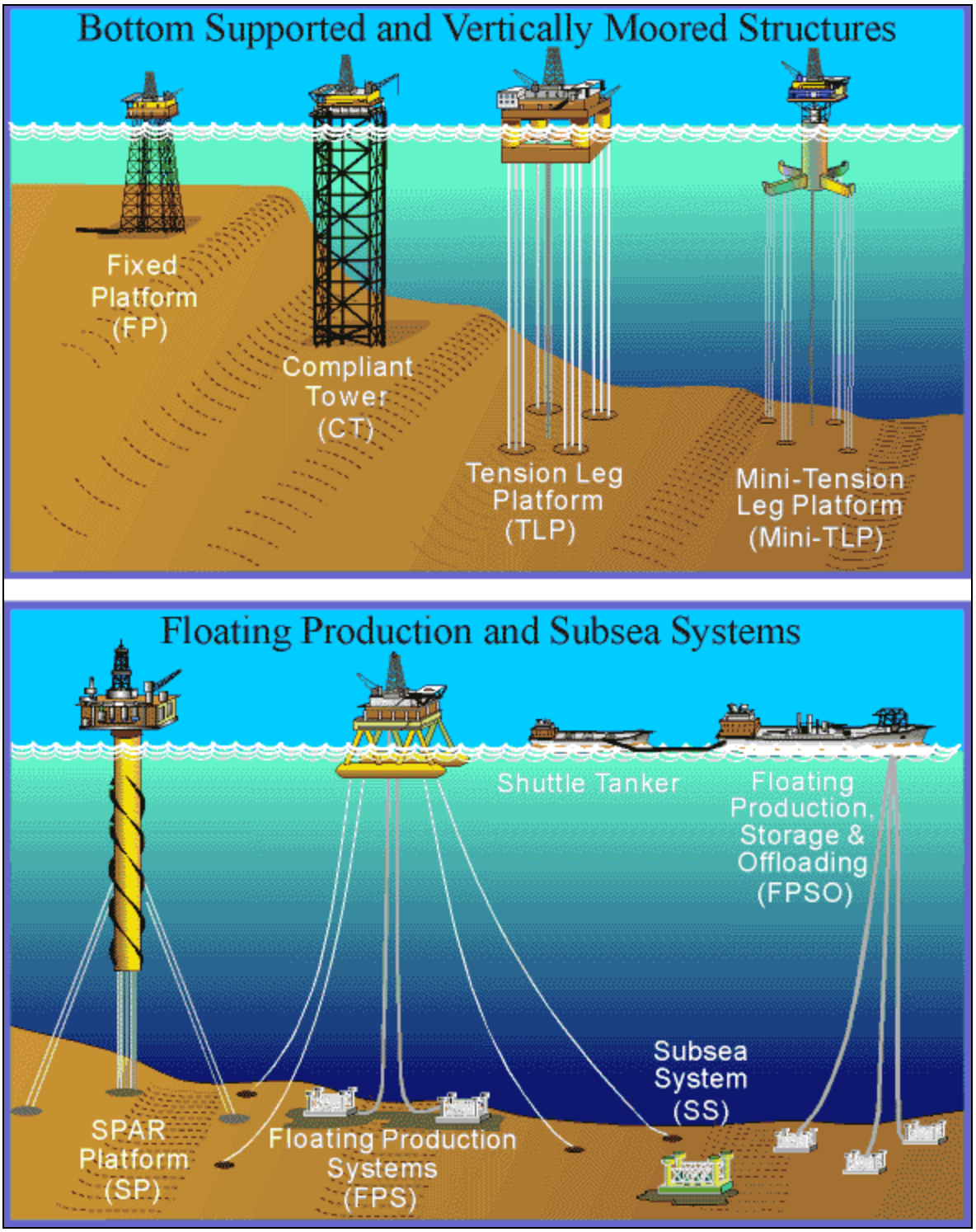
Fishing might be done by a drilling contractor or by a specialized contractor. The fishing company will attempt to grab the end of the stuck metal with a specialized device that goes either over the outside of the pipe ("overshot") or inside the pipe ("spear"), grips the pipe firmly, and hauls the entire string out of the borehole (Van Dyke 1997). Section 3.10 describes some of the companies offering fishing services.

2.3.3 Development Well Drilling

2.3.3.1 Development Drilling

Development wells may be drilled by one of several methods:

- A cantilevered jack-up rig, which has a feature that permits its drilling platform to be extended over an existing structure.
- A platform drilling rig temporarily or permanently installed on the structure itself. All production systems but the seabed completion and floating production, storage, and offloading (FPSO) systems illustrated in Figure 2 show platform drilling rigs. Figure 3 is from Platform Grace in the Pacific OCS. The gray beams running horizontally across the top are the rails on which the platform rig would sit. Six circular wellslots are visible on the topside level below the rails. After a well is drilled and completed, the rig is moved along the rails to the next available wellslot.
- Any of the mobile offshore drilling units, or MODUs (such as barges, jack-up, submersible, semi-submersible, and drill ships) described in Section 2.3.2.1.
- Figure 2 illustrates the types of offshore production systems in use or scheduled to be in operation in the GOM.
- The rigs and costs associated with drilling development wells in the offshore will differ according to the type of production system planned for the field (see Figure 2). Helmerich & Payne, Inc., Nabors Industries, Ltd., Noble Corporation, Pride International, Inc., and Rowan Companies, Inc. mention that they offer platform drilling rig services (Helmerich & Payne 2008a; Nabors Industries 2008; Noble Corporation 2007; Pride International 2008; Rowan Companies 2008).



Source: Richardson et al. (2008)

Figure 2. Offshore development systems.

Source: Kaplan (1988).

Figure 3. Wellslots on Platform Grace**.**

2.3.3.2 Completion

Once the well has been drilled and determined to be economically viable, it is completed as a producing well. The drilling crew runs the last set of pipe, called the **production tubing,** into the hole. The production tubing may be jointed pipe or coiled tubing, with the vast majority being jointed tubing. The latter comes to the drilling site coiled on a large reel. For offshore operations, the tubing has a subsurface safety valve that shuts in the event of a severe storm to prevent the loss of hydrocarbons if the wellhead or structure is damaged or lost. The blowout preventers are removed and replaced with a production wellhead from which the production tubing is hung. The collection of valves on top of the wellhead that controls the flow is called a wellhead or "Christmas tree." Companies and locations that provide wellhead equipment are discussed in Section 3.11.

Most wells have a production casing or liner cemented in place to prevent the collapse of the well and to seal and isolate the productive zone. The well cannot produce until holes are made to connect the productive zone with the well. The well is **perforated** by detonating shaped charges at the correct depth. A gun carrying the charges is lowered into the well on a wireline, positioned, and fired. The charges penetrate the casing, cement, and some distance into the formation.

Sometimes a well is **swabbed** to start the flow of fluids to it. Swabbing involves pulling a rubber-faced cylinder (called a swab) up the tubing. The cylinder touches the wall of the tubing;

pulling the swab up reduces the pressure beneath the swab and sucks the formation fluids into the wellbore.

Production might be **stimulated** by one or more treatments. **Acidizing** a well involves pumping acid (hydrochloric acid for limestone or hydrofluoric acid for some clay and sandstone) down the well to dissolve part of the formation. This increases the permeability of the formation near the well and thus can improve the flow. **Hydraulic fracturing** involves pumping enough fluid (usually water) at a pressure that is high enough to open cracks in the formation. Pumping more fluid into the formation causes the cracks to grow in length and width. Proppants, such as sand, are added to the fluid to flow into the cracks and keep them open once the pressure is removed. Fracturing, then, can be more effective over a larger distance from the well bore than acidizing.

If the production formation is an unconsolidated sandstone, sand will flow into the well along with the oil and/or gas. To prevent this, the well is completed with a **gravel pack.** The perforation spaces running from the production tubing through the casing and into the formation are packed with sand or gravel with specific size specifications. The pack prevents all but the finest formation sand from entering the well and a screen is placed in the well to keep the gravel in place.

Companies and locations that offer completion services are discussed in Section 3.9.

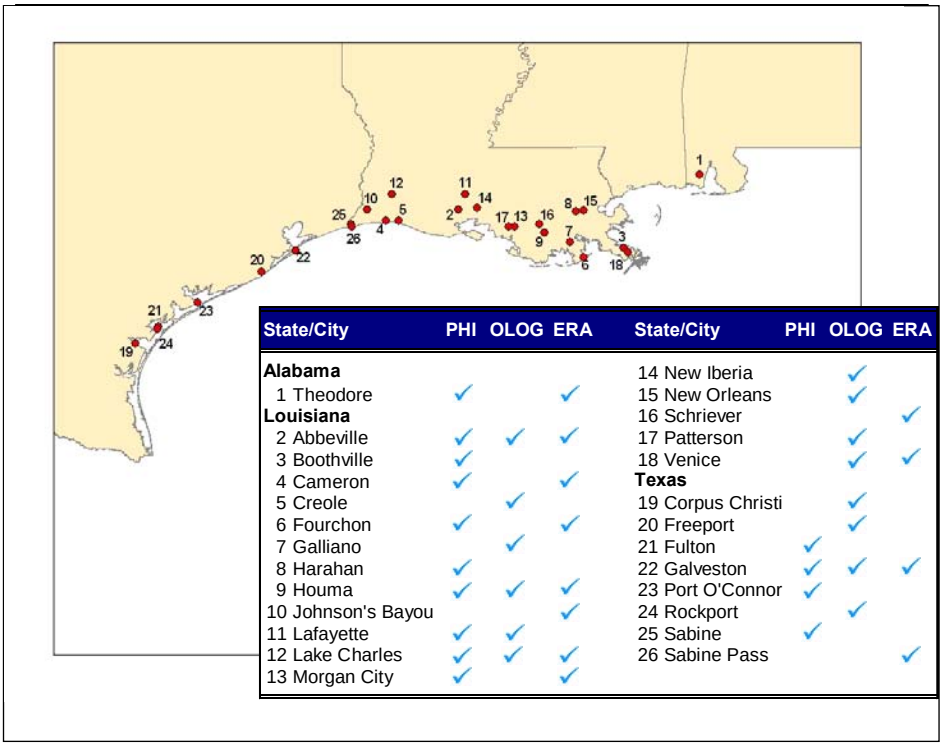
2.3.3.3 Accommodations

Dismukes (2010) describes two types of physical accommodations—those located on the production structure itself and those located on an accommodation vessel ("Flotel"). Dismukes (2010) also noted that energy companies are trying to improve living conditions (e.g., privacy and recreation possibilities) to retain skilled labor. Companies providing both types of services are discussed in Section 3.12.

2.3.3.4 Air Transport

Helicopters are a key method of transporting workers and supplies to and from production platforms, drilling rigs, and specialized vessels. The aircraft come in a range of sizes capable of transporting one to 25 passengers, with the largest having a range of about 500 miles. Most service companies have a mix of different-sized aircraft to best meet the needs of each trip. As production operations grow in the deep offshore, so grows the need for helicopter services (Dismukes 2010; see also for pictures and descriptions of various aircraft).

The Louis Berger Group, Inc. (2004) identified 247 heliport facilities that support the oil and gas industry within the Gulf region. The majority (122) were located in Texas with 81 facilities in Louisiana, 34 in Florida, six in Mississippi, and four in Alabama. Dismukes (2010) identified 26 major locations for helicopter services; see Figure 4.



State/City	PHI	OLOG	ERA	State/City	PHI	OLOG	ERA
Alabama				14 New Iberia		✓	
1 Theodore	✓		✓	15 New Orleans		✓	
Louisiana				16 Schriever			✓
2 Abbeville	✓	✓	✓	17 Patterson		✓	
3 Boothville	✓			18 Venice		✓	✓
4 Cameron	✓		✓	**Texas**			
5 Creole		✓		19 Corpus Christi		✓	
6 Fourchon	✓		✓	20 Freeport		✓	
7 Galliano		✓		21 Fulton	✓		
8 Harahan	✓			22 Galveston	✓	✓	✓
9 Houma	✓	✓	✓	23 Port O'Connor	✓		
10 Johnson's Bayou			✓	24 Rockport		✓	
11 Lafayette	✓	✓		25 Sabine	✓		
12 Lake Charles	✓	✓	✓	26 Sabine Pass			✓
13 Morgan City	✓		✓				

Source: Dismukes (2010).

Figure 4. Locations of major helicopter service providers.

The Federal Aviation Administration (FAA) National Flight Data Center facilities database lists heliports and their owners (FAA 2009a). Oil companies such as Chevron, ExxonMobil, and Shell are listed as heliport owners, as are outdated ownership names such as Tenneco, Seagull Energy, and Unocal. A search of the Helicopter Association International membership database for offshore operations lists Anadarko Petroleum, Chevron, El Paso, ExxonMobil, Noble Drilling Services, and Shell. Chevron's Gulf of Mexico Shelf Business Unit in Picayune, Mississippi, lists 28 helicopters as part of its operation (HAI 2009). An industry source confirmed that some large oil companies have their own helicopter operations that supply about 90 percent of their air services. However, the long distances needed to reach deep-water operations require larger aircraft. Thus, an oil company that owns helicopters might find it cost-efficient to rent larger aircraft from a commercial provider for such trips (Thibodeaux 2009a).

The FAA is rolling out a new satellite-based air traffic control system called NextGen. In partnership with the Helicopter Association International, platform owners, helicopter operators, and platform/helicopter companies are scheduled to introduce initial satellite coverage to the GOM in November 2009. FAA notes that the lack of radar coverage over water limits the transportation services that can be provided by air due to the separation procedures needed to maintain safety. Under the agreement, FAA will install automatic dependent surveillance-broadcast (ADS-B) systems that use GPS satellite signals to better identify an aircraft's location throughout the flight on oil and gas platforms, the platform owners will supply space for the ADS-B systems, and the helicopter owners will equip some of their fleet with ADS-B avionics as well as providing transportation to and from the platforms (FAA 2009b). With the introduction

of the NextGen system, there is the potential for increased air traffic to serve the offshore oil and gas industry.

Air transportation in the offshore GOM oil and gas industry, then, is provided by a mix of in-house and commercial services. ERG has not been able to identify the number of employees or aircraft in corporate use through any of the company documents, such as 10-K forms. ERG is thus unable to estimate the relative split between the in-house and commercial segments of this industry sector. The commercial providers are discussed in Section 3.13.

2.3.3.5 Water Transport

Offshore supply vessels act as the circulation system in the body of offshore oil and gas operations, carrying everything from drilling supplies, to oil and gas personnel, to food and water for the personnel, to the structures and platforms themselves. The industry is represented by the Offshore Marine Service Association, the primary source for the pictures and descriptions below (OMSA 2009a; Dismukes 2010).[11]

Source: OMSA (2009a).

Tugboats are the smallest vessels, with lengths ranging from 70 feet to 140 feet, but are powered with very large engines. They are used to tow and position production platform jackets, barges, and MODUs that are not self-propelled.

Source: OMSA (2009a).

Mini-supply vessels, or utility boats, range in length from 96 feet to 175 feet. They are usually used to support production operations on smaller, nearer-to-shore systems. They might be used to transport up to 36 workers, either between platforms or from shore to the platform and back, or cargo. Some have below-deck cargo space in addition to the flat cargo section in the rear. At times, they can serve as temporary storage space.

[11] This section does not include floating production, storage, and offloading vessels (FPSOs) because their primary purpose is the processing of oil and gas production rather than the transport of crew and materiel.

Source: OMSA (2009a).

Crewboats, or fast supply vessels, are meant for the rapid transport of personnel, typically from 36 to 149 workers. They range in length from 110 feet to 200 feet in length and are lighter and quicker than utility boats. Seacor Marine recently introduced a catamaran with a carrying capacity of 150 workers and a top speed of 40 knots (Seacor Marine 2009).

Source: OMSA (2009a).

Anchor handling, towing, and supply vessels range in length from 80 feet to 600 feet with winches and engines (sometimes in excess of 10,000 horsepower; see Tidewater 2009) to raise and lower anchors for semisubmersible structures and other MODUs. See figure at left for an indication of the scale of these operations.

Source: OMSA (2009a).

Platform supply vessels range in length from 150 feet to 300 feet. Designed to maximize carrying capacity, they can carry up to 36 offshore workers in addition drill pipe, spare parts, fuel, and any other item needed at an offshore production system. They have a range up to 200 miles and can work in all but the worst weather.

Source: OMSA (2009a).

A **liftboat** might resemble a jack-up drilling rig—both have self-elevating legs—but a liftboat is always self-propelling, with at least one crane and open deck space. Liftboats carry equipment and support wireline, crane, pipe-laying, diving, workover, and coiled tubing operation. They can also serve as temporary housing for construction and service crews. Working water depths range from 1.5 feet to nearly 200 feet (Templeton & Associates 2009).

Barges, with their large flat decks, are designed to carry the largest and heaviest components for offshore production systems and pipelines. Ranging in length from 300 feet to 800 feet, the largest are capable of carrying loads of 12,000 tons or more.

Some barge designs are hybrid. The second picture of a barge working in the offshore oil and gas industry shows a lift-barge made of two barges linked by the lifting structure and winches.

Source: OMSA (2009a).

Source: OMSA (2009a).

OMSA reports that it has about 100 member companies and that vessel operators employ about 12,000 crewmembers (OMSA 2009b). Section 3.14 summarizes the information on the companies that offer water transport services to the oil and gas industry in the GOM.

2.3.4 Production and Operations

2.3.4.1 Routine Operations

During the operating phase of an offshore oil and gas project, the crews need to get transportation to and from the structure, food to eat, and places to sleep. During their shift, crews will monitor production and replace and repair equipment and supplies as needed. The contract services sectors for this phase thus include tools and supplies (discussed in Section 3.4), accommodations (Section 3.12), air transportation (Section 3.13), water transportation (Section 3.14), and catering (Section 3.15).

2.3.4.2 Workovers

Workover[12] costs are included as part of the annual operating and maintenance costs tracked by the Energy Information Administration (USDOE, EIA 2007). Based on Van Dyke (1997), a well might need workover services for a variety of reasons, such as:

[12] Van Dyke (1997) makes a distinction between well service and workover. The former is maintenance work such as replacing or repairing equipment. The latter is any operation that restores or increases production. This report makes no distinction.

- Paraffin buildup. As the well is produced, paraffin can deposit on the tubular walls and surface equipment, thus reducing or restricting production. The paraffin can be removed mechanically or dissolved by heat or chemical solvent.
- Corrosion. Exposure to hydrogen sulfide, carbon dioxide, or oxygen in the fluids coming up the well can corrode the tubulars. Fixing a leaking tube requires pulling the tubing from the well and replacing the leaky section.
- Abrasion. If the well was completed with an artificial lift system such as sucker rods, abrasion damage can occur if the sucker rods rub against the inside of the tubing's side wall. If the well produces sand along with the oil/gas/and water, the inside of the tubing sidewall and exposed casing string can also suffer abrasion damage.
- Equipment replacement or repair.
- Sand clean-out (also called "bailing sand"). This is usually done by circulating a fluid to flush the sand out.
- Excess water or gas production. If a reservoir has water drive (i.e., water underlying the oil pushes the oil up through the well bore), the water level can reach the perforations as the oil is removed. When this happens, it might be economical to plug the well bore with cement at the water level and reperforate the well above the water level. If a reservoir has gas drive (i.e., downward pressure from gas overlying the oil pushes it up the well bore), the well is plugged and recompleted at a lower level.

In addition to drilling and completion activities, workover operations include other specialized equipment and activities (Van Dyke 1997). Van Dyke (1997) considers **coiled tubing** to have a number of advantages over workover rigs, such as:

- It is much quicker to install and remove than jointed tubing. Thus, the use of coiled tubing might result in a less expensive workover.
- It can be used in horizontal wells where wirelines are ineffective.
- It usually has a narrow diameter, narrow enough that it can be placed in the well without first removing the production tubing.

Snubbing refers to the ability to perform workover tasks while the well is still under pressure and producing. Usually, a well is "killed" (i.e., production is stopped by pumping fluids down the borehole such that the oil or gas remains in the formation) in order for reconditioning/workover tasks to take place. Killing a well automatically involves a cost for lost production while the well is being serviced, but also includes a risk of permanent damage to the formation. The use of coiled tubing facilitates snubbing operations (Van Dyke 1997).

Workover might be performed by permanent drilling rigs on the production structures or by mobile rigs described in Section 2.3.2.1. Companies that offer workover services are discussed in Section 3.16.

2.3.4.3 Diving Operations

The oil and gas industry needs construction workers to build and maintain its workplaces. When the workplace happens to be the underwater structures and equipment for offshore oil and gas operations, there are safety concerns related to currents, visibility, waves, air supply, and decompression. IMPLAN sectors are associated with industries, thus the project focuses on commercial diving operations offered by companies rather than individuals that have completed the training to be commercial divers. ERG included commercial diving companies, salvage diving companies, and other firms (e.g., marine construction) if they offered diving as a separate service. In contrast, commercial divers employed by shipping and marine construction or oil and gas companies are considered under the industry category of the company for which they work. In practice, the dividing line between the groups is not always clear.

Dismukes (2010) lists the tasks that commercial divers perform:

- Perform offshore oil and gas exploration and extraction duties such as underwater surveys, nondestructive testing, blasting, construction, and repair and maintenance of drill rigs and platforms.
- Operate underwater video, sonar, recording, and related equipment for scientific or exploratory purposes.
- Inspect vessels, buoyage systems, pipelines, sluice gates, plant intakes and outfalls, and other materials through visual inspection, photography, and nondestructive testing.
- Perform construction duties such as welding and installing pilings for cofferdams or footings for piers; and maintain these and drydocks, breakwaters, marine ways, and bridge foundations using hand and power tools and pneumatic equipment.
- Operate winches, derricks, or cranes to manipulate cables and chains to raise sunken objects.
- Set up and detonate explosives to remove obstructions and break up or refloat submerged objects.
- Participate in underwater search and rescue, salvage, recovery, and cleanup operations.
- Check and maintain diving equipment such as helmets, masks, air tanks, harnesses, gauges, air compressors, diving suits, underwater cutting torches, and welding equipment.

Depending on the water temperature and length of the dive, the diver will either use a wetsuit or a drysuit. (A wetsuit allows the diver to get wet but its material, usually neoprene, provides thermal insulation. With a drysuit, the diver is kept warm either by the suit material or thermal underwear.) Air might be supplied from the surface through hoses, or the diver might wear self-contained underwater breathing apparatus (scuba) tanks. Depending on the water depth and length of the dive, a diver might do surface diving (in which the diver decompresses as he or she surfaces) or saturation diving (in which divers live aboard pressurized vessels for the duration of

the project) (Diving Heritage 2009). While the depth limit for recreational non-decompression dives is 130 feet, there is no regulatory limit for commercial divers. Due to medical considerations,[13] however, diving to depths below 600 feet is extremely hazardous.

As offshore drilling and production moves into depths beyond the capabilities of human divers, the support work is performed by remotely operated vehicles (ROVs). These can be towed behind vessels, be linked to the surface by umbilicals, or operate autonomously. Dismukes (2010) describes and illustrates various categories of ROVs, such as:

- Towed vehicles. Towed vehicles are usually used for search and survey tasks. They may carry equipment such as cameras (TV, film, or digital), laser imaging, various types of sonar systems (side scan, swath bathymetry sonar, or multibeam), sub-bottom profilers, and magnetometers.
- Small vehicles. These are used for inspection and observation in water depths up to 984 feet (300 meters).
- High-capability electric ROVs. These are used for inspection, observation, and light-weight manipulation tasks in water depths up to 20,000 feet (6,096 meters).
- Medium vehicles. These vehicles have one or two manipulators that can handle payloads of 220 to 440 pounds (100 to 200 kilograms). They provide drilling support, construction support, pipeline inspection, and other similar tasks in water depths up to 3,281 feet (1,000 meters).
- Large vehicles. These ROVs operate in the deep-water regions to depths of 8,202 feet (2,500 meters)[14] and have lifting capabilities up to 11,025 pounds (5,000 kilograms). They are used to perform subsea tie-in operations and carry substantial tool packages.
- Ultra-deep vehicles. Designed to operate at depths of 13,123 feet (4,000 meters), these vehicles tend to be used for research, search, and salvage missions. The design typically contains enough power for attaching a salvage line but not for lift capabilities.
- Bottom crawlers. Bottom crawlers are used primarily for laying and burying cable. The trenching and burial systems include water jets, chain trencher, wheel trencher, or plow. The vehicle might be operated by a diver or remotely.

[13] High-pressure nervous syndrome (HPNS) begins at about 600 feet. At about 1,000 feet, divers show changes in brain activity and can fall into microsleep if not continually roused (Vann and Vorosmarti 2001).

[14] We anticipate that continued developments in the deepwater GOM will spur concomitant improvements in depth capabilities of large ROVs.

- Autonomous underwater vehicles (AUVs). These vehicles carry operations equipment and power sources on board but are not tethered to a mother ship or manned.

Companies that offer these services in the GOM are described in Section 3.17.

3 CONTRACT SERVICES INDUSTRIES

Chapter 3 focuses on the companies that offer services (or commodities) to the offshore oil and gas industry operating in the GOM. The chapter is organized by oil service industry sector. The first part of each section lists the companies that ERG identified as offering the service or commodity, their ownership, and 2007 revenues and employment at the company level. The second part of each section concerns the locations in the GOM region owned by each of the companies. To the extent possible, ERG identifies revenues and employment at each location and then summarizes the geographic distribution of locations, revenues, and employment.

3.1 GEOPHYSICAL AND GEOLOGICAL PROSPECTING

3.1.1 Ownership Patterns and Company Size

- Table 4 lists the 79 companies[15] that ERG identified as providing G&G services for the offshore GOM. The table shows each company's corporate parents, headquarters locations, company ownership (public or private), and the 2007 revenues and employees of the corporate parent. From T, we can glean the following information:
- There are five times as many privately held firms as public firms in the GOM G&G industry.
- The public firms include the anticipated giants, Schlumberger and Transocean, which have 2007 revenues of $23 billion and $6.4 billion from all operations, respectively.
- Of the 14 public firms, more than half are foreign: CGG Veritas, Fugro NV, GETECH Inc., Kelman Technologies, Inc., Offshore Hydrocarbon Mapping plc (OHM), Spectrum ASA, TGS-NOPEC Geophysical Company ASA, and Transocean.
- The highest revenue for a privately held firm in this industry is reported at $25 million (Geophysical Services Inc.). The low end of the range appears to be tens of thousands of dollars for one- to two-person firms. Revenue information could not be located for 10 privately held firms.

[15] ERG could find no definitive information that 10 of the 79 companies worked in the offshore GOM. Because it could not be determined that those 10 companies worked only on land, ERG retained them in the list. The companies are: Apex Geophysical Services, Inc., Geotrak Corporation, Kapadia & Associates International, Inc., Kinnickinnick Exploration, Meredith Minerals Company, Padgett Exploration, Polaris E & E Services, Inc., SAI Sydboten & Associates, Inc., Timesline Technology, Inc., and Xcel Seismic, Inc.

Table 4

Companies Offering Geological and Geophysical Surveying in the Gulf of Mexico

Parent Company	Parent Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
CGGVeritas	Paris	France	Public	$3,250	8,123
Fugro N.V.	Leidschendam	Netherlands	Public	€ 1,802.7	11,472
Geokinetics, Inc.	Houston	TX	Public	$358	3,200
GETECH Inc	Leeds	UK	Public	€ 3.6	36
IHS, Inc.	Englewood	CO	Public	$688	3,800
Ion Geophysical Corporation	Houston	TX	Public	$713	1,201
Kelman Technologies Inc	Calgary, Alberta	Canada	Public	$26	190
Offshore Hydrocarbon Mapping plc	London	GB	Public	£17.7	114
OYO Geospace Corp	Houston	TX	Public	$138	1,169
Schlumberger	Houston	TX	Public	$23,227	80,000
Spectrum ASA (June 2008)	Oslo	Norway	Public	kr 77.6	200
Stone Energy Corporation	Lafayette	LA	Public	$753	244
TGS-NOPEC Geophysical Company ASA (Norway)	Asker	Norway	Public	$453	566
Transocean	Grand Cayman	Cayman Islands	Public	$6,377	21,100
Alpha Geo Inc	Houston	TX	Private	$0.20	1
Apex Geophysical Services Inc	Metairie	LA	Private	$0.2	2
Austin Exploration Inc	Houston	TX	Private	0.7	8
Baird Petrophysical International, Inc.	Houston	TX	Private	$0.1	1
Bell Geospace Inc	Houston	TX	Private	$11.0	15
Bird Geophysical	Houston	TX	Private		26 to 100
C & C Technologies	Lafayette	LA	Private		
Centerline Geophysical, Inc.	Houston	TX	Private	$0.8	15
CR Willingham & Associates	Houston	TX	Private		1 to 25
dGB Beheer BV	Enschede	Netherlands	Private	Less than $25	26
Dune International	Houston	TX	Private	Less than $25	1 to 25
DWS International Inc.	Corpus Christi	TX	Private	$5 to $10	12
Earthfield Technology Inc	Cypress	TX	Private	$0.33	1
Ensoco Inc	Houston	TX	Private	$1 to $2.5	9
EPIC Geophysical LLC	Conroe	TX	Private	Less than $0.5	1 to 25
eSeis Inc	Houston	TX	Private	$1.60	15
Explorer Group 1, The	Spring	TX	Private	$0.4	5
Fairfield Industries Inc	Sugar Land	TX	Private	$48	400
First Exchange Corp	Houston	TX	Private	$2.2	20
Geocenter Inc	Houston	TX	Private	$1.6	29
Geophysical Pursuit Inc	Houston	TX	Private	$0 to $10	1 to 50
Geophysical Service Inc	Calgary, Alberta	Canada	Private	$25.0	45
Geoscience Solutions LLC	Magnolia	TX	Private	$0.04	1
Geotrace Technologies Inc	Houston	TX	Private	$10.4	194

Table 4. Companies Offering Geological and Geophysical Surveying in the Gulf of Mexico (continued).

Parent Company	Parent Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Geotrak Corp	Houston	TX	Private	$0.6	6
Gulf Coast Velocity Data Inc	Katy	TX	Private	$0.5	5
Hunter 3D Inc.	Houston	TX	Private	$0.33	1
IGC, Integrated Geophysics Corp	Houston	TX	Private	Less than $25	1 to 25
Interactive Interpretation & Training, Inc.	Houston	TX	Private	$0.25	2
Istech Energy Resources	Houston	TX	Private		50
JD Silvetti Group of Companies	Lafayette	LA	Private	Less than $0.5	26 to 100
Jebco Seismic LP	Houston	TX	Private	$5	9
Kapadia & Associates International Inc.	Houston	TX	Private	$0.3	1
Kevin M. Smith, Inc.	Houston	TX	Private	$0.2	1
Kinnickinnick Exploration	Lafayette	LA	Private	$0.4	3
Lynx Information Systems, Inc.	London	GB	Private	$1 to $5	1 to 25
Meredith Minerals Co	Houston	TX	Private		
Micro Strat Inc	Houston	TX	Private	$0.6	8
NS Neidell & Associates	Houston	TX	Private	$0.88	10
PAC Geophysical Inc	Houston	TX	Private	$1.8	2
Padgett Exploration	Houston	TX	Private	$0.4	1
Paradigm	Woking	GB	Private	$10.9	950
Pellegrini Exploration	The Woodlands	TX	Private	$0.2	2
Petrophysical Solutions Inc	Houston	TX	Private	$0.3	9
Polaris E & E Services Inc	The Woodlands	TX	Private	$0.5 to $1.0	5 to 10
READ ASA	Oslo	Norway	Private	€ 9.60	115
Reservoir Definition Inc	Houston	TX	Private	$0.33	5
Resolve GeoSciences Inc.	Katy	TX	Private	Less than $25	1 to 25
SAI Sydboten & Associates Inc	Lafayette	LA	Private		
Seisborg Geophysical	Seabrook	TX	Private		
Seismic Exchange Inc	Houston	TX	Private	$9.21	95
Seismic Micro-Technology Inc USA	Houston	TX	Private	$9.0	125
Seismic Solutions	Sugar Land	TX	Private	$0.10	1
Seitel, Inc.	Houston	TX	Private	$149	154
Swinehart Consulting	The Woodlands	TX	Private		1
Tesla Exploration Ltd.	Calgary, Alberta	Canada	Private		
Texseis Inc	Houston	TX	Private	$0.9	9
Timeslice Technology Inc	Houston	TX	Private	$1.2	23
Trabant & Associates	Houston	TX	Private	$0.4	4
Vector Seismic Data Processing Inc	Denver	CO	Private	$6.4	17
Weinman Geoscience Inc	Dallas	TX	Private	$0.26	8
Willis Group	Houston	TX	Private	$4.20	286
Xcel Seismic Inc	Richmond	TX	Private		

Company ownership is in a state of flux. Recent mergers, acquisitions, and changes include:

- Schlumberger's acquisition of AOA Geomarine Operations (2004) and Petroalliance Services Company LTD (completed 2005) added to its massive G&G resources in WesternGeco (AOA Geophysics 2009; Schlumberger 2007a). Schlumberger acquired the outstanding portion of WesternGeco from Baker Hughes in 2006 (Schlumberger 2007b).
- Spectrum ASA resulted from a demerger of the two business arms of Global Geo Services in July 2008 (Spectrum ASA 2009).
- Seitel became a privately owned corporation in February 2007 (Seitel 2007).
- Transocean and GlobalSantaFe merged in November 2007. With the merger, Transocean also acquired GlobalSantaFe's acquisition of Challenger Minerals (Transocean 2007a).
- Offshore Hydrocarbon Mapping plc acquired Rock Solid Images in 2007 (OHM 2007).
- TGS-NOPEC acquired Parallel Data Systems, Inc. in May 2007 (TGS-NOPEC 2007).
- The Willis Group of Companies acquired Seis Strat Services, Inc., in 2007 (Seis Strat 2009).
- JD Silvetti Group of Companies owns Marine Surveys, LLC (Silvetti 2009).
- Geokinetics, Inc. acquired Geophysical Development Corp. in 1998 and Grant Geophysical in 2006 (Geokinetics 2007).
- Exploration Specialty merged with eSeis in 2000 (Business Wire 2000).
- geoPLUS was taken over by IHS Services and renamed IHS Energy Log Services in 2006 (IHS 2008).
- Input/Output changed its name to ION Geophysical Corporation in September 2007 (ION Geophysical Corporation 2007).

With the sale of its portion of WesternGeco to Schlumberger in 2006, Baker Hughes appears to have exited the G&G industry as described for this project. Through INTEQ, the company offers logging-while-drilling and measurement-while-drilling services, as discussed in Section 3.6.

Bois d'Arc Energy was an oil and gas production company with operations in the GOM. It is listed in GCOD 2008 as offering seismic services. Stone Energy Corporation, another oil and gas production firm, acquired Bois d'Arc in April 2008 (Stone Energy Corporation 2008). It is unclear whether Stone Energy offers G&G services to other firms. However, ERG decided to include Stone Energy in the analysis because it serves as an example of a company that provides G&G services on an in-house basis. Stone Energy is very active in the GOM, and it is likely that household income derived from G&G activities would flow from the company to households in the BOEMRE GOM economic area.

Although a great deal of consolidation has taken place in recent years, there are still a substantial number of small companies, which mostly focus on data processing and/or data brokering. Primarily the public companies appear in industry surveys such as that produced by Standard & Poors (S&P 2008). As a result, such industry reviews frequently omit the economic activity that occurs in the set of smaller, private companies, thereby omitting the role that the support services to offshore oil and gas industry play in local communities and economies.

3.1.2.1.2 Percentage of Work Performed Offshore and Percent of Offshore Work Performed in the Gulf of Mexico

ERG could identify the percentage of work performed offshore and the percentage of offshore work performed in the GOM in a limited number of cases by a variety of methods. Seitel Inc. is estimated to have about 26 percent of its business in the offshore GOM based on the ratio of the square mileage of its 3D seismic mileage (10,509 sq. mi. for the GOM and 40,739 sq. mi. for the world). Fugro Geoservices appears to work only in the offshore based on information on its website. Two companies were listed as working in the GOM and performing only offshore work in the GCOD 2008—Marine Surveys, LLC and Trabant & Associates.[16]

This small sample suggests that the percentage of a company's work in the offshore GOM varies greatly. This implies that company-level financial data are not reliable for estimating the socioeconomic impacts in the GOM region. An alternative approach is to focus on G&G services offered by these companies from locations within the GOM region and rely on other sources for allocating their spending to other industries. This location approach is presented in the following section.

3.1.2.2 Locations

Table A-1 lists the locations where G&G services are offered on a contract basis within the GOM region. Information on many of the locations is sometimes identified under the original company's name even though it has been acquired by another company. For this reason, Table A-1 lists a location name, corporate parent name, city and state for the location, and the 2007 revenues and employees at that location (to the extent the information is available). Employee and revenue data were collected from D&B Million Dollar Database, RefUSA.com, Hoovers.com, Selectory.com, and Manta.com.

Table 5 lists the regional employment distribution. An estimated 5,870 to 6,128 jobs and at least $2.94 billion in revenue is associated the G&G contract service industry in the GOM region. These firms are extremely concentrated in the Houston, Texas, area in Harris County. About two-thirds of the locations, 85 percent of the employees, and 95 percent of the revenues listed in Table 5 are located in the Houston area.

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[16] Two additional companies were listed in the 2008 GCOD as working in the GOM and performing only offshore work. These are El-Can Exploration Inc. and Jack C. Weyand. The website listed in GCOD for El-Can Exploration, Inc. reaches a blank page. In 2007, the company was embroiled in a suit regarding the transfer of its assets to a new company called EDOG, LLC (Fryar Law Firm 2009) and which does not appear in D&B's Million Dollar Database. Jack C. Weyand is an individual, a life member of the Society of Exploration Geologists who got his degree in 1949 (SEG 2009) and is likely retired at this time.

Texas claims 84 percent of the locations, 90 percent of the employees, and 99 percent of the identifiable revenues. The percentage of revenues might be skewed because revenues for the Louisiana locations could not be identified for seven of the 17 locations. Although Harris County accounts for 95 percent of the revenues, the G&G industry contributes economic activity to five parishes in Louisiana and six counties in Texas.

Table 5

Regional Distribution of Employees and Revenue

	Number of Locations		2007 Employees				2007 Revenue	
			Upper	Lower	Upper	Lower		
	Count	Percent	Count	Count	Percent	Percent	Count	Percent
Texas	87	84%	5,511	5,330	90%	91%	$2,902.05	99%
Louisiana	17	16%	630	553	10%	9%	$39.94	1%
	104	100%	6,141	5,883	100%	100%	$2,941.99	100%
TX - Fort Bend	7	7%	276	228	4.49%	3.88%	$97.60	3.32%
TX - Nuceses	2	2%	16	16	0.26%	0.27%	$3.60	0.12%
TX - Harris	71	68%	5143	5013	83.75%	85.21%	$2,792.87	94.93%
TX - Montgomery	4	4%	14	11	0.23%	0.19%	$1.48	0.05%
TX - Dallas	1	1%	8	8	0.13%	0.14%	$0.26	0.01%
TX-Travis	1	1%	2	2	0.03%	0.03%	$0.25	0.01%
TX - Galveston	1	1%	52	52	0.85%	0.88%	$5.99	0.20%
LA - Jefferson	2	2%	2	2	0.03%	0.03%	$0.20	0.20%
LA - Lafayette	8	8%	499	422	8.13%	7.17%	$33.10	1.13%
LA - Orleans	5	5%	34	34	0.55%	0.58%	$0.50	0.02%
LA - St. Mary	1	1%	30	30	0.49%	0.51%	$3.84	0.13%
LA - Ascension	1	1%	65	65	1.06%	1.10%	$2.30	0.08%
	104	100%	6,141	5,883	100%	100.00%	$2,941.99	100%

3.2 DRILLING CONTRACTORS

3.2.1 Ownership Patterns and Company Size

Table 6 lists the 15 companies that ERG identified as providing drilling services for the offshore GOM. The table shows each company's corporate parent, headquarters location, and ownership (public or private), as well as the 2007 revenues and employees of the corporate parent. The drilling contractor companies represent approximately nearly 140,000 employees.[17]

From Table 6, we can glean the following information:

[17] Revenues are not summed because the results are reported in different currencies.

- Fourteen out of the 15 drilling companies listed are public. Spartan Offshore Drilling LLC is the only remaining privately held offshore rig provider in the United States.
- Loews Corporation has 2007 revenues of $18,380 million, the highest among the drilling companies listed. Loews is one of the largest diversified holding companies in the United States, with five operating subsidiaries. One of these—Diamond Offshore Drilling, Inc., one of the world's largest offshore drilling companies—has 2007 revenues of $2,568 million. That is, drilling represents only 14 percent of Loews Corporation revenues.

Table 6

Drilling Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Atwood Oceanics, Inc.	Houston	TX	Public	$403.04	900
ENSCO International, Inc.	Dallas	TX	Public	$2,143.80	4,100
Fred Olson ASA	Oslo	Norway	Public	NOK 4,276.90	1,148
Helmerich & Payne, Inc.	Tulsa	OK	Public	$2,036.54	6,456
Hercules Offshore, Inc.	Houston	TX	Public	$766.79	3,300
Loews Corp.	New York	NY	Public	$18,380.00	21,700
Nabors Industries, Ltd.	Hamilton	Bermuda	Public	$4,940.68	23,965
Noble Corp.	George Town, Grand Cayman	Cayman Islands	Public	$2,995.31	6,600
Parker Drilling Co.	Houston	TX	Public	$654.57	3,087
Pride International Inc.	Houston	TX	Public	$2,043.80	6,900
Rowan Co's, Inc.	Houston	TX	Public	$2,095.02	5,704
Saipem SpA	Milan	Italy	Public	EUR 9,530	33,373
Transocean, Inc.	Houston	TX	Public	$6,377.00	21,100
Trinidad Drilling, Ltd.	Calgary AB	Canada	Public	$629.68	200
Spartan Offshore Drilling LLC	Metairie	LA	Private	$0.70	11
Total					138,544

Source: D&B (2009).

- Of the 14 public firms, five are foreign (Fred Olson ASA, Nabors Industries, Ltd., Noble Corp., Saipem SpA, and Trinidad Drilling, Ltd.). Fred Olsen ASA owns Dolphin Drilling Company, which had a drill ship operating in the deep-water GOM in 2008 (see Table 6). Fred Olsen ASA does not have a U.S. office, only a single consultant located in Houston, Texas (Fred Olsen 2009). This might indicate that much of the expenditures associated with drilling by this company (or any of the other four foreign firms) will not remain in the GOM region.
- While Noble Corp. is the global ultimate parent company, the domestic ultimate parent company is Noble Holding Corp., which is headquartered in Sugar Land, Texas.

Following are a list of some recent changes in company ownership:

- On July 23, 2007, Transocean and GlobalSantaFe announced a merger of equals, creating a combined entity, called Transocean, Inc., with an estimated enterprise value of $53 billion. Transocean, Inc., is the world's largest offshore drilling contractor. GlobalSantaFe is also one of the world's largest offshore oil and gas drilling contractors and the leading provider of drilling management services worldwide (Transocean 2007b).
- Trinidad Drilling, Ltd., acquired Victory Rig Equipment Corp., a manufacturer and wholesaler of oilfield equipment based in Red Deer, Alberta, and announced the creation of a full service design and manufacturing division on September 3, 2008. The division retained the name Victory Rig Equipment (Trinidad 2008).
- In July 2007, Trinidad closed the acquisition of the assets of Axxis. The assets acquired include four land-based drilling rigs, one barge drilling rig, related inventory, crew boats, and spare parts. Trinidad also took over construction of a second barge drilling rig (Trinidad 2007).

3.2.2 Rig Counts

Table 7 lists the total number of rigs (onshore and offshore combined), the total number of offshore rigs, and the total number of rigs in the GOM. The information was gleaned from 2007 company reports. Based on these rig counts, we can glean the following information:

- Trinidad Drilling, Ltd., has 47 rigs in the GOM, which is the highest number among all of the drilling companies.
- Nabors Industries, Ltd., has the highest total number of rigs (1,344), but only 53 rigs (3.9 percent) are located offshore. Nabors has the second highest number of rigs (27) in the GOM.
- Hercules Offshore has 23 rigs operating in the GOM, nearly half of its total number of rigs.
- Transocean, Inc., has 147 rigs in total, but all of them are offshore. Thus, it has the highest number of offshore rigs of all the drilling companies listed, but only 16 rigs are operating in the GOM.
- Noble Corp. has the second highest number of offshore rigs (63). Like Transocean's rigs, all of Noble Corp.'s rigs are offshore; 19 are operating in the GOM.
- Spartan Offshore Drilling's rigs are all offshore and located in the GOM, but the company has the smallest number of offshore rigs (five rigs). Two of Spartan's rigs are under contract at this time.
- Fred Olson ASA, Atwood Oceanics, Inc., and Saipem SpA each have only one rig in the GOM.

3.2.3 Percentage of Work Performed Offshore and Percent of Offshore Work Performed in the Gulf of Mexico

Rig counts can be used as a proxy to estimate the percentage of work performed offshore and in the GOM. ERG used three ratios to evaluate the amount of business performed in the offshore GOM. In Table 8, the left-hand column is the ratio of the number of offshore rigs to the total number of rigs listed in Table 8. The middle column is the ratio of the number of rigs in the GOM to the total number of rigs. The right-hand column is the ratio of the number of rigs in the GOM to the number of offshore rigs. Although other measures can be used to determine these percentages, rig counts are readily available. By using the same measure for each company, ERG is able to make an accurate comparison.

Table 7

Rig Counts

Parent Company Name	Total Number of Rigs (Onshore and Offshore)	Total Offshore Rigs	Rigs in GOM
Trinidad Drilling, Ltd.	167	47	47
Nabors Industries, Ltd.	1,344	53	27
Hercules Offshore, Inc.	52	35	23
Noble Corp.	63	63	19
Transocean, Inc.	147	147	16
Loews Corp.	46	46	15
Parker Drilling Co.	45	16	15
ENSCO International, Inc.	50	50	14
Pride International Inc.	46	46	13
Rowan Co's, Inc.	52	22	10
Helmerich & Payne, Inc.	224	9	7
Spartan Offshore Drilling LLC	5	5	5
Atwood Oceanics, Inc.	11	11	1
Fred Olson ASA	9	9	1
Saipem SpA	79	17	1
Totals	2,340	576	214

Table 8

Percentage of Work Performed Offshore and Percent of Offshore Work Performed in the Gulf of Mexico

Company Name	Percent of Business Offshore	Percent of Business Offshore GOM	Percent of Offshore Business in the GOM
Spartan Offshore Drilling LLC	100.00%	100.00%	100.00%
Hercules Offshore, Inc.	67.31%	44.23%	65.71%
Parker Drilling Co.	35.56%	33.33%	93.75%
Diamond Offshore Drilling, Inc.	100.00%	32.61%	32.61%
Noble Corp.	100.00%	30.16%	30.16%
Pride International Inc.	100.00%	28.26%	28.26%
Trinidad Drilling, Ltd.	28.14%	28.14%	100.00%
ENSCO International, Inc.	100.00%	28.00%	28.00%
Rowan Co's, Inc.	42.31%	19.23%	45.45%
Fred Olson ASA	100.00%	11.11%	11.11%
Transocean, Inc.	100.00%	10.88%	10.88%
Atwood Oceanics, Inc.	100.00%	9.09%	9.09%
Helmerich & Payne, Inc.	4.02%	3.13%	77.78%
Nabors Industries, Ltd.	3.94%	2.01%	50.94%
Saipem America, Inc.	21.52%	1.27%	5.88%

From Table 8, we can make the following observations:

- Over half of all companies perform all of their business offshore (Atwood Oceanics, Inc., Diamond Offshore Drilling, Inc., ENSCO International, Inc., Fred Olson ASA, Noble Corp, Pride International Inc., Spartan Offshore Drilling LLC, and Transocean, Inc.).
- Nabors Industries, Ltd., has the smallest percentage of business offshore (3.9 percent).
- Saipem has been awarded an $860 million, five-year contract for the deep-water semisubmersible Scarabeo 9. The contract, signed with Eni, is for drilling operations mainly in the GOM, and will start by the end of 2009. The new rig is currently under construction in China and is expected to be completed in the fourth quarter of 2009 (Rigzone 2007). Because Saipem will only have one rig in the offshore GOM, it has the smallest percentage (1.3 percent) of business in the offshore GOM region.
- Spartan Offshore Drilling LLC performs 100 percent of its business in the offshore GOM region.
- Trinidad Drilling, Ltd. performs all of its offshore business in the GOM, while Atwood Oceanics, Inc. performs only 9 percent of its offshore business in the GOM.

3.2.4 Locations

The parent companies listed in Table 6 have numerous offices within the GOM region. Table A-2 breaks down total 2007 revenues and 2007 employees for each of these offices. Many of these locations are subsidiaries and are thus recognized by their original names. For this reason, Table A-2 lists the original company's name along with the corporate parent name, the city and state for the location, and the 2007 revenues and employees at that location (to the extent the information is available). Employee and revenue data were collected from the D&B Million Dollar Database and Manta.com.

The D&B Million Dollar Database lists the county or parish where each company is located. The counties and parishes were used to determine whether the locations are within the area of interest. Next, the locations were narrowed down based on the services they provide. Only locations that provide drilling services were included in Table A-2.

At least 11,089 jobs and at least $6,332 million in revenue are associated with the drilling industry in the GOM region. Texas claims 79 percent of the locations, 75 percent of the employees, and 93 percent of the identifiable revenues. More specifically, based on the following observations, we can see that the firms are extremely concentrated in the Houston area:

- Houston represents 57 percent of locations and 72 percent of Texas locations.
- Houston generated $5,500 million in 2007 revenues, which is 87 percent of total identifiable revenues and 93 percent of identifiable revenues generated in Texas.
- With an estimated 6,967 employees, Houston claims 63 percent of total employees and 84 percent of Texas employees.

One company—Spartan Offshore Drilling LLC—appears to use contract labor for actual drilling operations. The company owns five rigs but reports only eight employees. The eight employees likely represent the executives down to the rig manager level, with contract employees filling the rest of the positions.[18]

Table 9 lists the regional employment distribution. All of the Houston locations are located in Harris County, according to the D&B Million Dollar Database. Locations in Harris County also include one location in Crosby and one location in Spring. Although there is a high concentration in this county, the drilling industry contributes economic activity to seven additional counties in Texas and eight parishes in Louisiana.

Table 10 summarizes the data contained in Table 9, providing an overview of the total number of locations that perform drilling services in the GOM for each parent company. This table also sums together the number of employees at these locations. It lists ">120" employees for Atwood Oceanics' GOM locations because ERG does not have employee data for one location in

[18] ERG investigated, but did not find, a data source documenting the number of contract workers for offshore drilling operations.

Houston. Thus the percentage of employees in GOM locations underestimates the true value. In particular:

- Transocean, Inc., has the most locations in the GOM that perform drilling services (12); Fred Olson ASA, Saipem SpA, and Spartan Offshore Drilling LLC have one location each.
- Pride International Inc. has only three locations in the GOM that perform drilling services, yet it has the most employees working in the GOM. The 3,250 employees that work at these locations make up 47 percent of total employees at the company.
- Saipem SpA has the smallest percentage of its employees in its GOM locations (0.6 percent).

Table 9

Regional Distribution of Employees and Revenue—Drilling Services

Region	Number of Locations		2007 Employees		2007 Revenue (Millions)	
	Count	Percent	Count	Percent	Count	Percent
Texas	53	79%	8,261	74.5%	$5,904.50	93.2%
Louisiana	14	21%	2,828	25.5%	$427.64	6.8%
	67	100%	11,089	100%	$6,332.14	100%
LA – Caddo	1	1%				
TX – Dallas	3	4%	300	2.7%	$17.80	0.3%
TX - Fort Bend	4	6%	602	5.4%	$334.13	5.3%
TX – Harris	40	60%	7,022	63.3%	$5,504.05	86.9%
TX – Hidalgo	1	1%	60	0.5%	$8.64	0.1%
LA – Iberia	3	4%	38	0.3%	$5.47	0.1%
TX – Jefferson	1	1%	30	0.3%	$4.32	0.1%
LA – Jefferson	1	1%	8	0.1%	$0.46	0.0%
TX - Jim Wells	2	3%	216	1.9%	$31.10	0.5%
LA – Lafayette	3	4%	175	1.6%	$230.10	3.6%
LA – Lafourche	1	1%	22	0.2%	$3.17	0.1%
TX – Liberty	1	1%	25	0.2%	$3.60	0.1%
TX – Nueces	1	1%	6	0.1%	$0.86	0.0%
LA – Orleans	1	1%	3	0.0%	$0.43	0.0%
LA - Saint Mary	1	1%	30	0.3%	$4.32	0.1%
LA – Terrebonne	3	4%	2,552	23.0%	$183.69	2.9%
Totals	67	100%	11,089	100%	$6,332.14	100%

Table 10

Location Totals—Drilling Services

Parent Company Name	Number of Office Locations in Coastal GOM	Number of Employees in GOM Locations	Percent of Employees in GOM Locations
Atwood Oceanics, Inc.	3	>120	13.3%
Loews Corp.	3	335	1.5%
ENSCO International, Inc.	5	475	11.6%
Fred Olson ASA	1		
Helmerich & Payne, Inc.	3	221	3.4%
Hercules Offshore, Inc.	4	652	19.8%
Nabors Industries, Ltd.	11	962	4.0%
Noble Corp.	6	607	9.2%
Parker Drilling Co.	3	143	4.6%
Pride International Inc.	3	3,250	47.1%
Rowan Co's, Inc.	8	1,339	23.5%
Saipem SpA	1	192	0.6%
Spartan Offshore Drilling LLC	1	8	72.7%
Transocean, Inc.	12	2,749	13.0%
Trinidad Drilling, Ltd.	2	35	17.5%

3.2.5 Companies That Would Like to Be Drilling in the Gulf of Mexico

ERG found offices in the GOM region for five companies that do not have drilling operations in the GOM at this time. These are Ocean Rig ASA (taken over by Dry Ships Inc., a subsidiary of Primelead Ltd.) (Rigzone 2008), Premium Drilling, Inc. (Premium Drilling 2009), Scorpion Offshore, Ltd. (Scorpion Offshore 2009), Songa Offshore Group (Songa Offshore Group 2009), and Stena Drilling (Stena Drilling 2009). We believe that these are marketing offices for companies that would like to be drilling in the GOM but are not currently doing so. ERG did not include these companies in the rest of the analysis because, at this time, money spent in the GOM would not flow to them.

3.3 DRILLING FLUID AND SPECIALTY CHEMICAL SUPPLIERS

A recurring problem faced in this study is deciding who is in the scope of the analysis. For drilling fluid and specialty chemical suppliers, the question becomes how far back to trace all the constituents in the drilling fluid. ERG attempted to focus on manufacturers and dealers that specify they work in the GOM OCS region.[19]

3.3.1 Ownership Patterns and Company Size

Table 11 lists the 14 companies that ERG identified as providing drilling fluids to the offshore GOM. The table shows each company's corporate parent, headquarters location, ownership (public or private), and the 2007 revenues and employees of the corporate parent. From Table 11, we can glean the following information:

- Half of the companies listed are public and half are private.
- The public firms include the anticipated giants—Baker Hughes, Inc., and Halliburton Co.—which have 2007 revenues of $10.4 billion and $15.3 billion from all operations, respectively. In addition, a joint venture between Chevron and ConocoPhillips pooled their worldwide petrochemical operations. Drilling fluids form only a small part of the $13.0 billion reported for this venture, called Chevron Phillips Chemical Co. LLC (Chevron Phillips 2009).
- Spirit Drilling and Completion Fluids has the highest reported revenue for a privately held company in Table 11. The lowest revenue for a privately held firm in this industry is reported at $320,000 for a six-person firm, LCS International.
- All of the firms listed are domestic.
- Halliburton Co. has 186,144 employees, the highest number among all companies listed, but these reflect the company's wide range of services within the oil services contract industry. Setac Chemicals has only three employees, the fewest among all companies listed.

[19] Cabot Corporation's Specialty Fluids Business produces and markets cesium formate as a drilling and completion fluid (see Dismukes 2008). While Cabot has an office in Houston, the manufacturing locations appear to be in Billerica, Massachusetts, and Albuquerque, New Mexico. The 2008 annual report and 10-K form mentions that a large portion of their fluids have been used in the North Sea as well as Argentina, Hungary, Malaysia, Brunei, and the northern Caspian Sea. The Gulf of Mexico is not mentioned, so ERG did not include it in the discussion (Cabot 2008).

Table 11

Drilling Fluid Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Baker Hughes, Inc.	Houston	TX	Public	$10,428.20	35,877
Chevron Phillips Chemical Co. LLC	The Woodlands	TX	Public	$12,986.00	5,150
Halliburton Co.	Houston	TX	Public	$15,264.00	186,144
Newpark Resources, Inc.	The Woodlands	TX	Public	$612.76	1,987
Patterson-UTI Energy, Inc.	Houston	TX	Public	$2,114.19	8,100
Smith International, Inc.	Houston	TX	Public	$8,764.33	19,865
TETRA Technologies Inc.	The Woodlands	TX	Public	$982.48	2,895
LCS International	Lafayette	LA	Private	$0.32	6
Liquid Casing, Inc.	Houston	TX	Private	$20.11	37
Lost Circulation Specialists	Casper	WY	Private	$3.06	4
Setac Chemicals	Lafayette	LA	Private	$0.65	3
Spirit Drilling and Completion Fluids, Ltd.	Houston	TX	Private	>$39.23	>160
Sun Drilling Products Corp.	Belle Chasse	LA	Private	$5.30	100–250
Turbo-Chem International, Inc.	Scott	LA	Private	$18.44	39

Source: D&B (2009).

Following are a list of some recent changes in company ownership:

- On June 3, 2008, Smith International announced an agreement to acquire W-H Energy Services (Smith International 2008).
- On September 28, 2007, Spirit Drilling and Completion Fluids announced that it would merge with Dynamic Drilling Fluids of Denver, Colorado, thus expanding Spirit's operations into the Rocky Mountain region. The company was renamed Spirit Drilling and Completion Fluids, Ltd. (Spirit Drilling and Completion Fluids 2007).

3.3.2 Locations

Table A-3 breaks down total 2007 revenues and 2007 employees among each of the 89 office locations ERG could identify as providing drilling fluids and/or specialty drilling chemicals in the offshore GOM. Table 12 summarizes the information in Table A-3. At least 1,303 jobs and at least $846.32 million in revenue are associated with the drilling fluids industry in the GOM region. Since many locations do not provide employee and revenue data, these figures underestimate the true values. Texas claims 52 percent of the locations, 45 percent of the

employees, and 46 percent of the identifiable revenues. Even though there are 41 locations in Louisiana as opposed to 46 in Texas, Louisiana claims a greater percentage of employees (55 percent) and identifiable revenues (54 percent). Mississippi only has one location. Employment and revenue data for this location were unavailable. Similarly, Alabama has only one drilling fluids location. This location has three employees and reported 2007 revenues of $64,000.

Locations, employees, and revenues are dispersed among 30 counties and parishes in the GOM. No single county or parish claims a majority of locations, employees, or revenues. The region with the highest percentage of locations is Harris County with 18 percent, followed by Lafayette Parish with 12.4 percent. All of the Houston locations are located in Harris County. Locations in Harris County also include one location in Cypress, Texas. Even though Harris County has the highest number of locations, it only claims about 17 percent of employees and 21 percent of 2007 revenues. Lafayette Parish, on the other hand, claims 21 percent of employees and 29 percent of 2007 revenues. It has the highest number of employees and the highest reported 2007 revenues of all counties and parishes. Employee data were unavailable for four counties in Texas and one location in Mississippi. Similarly, revenue data were unavailable for four counties in Texas and one county in Mississippi. Thus, the percentages may be slightly skewed.

Table 13 provides an overview of the total number of locations that provide drilling fluids in the GOM for each parent company. This table also sums together the number of employees at these locations. Many of the companies have a "greater than" (>) symbol next to the number of employees because information could not be obtained for one or more GOM locations. As a result, most of the companies actually have a higher percentage of employees at their GOM locations.

From Table 13, we observe that:

- Baker Hughes, Inc. has the greatest number of GOM locations (32).
- Chevron Phillips Chemical Co. LLC, LCS International, and Setac Chemicals only have one GOM location each.
- Baker Hughes, Inc. has more than 373 employees at its GOM locations, which is the greatest number among all companies.
- The companies with the fewest employees at their GOM locations are LCS International, which has six employees, and Setac Chemicals, which has three employees.
- Lost Circulation Specialists has two locations. There is one employee at its location in Magnolia, Texas. However, employee information for its other GOM location in Lafayette, Louisiana, was unavailable.
- All of the employees at LCS International, Liquid Casing, and Setac Chemicals work in the GOM.
- The companies with the smallest percentage of employees working at GOM locations include Halliburton Co. (0.05 percent), Smith International Inc. (0.68 percent), and Chevron Phillips Co. LLC (0.78 percent).

Table 12

Regional Distribution of Employees and Revenue—Drilling Fluids

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Texas	46	51.7%	587	45.0%	$387.97	45.8%
Louisiana	41	46.1%	713	54.7%	$457.71	54.1%
Mississippi	1	1.1%				
Alabama	1	1.1%	3	0.2%	$0.64	0.1%
Totals	89	100.0%	1,303	100.0%	$846.32	100.0%
TX - Aransas	3	3.4%				
LA - Bossier	1	1.1%	50	3.8%	$40.69	4.8%
TX - Brazoria	2	2.2%				
LA - Caddo	1	1.1%	13	1.0%	$10.58	1.3%
LA - Calcasieu	2	2.2%	66	5.1%	$21.90	2.6%
TX - Calhoun	1	1.1%				
LA - Cameron	3	3.4%	17	1.3%	$1.21	0.1%
TX - Dallas	2	2.2%	5	0.4%	$4.07	0.5%
TX - Galveston	6	6.7%	16	1.2%	$2.66	0.3%
TX - Harris	16	18.0%	217	16.7%	$178.74	21.1%
TX - Hidalgo	2	2.2%	20	1.5%	$8.98	1.1%
LA - Iberia	1	1.1%	25	1.9%	$20.34	2.4%
MS - Jackson	1	1.1%				
LA - Jefferson	2	2.2%	20	1.5%	$2.30	0.3%
TX - Jim Wells	1	1.1%	45	3.5%	$36.62	4.3%
TX - Kleberg	1	1.1%	23	1.8%	$65.36	7.7%
LA - Lafayette	11	12.4%	274	21.0%	$248.08	29.3%
LA - Lafourche	3	3.4%	45	3.5%	$9.53	1.1%
TX - Liberty	1	1.1%	7	0.5%	$1.48	0.2%
TX - Matagorda	1	1.1%				0.0%
AL - Mobile	1	1.1%	3	0.2%	$0.64	0.1%
TX - Montgomery	4	4.5%	194	14.9%	$11.20	1.3%
TX - Nueces	4	4.5%	47	3.6%	$74.56	8.8%
LA - Orleans	3	3.4%	102	7.8%	$83.01	9.8%
LA - Plaquemines	4	4.5%	51	3.9%	$3.16	0.4%
TX - San Patricio	1	1.1%	10	0.8%	$3.23	0.4%
LA - St. Mary	3	3.4%	33	2.5%	$9.86	1.2%
LA - Terrebonne	3	3.4%	3	0.2%	$1.30	0.2%
LA - Vermilion	4	4.5%	14	1.1%	$5.75	0.7%
TX - Victoria	1	1.1%	3	0.2%	$1.07	0.1%
Totals	89	100.0%	1,303	100.0%	$846.32	100.0%

Table 13

Location Totals—Drilling Fluids

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Halliburton Co.	5	86	0.05%
Smith International Inc.	8	>136	0.68%
Chevron Phillips Chemical Co. LLC	1	34	0.78%
Baker Hughes, Inc.	32	>373	1.04%
Patterson-UTI Energy	8	>100	1.23%
Newpark Resources, Inc.	17	>122	6.14%
TETRA Technologies Inc.	4	254	8.77%
Lost Circulation Specialists	2	>1	25.00%
Turbo-Chem International, Inc.	3	>10	25.64%
Spirit Drilling Fluids	3	>94	58.75%
LCS International	1	6	100.00%
Liquid Casing	2	37	100.00%
Setac Chemicals	1	3	100.00%
Sun Drilling Products Corp.	2	42	16.8%–42.0%

3.4 DRILLING SUPPLIES AND EQUIPMENT

3.4.1 Ownership Patterns and Company Size

Table 14 lists the 30 companies that ERG identified as providing drilling tools and supplies to the offshore GOM. The table shows each company's corporate parent, headquarters location, ownership (public or private), and the 2007 revenues and employees of the corporate parent. Baker Hughes, Inc., and Halliburton Co. appear in this sector, which also includes small, private companies that have developed certain niches. Nearly 47 percent of the companies are privately owned, orders of magnitude smaller than the well-known company giants. About 38 percent of the public companies are foreign-owned (Aker ASA, Filtrona PLC, Nabors Industries Ltd., TSC Offshore Group Limited, Tesco Corp., and Tenaris SA).

Table 14 also indicates that:

- The highest revenue for a privately held firm in this industry is reported at $286 million (Arcapita, Inc.). The lowest revenue for a privately held firm in this industry is reported at $130,000 (Rattler Tools, Inc.) for a two-person firm.
- Halliburton Co. has 186,144 employees, the highest number among all companies listed, while TSC Offshore Group Ltd. has the lowest number among all public firms with 430 employees.
- Parman Capital Group LLC has the highest number of employees among all private companies (2,631), while Rattler Tools, Inc. has the least (two).

Table 14

Drilling Supplies and Equipment Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Aker ASA	Oslo	Norway	Public	NOK 61,702.00	27,096
Baker Hughes Incorporated	Houston	TX	Public	$10,428.20	35,877
BJ Services Co.	Houston	TX	Public	$5,426.26	16,700
Filtrona PLC	Buckinghamshire	England	Public	EUR 265.8	4,666
Halliburton Co.	Houston	TX	Public	$15,264.00	186,144
Helmerich & Payne, Inc.	Tulsa	OK	Public	$2,036.54	6,456
Nabors Industries, Ltd.	Hamilton	Bermuda	Public	$4,940.68	23,965
National Oilwell Varco, Inc.	Houston	TX	Public	$9,789.00	31,198
Oil States International, Inc.	Houston	TX	Public	$2,088.24	6,551
Rowan Co's, Inc.	Houston	TX	Public	$2,095.02	5,704
RPC, Inc.	Atlanta	GA	Public	$690.23	2,370
Smith International Inc.	Houston	TX	Public	$8,764.33	19,865
Superior Energy Services, Inc	New Orleans	LA	Public	$1,572.47	4,500
Tenaris SA	Luxembourg	Luxembourg	Public	$10.04	23,372
Tesco Corp.	Calgary, AB	Canada	Public	$462.38	1,864
TSC Offshore Group Limited	Hong Kong	Hong Kong	Public	$35.73	430
Arcapita, Inc.	Atlanta	GA	Private	$285.70	253
Bico Drilling Tools Inc.	Houston	TX	Private	$3.70	38
Fluid Systems, Inc	Harvey	LA	Private	$9.59	38
Frank's Casing Crew & Rental Tools, Inc.	Lafayette	LA	Private	$87.60	900
Knight Oil Tools, Inc.	Lafayette	LA	Private	$29.00	300
L E Simmons & Associates, Inc.	Houston	TX	Private	$17.50	
Logan Oil Tools, Inc.	Houston	TX	Private	$50.00	300
Oceanex Services Int'l, Inc.	Houston	TX	Private	$16.03	15
Parman Capital Group LLC	Houston	TX	Private	$161.20	2,631
Rattler Tools, Inc.	Broussard	LA	Private	$0.13	2
Ray Oil Tool Company, Inc.	Broussard	LA	Private		
Reamco Inc.	Broussard	LA	Private	$5.96	48
T&T Investment Corp.	Houma	LA	Private	$6.00	143
Vanoil Completions LLC	Broussard	LA	Private	$1.20	15
Totals					401,441

The drilling tools and supply sector thus shows an enormous range in size. While giants such as Halliburton dominate the oil services contract industry, there is still room for individual innovation. Rattler Tools, for example, designed a magnetic tool that cleans metallic debris from the boreholes while drilling (Rattler Tools 2009).

- Recent changes in company ownership include:
- On October 1, 2007, Arcapita Inc. announced that its affiliates had signed a purchase agreement to acquire Varel Holdings, Inc., from KRG Capital Partners for approximately $369 million. Varel is the world's fastest-growing manufacturer of drill bits for the oil and gas and mining and industrial industries (Arcapita 2007).
- On May 21, 2008, BJ Services Company acquired 97.6 percent of the issued and outstanding common shares of Innicor Subsurface Technologies, Inc. Innicor is headquartered in Calgary, Alberta, and is a designer, manufacturer, and provider of tools and equipment utilized in the completion and production phases of oil and gas well development (Innicor 2008).
- On May 28, 2008, Helmerich & Payne announced the acquisition of a small private firm, TerraVici Drilling Solutions. At the time, the company was developing a patented rotary steerable system to enhance horizontal and directional drilling (Helmerich & Payne 2008b).
- National Oilwell Varco has been active in many mergers and acquisitions in the past few years. Recent changes include the following:
    - On November 19, 2008, National Oilwell Varco and Schlumberger announced that they had entered into a definitive agreement to create a joint venture that combines their expertise in advanced wired drill pipe technology (NOV 2008a).
    - On April 8, 2009, National Oilwell Varco announced that it had acquired ASEP Group Holding BV and Anson Limited. ASEP, based in the Netherlands, develops and manufactures well service equipment, including wireline units, cranes, coiled tubing equipment, pressure control products, and automation products (NOV 2009). Anson, based in the U.K., manufactures flowline equipment, manifolds, valves, swivel joints, hammer lug unions, and wellheads, which will complement NOV's Mission pump and fluid expendables products (NOV 2009). Although these acquisitions may not directly affect operations in the offshore GOM, they are indicative of the global nature of the large public companies and the offshore industry.
    - On April 21, 2008, National Oilwell Varco acquired Grant Prideco, Inc., which offers drill stem technology development; drill pipe manufacturing, sales, and service; drill bit and specialty tools, manufacturing, sales and service; and high-performance engineered connections and premium tubular products and services (NOV 2008b).

- On July 31, 2007, National Oilwell Varco acquired a 76 percent stake in Sara Services and Engineers Private Limited, a company based in India, for $26 million. Sara Services fabricates, manufactures, and distributes oilfield equipment primarily in India, the Middle East, and the Far East, but also supplies oil field equipment makers in the United States (NOV 2007a).
- On April 19, 2007, National Oilwell Varco acquired the assets and business of Gammaloy Holdings, L.P., and Marlex Energy Services Company. Gammaloy and Marlex rent and lease non-magnetic drill collars and other downhole tools used within the bottom-hole assembly, and provide manufacturing and support services for various downhole tools requiring high-precision machining. Gammaloy currently operates in the United States and Marlex currently operates in Canada (NOV 2007b).
- On January 9, 2007, National Oilwell Varco completed its acquisition of NQL Energy Services. NQL provides downhole tools, technology, and services used primarily in drilling applications in the oil and gas and utility industries on a worldwide basis (NOV 2007c).

- On June 3, 2008, Smith International announced an agreement to acquire W-H Energy Services, providing entry into the directional drilling services industry (Smith International 2008).
- Tenaris SA announced plans to acquire Hydril Company on February 12, 2007. Hydril is a leading North American manufacturer of premium connections and pressure control products for oil and gas drilling and production (Tenaris 2007).
- TSC Offshore Limited acquired Patriot Mechanical Handling, Patriot Winch, and Ansell Jones in 2007 (TSC 2008).

3.4.2 Locations

Table A-4 lists the data for the 179 locations that ERG could identify as providing drilling supplies and equipment to offshore oil and gas operations. Table 15 is a summary by region. At least 10,660 jobs and at least $2,242.85 million in revenue are associated with the drilling tools and supplies industry in the GOM region. Since some locations do not provide employee and revenue data, these figures slightly underestimate the true values.

Table 15 summarizes the information in Table A-4 by state and county/parish. By state, Texas claims 55 percent of the locations, 75 percent of the employees, and 78 percent of the identifiable revenues. Louisiana claims 44 percent of the locations, 25 percent of the employees, and 22 percent of the identifiable revenues. Florida only has one location. It claims 0.1 percent of the employees and identifiable revenues. Revenue data were unavailable for one county in Texas (Waller). Thus, the percentages may be minimally skewed.

Table 15

Regional Distribution of Employees and Revenue—Drilling Tools and Supplies

	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Florida	1	1%	15	0.1%	$3.18	0.1%
Louisiana	79	44%	2,657	24.9%	$501.16	22.3%
Texas	99	55%	7,988	74.9%	$1,738.51	77.5%
	179	100%	10,660	100%	$2,242.85	100%
TX - Bossier	1	0.6%	8	0.1%	$1.30	0.1%
TX - Brazoria	4	2.2%	37	0.3%	$10.89	0.5%
LA - Caddo	2	1.1%	21	0.2%	$3.08	0.1%
LA - Calcasieu	4	2.2%	107	1.0%	$25.32	1.1%
LA - Cameron	1	0.6%	2	0.0%	$0.87	0.0%
TX - Cameron	1	0.6%	2	0.0%	$0.87	0.0%
TX - Dallas	1	0.6%	200	1.9%	$37.35	1.7%
TX - Fort Bend	2	1.1%	145	1.4%	$30.72	1.4%
TX - Harris	60	33.5%	6,441	60.4%	$1,436.18	64.0%
TX - Hidalgo	4	2.2%	28	0.3%	$13.67	0.6%
FL - Hillsborough	1	0.6%	15	0.1%	$3.18	0.1%
LA - Iberia	10	5.6%	149	1.4%	$41.10	1.8%
LA - Jefferson	4	2.2%	48	0.5%	$13.13	0.6%
TX - Jefferson	2	1.1%	14	0.1%	$1.70	0.1%
TX - Jim Wells	5	2.8%	98	0.9%	$35.65	1.6%
LA - Lafayette	24	13.4%	1,117	10.5%	$132.95	5.9%
LA - Lafourche	1	0.6%	14	0.1%	$6.07	0.3%
TX - Montgomery	4	2.2%	579	5.4%	$101.31	4.5%
TX - Nueces	8	4.5%	171	1.6%	$33.69	1.5%
LA - Orleans	4	2.2%	200	1.9%	$49.03	2.2%
LA - Plaquemines	4	2.2%	300	2.8%	$61.64	2.7%
LA - Saint Landry	1	0.6%	65	0.6%	$5.40	0.2%
LA - Saint Martin	2	1.1%	87	0.8%	$42.48	1.9%
LA - Saint Mary	3	1.7%	98	0.9%	$15.27	0.7%
LA - Saint Tammany	2	1.1%	45	0.4%	$19.52	0.9%
LA - Terrebonne	15	8.4%	386	3.6%	$79.27	3.5%
LA - Vermilion	1	0.6%	10	0.1%	$1.70	0.1%
TX - Victoria	5	2.8%	100	0.9%	$32.54	1.5%
TX - Waller	1	0.6%	150	1.4%		0.0%
LA - Webster	1	0.6%	8	0.1%	$4.33	0.2%
TX - Wharton	1	0.6%	15	0.1%	$2.64	0.1%
	179	100%	10,660	100%	$2,242.85	100%

The locations are distributed among 31 counties and parishes in the GOM. Because there are so many counties and parishes, no single county or parish claims a majority of locations, employees, or revenues. Harris County claims the highest percentage of locations with 34 percent, followed by Lafayette Parish with 13 percent. Harris County claims about 60 percent of

employees and 64 percent of 2007 revenues. It has the highest number of employees and the highest reported 2007 revenues of all counties and parishes. Lafayette Parish claims nearly 11 percent of employees and 6 percent of 2007 revenues.

Table 16 summarizes number of locations and employees by parent company. Many of the companies have a "greater than" (>) symbol next to the number of employees because information could not be obtained for one or more GOM locations. As a result, most of the companies actually have a higher percentage of employees at their GOM locations. In general:

Table 16

Location Totals—Drilling Tools and Supplies

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Aker ASA	3	775	2.9%
Arcapita, Inc.	1	2	0.8%
Baker Hughes Incorporated	5	71	0.2%
Bico Drilling Tools Inc.	2	33	86.8%
BJ Services Co.	4	560	3.4%
Filtrona PLC	1	65	1.4%
Fluid Systems, Inc.	2	30	78.9%
Frank's Casing Crew & Rental Tools, Inc.	6	>674	74.9%
Halliburton Co.	8	182	0.1%
Helmerich & Payne, Inc.	1	15	0.2%
Knight Oil Tools, Inc.	4	144	48.0%
L E Simmons & Associates, Inc.	7	>435	
Logan Oil Tools, Inc.	1	300	100.0%
Nabors Industries, Ltd.	1	100	0.4%
National Oilwell Varco, Inc.	58	3365	10.8%
Oceanex Services Int'l, Inc.	1	15	100.0%
Oil States International, Inc.	9	327	5.0%
Parman Capital Group LLC	1	200	7.6%
Rattler Tools, Inc.	1	2	100.0%
Ray Oil Tool Company, Inc.	1		
Reamco Inc.	1	48	100.0%
Rowan Co's, Inc.	1	100	1.8%
RPC, Inc.	5	178	7.5%
Smith International Inc.	27	1416	7.1%
Superior Energy Services, Inc.	16	642	14.3%
T&T Investment Corp.	2	29	20.3%
Tenaris SA	2	483	2.1%
Tesco Corp.	3	391	21.0%
TSC Offshore Group Limited	4	>63	14.7%
Vanoil Completions LLC	1	15	100.0%

- National Oilwell Varco has the greatest number of GOM locations (58) and employees (3,365).

- 40 percent of the companies have only one location in the offshore GOM.
- All of the employees at Rattler Tools, Inc., Oceanex Services Int'l, Inc., Vanoil Completions LLC, Reamco Inc., and Logan Oil Tools, Inc., work in the GOM.
- The companies with less than 1 percent of employees working at GOM locations include Halliburton Co. (0.1 percent), Baker Hughes, Inc. (0.2 percent), Helmerich & Payne (0.2 percent), Nabors Industries Ltd. (0.4 percent), and Arcapita, Inc. (0.8 percent).

3.5 MUD LOGGING

3.5.1 Ownership Patterns and Company Size

Table 17 lists the 10 companies that ERG identified as providing mud logging services to the offshore GOM. The table shows that there is one large public company (Weatherford International, with $7.8 billion in revenues and 38,000 employees)[20] and a number of much smaller privately held firms. The largest of the private firms—The Mudlogging Company USA, L.P.—has less than $20 million in revenue and fewer than 150 employees. All firms are domestic.

Table 17

Mud Logging Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Headquarters State	Public/Private	2007 Revenues (Millions)	2007 Employees
Weatherford International, Ltd.	Houston	TX	Public	$7,832.06	38,000
Continental Laboratories, Inc.	Houston	TX	Private	>$9.00	>50
Diversified Well Logging, Inc.	Reserve	LA	Private	$7.80	130
Geo-Lab, Inc.	Hockley	TX	Private	$2.70	50
Petroleum Center, Inc.	Thibodaux	LA	Private	$1.30	30
Petro-Log, Inc.	Lafayette	LA	Private	$2.40	61
PRECISION Well Logging, Inc.	Houston	TX	Private	$6.66	47
Pro-Log, Inc.	New Iberia	LA	Private	$3.10	34
Stratagraph, Inc.	Scott	LA	Private	$8.90	115
The Mudlogging Company USA, L.P.	Houston	TX	Private	$16.74	145
Totals				$7,890.66	38,662

Source: D&B (2009).

Two firms have been active in acquiring other firms in the industry. Thus, the industry has been undergoing some consolidation. On August 18, 2008, Weatherford acquired International

[20] Schlumberger offers an operations support center with Web-based surveillance for drilling optimization, but the services are variations on MWD rather than mud logging (Schlumberger 2009).

Logging, Inc. (Weatherford 2008). Since its inception in 1986, The Mudlogging Company USA, L.P. (TMC) has grown by acquiring other mud logging companies, including:

- PLS (Petroleum Logging Service) (Texas)
- Downhole Data, Inc. (Texas)
- Log and Sample Service (Louisiana)
- Formation Technologists, Inc. (Texas)
- Ragsdale Well Logging Service (Texas)
- Falcon Well Logging (Texas)
- Advanced Mudlogging (Texas)
- Drilling Technology, Inc. (Texas)
- Central Oilfield Industries, Inc. (Louisiana)
- Pelican Logging, Inc. (Louisiana)
- Texas Welco (Texas)

Most of TMS's work is in the GOM, but they have performed services in other countries (The Mudlogging Company 2009).

3.5.2 Locations

Table A-5 lists total 2007 revenues and 2007 employees by location within the GOM region for the companies listed in Table 17. The counties were used to determine whether the locations are within the area of interest. At least 652 jobs and at least $69.2 million in revenue are associated with the mud logging industry in the GOM region. Texas claims 64 percent of the locations, nearly 50 percent of the employees, and 69 percent of the identifiable revenues. Louisiana claims 36 percent of the locations, nearly 51 percent of the employees, and 31 percent of the identifiable revenues.

Table 18 lists the regional employment distribution. Locations, employees, and revenues are dispersed among eight counties/parishes in the GOM. Harris County has the highest percentage of locations (43 percent) followed by Lafayette Parish with 14 percent. All of the other counties/parishes have one location and claim 7 percent of the locations.

With the highest percentage of locations, it is no surprise that Harris County claims the highest percentage of employees (46 percent) and the highest percentage of 2007 revenues (66 percent). With the second highest percentage of locations, Lafayette Parish also claims the second highest percentage of employees (25 percent) and the second highest percentage of 2007 revenues (14 percent). Despite having only one location, St. John the Baptist Parish in Louisiana follows close behind, with 19 percent of employees and 11 percent of 2007 revenues.

Table 19 summarizes the data in Table 18, providing an overview of the total number of locations that provide mud logging services in the GOM for each parent company. This table also sums together the number of employees at these locations. Consistent with the relative sizes of company revenue (Table 17) and GOM location revenue for that company (), Weatherford International, Ltd., has the smallest percentage of its employees working at its GOM location (0.03 percent). In the mud logging sector, most of the companies are small and privately owned, with all employees working in the GOM region.

Table 18

Regional Distribution of Employees and Revenue—Mud Logging Services

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Texas	9	64%	323	49.5%	$47.54	68.7%
Louisiana	5	36%	329	50.5%	$21.66	31.3%
	14	100%	652	100%	$69.20	100%
TX - Fort Bend	1	7%	16	2.5%	$1.84	2.7%
TX – Harris	6	43%	302	46.3%	$45.43	65.7%
LA – Iberia	1	7%	19	2.9%	$3.10	4.5%
TX - Jim Wells	1	7%				
LA - Lafayette	2	14%	160	24.5%	$9.46	13.7%
LA - Lafourche	1	7%	25	3.8%	$1.30	1.9%
TX - Nueces	1	7%	5	0.8%	$0.27	0.4%
LA - St. John the Baptist	1	7%	125	19.2%	$7.80	11.3%
Totals	14	100%	652	100%	$69.20	100%

Table 19

Location Totals—Mud Logging Services

Company Name	2007 Employees	Number of Office Locations in Coastal GOM	Number of Employees in GOM Locations	Percentage of Employees at GOM Locations
Weatherford International, Ltd.	38,000	2	10	0.03%
Continental Laboratories, Inc.	>50	2	>50	
Pro-Log, Inc.	34	1	19	55.88%
Petroleum Center Inc.	30	1	25	83.33%
Diversified Well Logging, Inc.	130	2	130	100.00%
Geo-Lab, Inc.	50	1	50	100.00%
Petro-Log, Inc.	61	2	61	100.00%
PRECISION Well Logging, Inc.	47	1	47	100.00%
Stratagraph, Inc.	115	1	115	100.00%
The Mudlogging Company USA, L.P.	145	1	145	100.00%

3.6 MEASUREMENT WHILE DRILLING SERVICES

3.6.1 Ownership Patterns and Company Size

Table 20 lists the 16 companies that ERG identified as providing MWD services to the offshore GOM. There is an even split between public and private ownership in the number of companies, but the public companies are one to two orders of magnitude larger than the private companies. Three public firms are foreign-owned (Nabors Industries, Ltd., Schlumberger Ltd./NV, and

Weatherford International, Ltd.), and one private firm is foreign-owned (Pajak Engineering Ltd.). The highest revenue for a privately held firm in this industry is reported at $38 million (Pajak Engineering Ltd.). Slider LLC reported $1 million in 2007 revenues at its Houston, Texas, location. However, because Slider has another location in Calgary, Alberta, Canada, for which revenue data are unavailable, we know that 2007 revenues are greater than $1 million. Revenue and employee information was unavailable for two companies (Measurement While Drilling Services and MS Energy Services).

Table 20

MWD Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Allis Chalmers Energy Inc.	Houston	TX	Public	$570.97	3,050
Baker Hughes	Houston	TX	Public	$10,428.20	35,877
Halliburton Co.	Houston	TX	Public	$15,264.00	186,144
Nabors Industries Ltd.	Hamilton	Bermuda	Public	$4,940.68	23,965
RPC, Inc.	Atlanta	GA	Public	$690.23	2,370
Schlumberger Ltd./NV	Willemstad	Netherlands Antilles	Public	$23,276.54	80,000
Smith International	Houston	TX	Public	$8,764.33	19865
Weatherford International Ltd	Hamilton	Bermuda	Public	$7,832.06	38,000
Gyrodata Inc.	Houston	TX	Private	$18.10	300
Measurement While Drilling (MWD) Services	Youngsville	LA	Private		
MS Energy Services	Conroe	TX	Private		
Pajak Engineering Ltd.	Calgary, Alberta	Canada	Private	$38.00	22
Prime Directional Systems LLC	Broussard	LA	Private	$1.70	28
Scientific Drilling International	Houston	TX	Private	$36.00	500
Slider LLC	Houston	TX	Private	>$1.00	>4
Wellbore Navigation, Inc.	Tustin	CA	Private	$2.10	25
Totals				>$71,863.91	>390,150

Halliburton Co. has 186,144 employees, the highest number among all companies listed, while RPC, Inc., has the lowest number among all public firms with 2,370. Scientific Drilling International has the highest number of employees among all private companies (500). Slider LLC only has four employees at its Houston location. Employee data are unavailable for the company's other location in Canada; therefore, we know only that there are more than four employees at the company.

Following is a list of parent companies that have experienced new developments relating to MWD services.

- Allis-Chalmers Energy, Inc., announced that it had recently acquired two companies, Coker Directional, Inc., and Diggar Tools, LLC; this has expanded its directional drilling capabilities (Allis-Chalmers 2007).
- In 2008, Baker Hughes INTEQ launched its new aXcelerate High-Speed Telemetry service, offering high-speed mud-pulse and wired-pipe data transmission for logging while drilling (LWD) and MWD operations. This service is already being used in the GOM (Baker Hughes 2008a). In 2007, Baker Hughes INTEQ entered into a service agreement with IntelliServ Inc. (a Grant Prideco company) for the joint operation and marketing of services around the IntelliServ Network to deliver drilling, LWD, and MWD data (Baker Hughes 2007a).
- Halliburton Co. and TOTAL signed a project development agreement to jointly develop an ultra-high-temperature MWD system capable of operating in temperatures of up to 450°F (Halliburton 2008a).
- In 2009, Schlumberger released a new telemetry platform that helps MWD and LWD services run faster and further (Schlumberger 2009). In 2008, Schlumberger announced that it had acquired the business of Engineering Limited, a supplier of unmanned MWD systems (Schlumberger 2008a).
- Smith International merged with W-H Energy Services, Inc., in 2008 (Smith International 2008).

3.6.2 Locations

Table A-6 lists the individual locations from which MWD services are offered, while Table 21 summarizes the information by state and county/parish. At least 2,150 jobs and at least $674.82 million in revenue are associated with the MWD industry in the GOM region. Since many locations do not provide employee and revenue data, these figures underestimate the true values.

Texas claims 63 percent of the locations, 51 percent of the employees, and 74 percent of the identifiable revenues. Louisiana claims 37 percent of the locations, 49 percent of the employees, and 26 percent of the identifiable revenues. Employee and revenue data were unavailable for one parish in Louisiana (St. Tammany).

MWD services are offered in eight counties and parishes in the GOM. Harris County claims the highest percentage of locations with 50 percent, followed by Lafayette Parish with nearly 22 percent. Harris County claims about 47 percent of employees and nearly 73 percent of 2007 revenues. It has the highest number of employees and the highest reported 2007 revenues of all counties and parishes. Lafayette Parish claims nearly 38 percent of employees and nearly 14 percent of 2007 revenues.

Table 21

Regional Distribution of Employees and Revenue—MWD Services

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	17	37%	1,047	48.70%	$175.53	26.01%
Texas	29	63%	1,103	51.30%	$499.29	73.99%
Totals	46	100%	2,150	100%	$674.82	100%
TX - Dallas	1	2.17%				
TX - Harris	23	50.00%	1016	47.26%	$490.46	72.68%
LA - Lafayette	10	21.74%	807	37.53%	$91.35	13.54%
TX - Montgomery	3	6.52%	15	0.70%	$1.50	0.22%
TX - Nueces	2	4.35%	72	3.35%	$7.33	1.09%
LA - Orleans	4	8.70%	118	5.49%	$70.13	10.39%
LA - St. Tammany	1	2.17%		0.00%		0.00%
LA - Terrebonne	2	4.35%	122	5.67%	$14.05	2.08%
Totals	46	100.00%	2,150	100.00%	$674.82	100.00%

Table 22 summarizes the number of locations and employees by company offering offshore MWD services in the GOM. For giants in the contract oil services industry, MWD services involved only a small percentage (1 to 2 percent) of the companies' employees. There is room in the sector, however, for much smaller companies whose sole focus is MWD services (e.g., Prime Directional Systems and Slider).

Table 22

Location Totals—MWD Services

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Weatherford International Ltd.	8	430	1.13%
Baker Hughes	7	637	1.78%
Smith International	6	405	2.04%
RPC, Inc.	5	219	9.24%
Scientific Drilling International	3	115	23.00%
Prime Directional Systems LLC	2	28	100.00%
Gyrodata, Inc.	2	150	50.00%
Nabors Industries Ltd.	2	14	0.06%
Halliburton Co.	2	2	0.00%
Slider LLC	1	4	100.00%
Wellbore Navigation, Inc.	1	5	20.00%
Pajak Engineering Ltd.	1	1	4.55%
Allis Chalmers Energy Inc.	1	15	0.49%
Schlumberger Ltd./NV	1	100	0.13%
Measurement While Drilling (MWD) Services	1		
MS Energy Services	1		

3.7 CEMENTING SERVICES

3.7.1 Ownership Patterns and Company Size

The ability to fill the space between the casing and formation for several thousand feet without voids or weak spots involves high-pressure pumping and specialized expertise. ERG identified four companies that specialized in cementing wells (Table 23). Two firms are public and two are private; all are domestic. As with MWD services, the public companies are at least an order of magnitude larger than the private companies. BJ Services is the "800-pound gorilla" in this sector, with a total of $5.4 billion in 2007 revenues and 18,000 employees. Because revenue and employee information was unavailable for Liner Tools LC, the total 2007 revenues are greater than $7,001.43 million, and there are more than 22,550 employees in total.

Table 23

Cementing Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/Private	2007 Revenues (Millions)	2007 Employees
BJ Services	Houston	TX	Public	$5,426.26	18,000
Superior Energy Services, Inc.	Houston	TX	Public	$1,572.47	4,500
Hub City Industries, Inc.	Lafayette	LA	Private	$2.70	50
Liner Tools LC	Pearland	TX	Private		
Totals				>$7,001.43	>22,550

On December 12, 2007, Superior Energy Services, Inc., announced that it had completed its acquisition of Warrior Energy Services (Superior Energy Services 2007). Cementing is one of the many services that Warrior Energy Services provides. Although Warrior Energy Services is described as offering services to the GOM offshore, it is located in Columbus, Mississippi, which is outside the region examined for impacts.

3.7.2 Locations

BJ Services has 18 offices located within the GOM region, while the other three companies (Superior Energy Services, Inc., Hub City Industries, Inc., and Liner Tools LC) each have one office located within the GOM region.

Table A-7 breaks down total 2007 revenues and 2007 employees among each of these individual office locations. One of these locations, CSI Technologies, is a subsidiary of Superior Energy Services and is listed by its original name. At least 1,018 jobs and at least $114.09 million in revenue are associated with the cementing industry in the GOM region. Because ERG could not find employee and revenue data for Liner Tools LC, these figures underestimate the true values by a small degree.

Table 24 lists the regional employment distribution. Texas claims 43 percent of the locations, 38 percent of the employees, and 39 percent of the identifiable revenues. Louisiana claims 57 percent of the locations, 62 percent of the employees, and 61 percent of the identifiable revenues.

Employee and revenue data were unavailable for Calhoun County and Harris County in Texas and St. Mary Parish in Louisiana.

Locations, employees, and revenues are dispersed among 15 counties and parishes in the GOM. Lafayette Parish and Terrebonne Parish in Louisiana have the highest number of locations (three), followed by Brazoria County and Jefferson County in Texas, which have two locations each. The remaining counties and parishes each have one location. Lafayette and Terrebonne Parishes have about 200 employees each, for nearly two-fifths of employees and 2007 revenues. Unlike other service sectors examined, the cementing services sector features employees and revenues widely distributed throughout coastal Louisiana and Texas.

Table 24

Regional Distribution of Employees and Revenue—Cementing Services

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	12	57%	630	61.89%	$69.43	60.86%
Texas	9	43%	388	38.11%	$44.66	39.14%
Totals	21	100%	1,018	100%	$114.09	100%
LA – Acadia	1	4.76%	103	10.12%	$11.86	10.40%
TX – Brazoria	2	9.52%	100	9.82%	$11.51	10.09%
TX – Calhoun	1	4.76%				
LA – Cameron	1	4.76%	100	9.82%	$11.51	10.09%
TX – Galveston	1	4.76%	100	9.82%	$11.51	10.09%
TX – Harris	1	4.76%				
TX – Jefferson	2	9.52%	100	9.82%	$11.51	10.09%
LA – Lafayette	3	14.29%	200	19.65%	$19.93	17.47%
LA – Lafourche	1	4.76%	5	0.49%	$0.58	0.51%
TX – Liberty	1	4.76%	30	2.95%	$3.45	3.02%
LA – Orleans	1	4.76%	8	0.79%	$0.92	0.81%
LA – Plaquemines	1	4.76%	2	0.20%	$0.23	0.20%
LA - St. Mary	1	4.76%				
LA – Terrebonne	3	14.29%	212	20.83%	$24.40	21.39%
TX – Victoria	1	4.76%	58	5.70%	$6.68	5.86%
Totals	21	100.00%	1,018	100.00%	$114.09	100.00%

3.8 FORMATION EVALUATION

3.8.1 Ownership Patterns and Company Size

Table 25 lists the 18 companies that ERG identified as providing formation evaluation services to the offshore GOM. The table shows each company's corporate parent, headquarters location, ownership (public or private), and the 2007 revenues and employees of the corporate parent. About one-third of the companies are privately held, with the remaining two-thirds being public companies. Five of the public and two of the private companies are foreign. Expro International Group PLC transitioned from public to private ownership in mid-July 2008, when oil prices were hitting peaks of $130 per billion barrels and the credit collapse had not yet occurred (USDOE,

EIA 2009b). A consortium of Candover Partners Limited, Goldman Sachs Capital Partners, and AlpInvest Partners N.V. created Umbrellastream Limited for the acquisition (Candover 2008). However, since we are looking at revenues and employee data from 2007, when Expro was still a public company, Expro is listed as the parent company.

Table 25

Formation Evaluation Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/Private	2007 Revenues (Millions)	2007 Employees
AMCOL International Corporation	Hoffman Estates	IL	Public	$744.33	2,017
Baker Hughes, Inc.	Houston	TX	Public	$10,428.20	35,877
Complete Production Services	Houston	TX	Public	$1,655.24	7,062
Core Laboratories NV	Amsterdam	The Netherlands	Public	$670.54	4,900
Expro International Group PLC	Reading	UK	Public	EUR 609.7	4,500
John Wood Group PLC	Aberdeen	Scotland	Public	$4,432.70	21,613
RPC, Inc.	Atlanta	GA	Public	$690.23	2,370
Schlumberger NV	Willemstad	Netherlands Antilles	Public	$23,276.54	80,000
Superior Energy Services, Inc.	New Orleans	LA	Public	$1,572.47	4,500
TETRA Technologies, Inc.	The Woodlands	Texas	Public	$982.48	2,895
Weatherford International, Ltd.	Hamilton	Bermuda	Public	$7,832.06	38,000
Gray Energy Services LLC	Levalland	TX	Private	$2.20	40
Pacific Process Systems, Inc.	Bakersfield	CA	Private	$18.10	300
Reservoir Data Systems, Inc.	Sugar Land	TX	Private	$0.26	4
Stric-Lan Co's Corp.	Duson	LA	Private	$10.61	85
The Geoservices Group	ROISSY CDX CEDEX	France	Private	$416.00	5,100
T&P Well Testers of Lafayette, Inc.	Broussard	LA	Private	$0.84	17
Welltec A/S	Alleroed	Denmark	Private		550
Total					209,830

As in the other service sectors, there is an orders-of-magnitude range seen for company revenue and employees. Reservoir Data Systems Inc. is the smallest ($260 thousand and four employees), while Schlumberger NV is the largest ($23 billion and 80,000 employees).

On October 2, 2008, the Geoservices Group, a leader in oilfield services worldwide announced that it had acquired Production Wireline and Cased Hole Services LLC (PWL) (Geoservices

2008). PWL is headquartered in Broussard, Louisiana and performs slickline and related services in the GOM and the Gulf Coast region. The *Times Picayune* speculated that Geoservices acquired PWL in order to break into the U.S. market (Quillen 2008).

On December 12, 2007, Superior Energy Services announced that it had completed the acquisition of Warrior Energy Services (Superior Energy Services 2007). Warrior Energy Services is a natural gas and oil well services company that provides wireline and well intervention services to exploration and production companies. Its wireline services focus on cased-hole wireline ("electric line") operations, including logging services, perforating, mechanical services, pipe recovery, and eventually plugging and abandoning the well (Superior Energy Services 2006).

Schlumberger continued to grow in this sector by acquisition. To support its modeling capabilities, Schlumberger acquired IES Integrated Exploration Systems in 2008 and V.I.P.S. in 2007 (Schlumberger 2008b, 2007c) and the data management company InnerLogix in 2007 (Schlumberger 2007d).

3.8.2 Locations

Table A-8 lists the employees and revenues by location, while Table 26 summarizes the data by state and county/parish. At least 3,808 jobs and at least $544.75 million in revenue are associated with the formation evaluation industry in the GOM region. There may be considerable uncertainty due to the fact that one-third of the locations reported only one or none of the parameters, but these values serve as a lower bound estimate for this service sector.

Texas claims 53 percent of the locations, 54 percent of the employees, and 63 percent of the identifiable revenues. Louisiana claims 47 percent of the locations, 46 percent of the employees, and 37 percent of the identifiable revenues.

Locations offering formation evaluation services are distributed among 22 counties/parishes in the GOM region. No county or parish claims a majority of locations. Harris County and Lafayette Parish have the highest number of locations. Harris County claims 22 percent of the locations, and Lafayette Parish claims 21 percent. Seven counties and parishes claim only one location each. Harris County claims a quarter of total 2007 employees, and Lafayette Parish claims about 18 percent of total 2007 employees. Terrebonne Parish in Louisiana and Victoria County in Texas also claim high percentages of employees, with 17 percent and 16 percent, respectively.

Harris County generated the highest revenues in the industry sector, claiming 45 percent of total revenues. Terrebonne Parish claims about 11 percent fewer locations than Lafayette Parish but claims nearly 14 percent of total revenues. Lafayette Parish claims about 13 percent of total revenues. Employee and revenue data were unavailable for Chambers County and Wharton County in Texas and Iberia Parish and Jefferson Parish in Louisiana. Thus, using the revenue distribution shown in Table 26 will underestimate the percentage of revenue flowing to these counties—but, at this time, no additional information has been located.

Table 26

Regional Distribution of Employees and Revenue—Formation Evaluation

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	55	47%	1,762	46.27%	$202.87	37.24%
Texas	62	53%	2,046	53.73%	$341.88	62.76%
Totals	117	100%	3,808	100%	$544.75	100%
TX - Brazoria	6	5.13%	130	3.41%	$16.79	3.08%
LA - Caddo	4	3.42%	13	0.34%	$10.58	1.94%
LA - Calcasieu	1	0.85%	9	0.24%	$1.04	0.19%
LA - Cameron	1	0.85%	73	1.92%	$8.40	1.54%
TX - Chambers	1	0.85%				
TX – Dallas	3	2.56%	13	0.34%	$1.50	0.28%
TX - Fort Bend	2	1.71%	4	0.11%	$0.26	0.05%
TX - Harris	26	22.22%	953	25.03%	$244.38	44.86%
TX - Hidalgo	3	2.56%	97	2.55%	$7.80	1.43%
LA - Iberia	1	0.85%				
LA - Jefferson	2	1.71%				
TX - Jim Wells	6	5.13%	116	3.05%	$14.22	2.61%
LA - Lafayette	25	21.37%	682	17.91%	$68.45	12.57%
LA - Lafourche	2	1.71%	88	2.31%	$10.13	1.86%
TX - Nueces	7	5.98%	128	3.36%	$13.70	2.51%
LA - Orleans	5	4.27%	226	5.93%	$28.33	5.20%
LA - Plaquemines	1	0.85%	15	0.39%	$0.69	0.13%
LA - Terrebonne	12	10.26%	644	16.91%	$73.81	13.55%
TX - Victoria	5	4.27%	595	15.63%	$41.23	7.57%
TX - Waller	1	0.85%	10	0.26%	$2.00	0.37%
LA - Webster	1	0.85%	12	0.32%	$1.44	0.26%
TX - Wharton	2	1.71%				
Totals	117	100.00%	3,808	100.00%	$544.75	100.00%

Table 27 summarizes the location data by company. The John Wood Group has the largest number of locations (16), but most of them do not report revenues or employees. Thus, there is an incongruously low total number of employees for this company. For the most part, the companies divide into two groups—the large companies for which formation evaluation is one of many services offered (and which thus have only a small percent of their employees in this sector in the GOM) and smaller companies that specialize in the service.

Table 27

Location Totals—Formation Evaluation

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
John Wood Group PLC	16	25	0.12%
Baker Hughes, Inc.	13	341	0.95%
Core Laboratories NV	10	601	12.27%
TETRA Technologies, Inc.	10	322	11.12%
Superior Energy Services, Inc.	10	72	1.60%
Weatherford International, Ltd.	10	170	0.45%
Schlumberger NV	9	683	0.85%
Expro International Group PLC	8	209	4.64%
Complete Production Services	8	748	10.59%
RPC, Inc.	8	224	9.45%
AMCOL International Corporation	3	224	11.11%
The Geoservices Group	3	41	0.80%
Gray Energy Services LLC	2	36	90.00%
Stric-Lan Co's Corp.	2	63	74.12%
Welltec A/S	2	19	3.45%
Reservoir Data Systems, LLC	1	4	100.00%
T&P Well Testers of Lafayette, Inc.	1	17	100.00%
Pacific Process Systems, Inc.	1	9	3.00%
Totals	117	3,808	

3.9 WELL COMPLETION

3.9.1 Ownership Patterns and Company Size

Table 28 lists the 13 companies that ERG identified as providing completion services to the offshore GOM. For this service sector, about two-thirds of the companies are public. All of the public companies are domestic. The firms with the highest 2007 revenues are Baker Hughes Incorporated, National Oilwell Varco, and Smith International, Inc. These firms generated $10.4 billion, $9.8 billion, and $8.8 billion, respectively.

Two of the private firms are foreign-owned (Pajak Engineering, Ltd., and Red Spider Technology AS). The private firm with the highest revenue is Chet Morrison Contractors, Inc., with reported 2007 revenues of $45.5 million. Baker Hughes Inc. has 35,877 employees working in all service sectors, the highest number among all companies listed, while Spartan Offshore Drilling LLC has the lowest with only 11 employees. Revenue and employee information was unavailable for Combined Technical Services, and revenue information was unavailable for Red Spider Technology AS. The total 2007 revenues are greater than $38,523.51 million, and there are more than 121,573 employees in total.

Following is a list of recent parent company news relating to the completion services industry:

- On June 30, 2008, Baker Oil Tools announced that it has installed more than two million feet of inflow control completion systems to achieve successful production rates in horizontal wells in more than 20 oil and gas fields around the world (Baker Hughes 2008b). In 2007, Baker Oil Tools announced that Anadarko Petroleum Corporation had recently completed an intelligent well in 8,100 feet of water in the eastern GOM using Baker Oil Tools' InForce™ Intelligent Completion System (Baker Hughes 2007b).
- On July 1, 2008, Halliburton Co. acquired the remaining 49 percent interest in Well Dynamics which provides intelligent well completion technology (Halliburton 2008b).
- In April 2008, Chet Morrison Contractors, Inc., purchased all the assets of Premium Well Services, LLC, which performs well completion services along with a variety of other services in the GOM (Chet Morrison 2008).

Table 28

Completion Companies in the Gulf of Mexico

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Baker Hughes Incorporated	Houston	TX	Public	$10,428.20	35,877
BJ Services Co.	Houston	TX	Public	$5,426.26	18,000
Boots & Coots International Well Control, Inc.	Houston	TX	Public	$105.30	650
Key Energy Services	Houston	TX	Public	$1,662.01	8,398
National Oilwell Varco Inc.	Houston	TX	Public	$9,789.00	31,198
RPC, Inc.	Atlanta	GA	Public	$690.23	2,370
Smith International Inc.	Houston	TX	Public	$8,764.33	19,865
Superior Energy Services, Inc.	New Orleans	LA	Public	$1,572.47	4,500
Chet Morrison Contractors, Inc.	Houma	LA	Private	$45.50	600
Combined Technical Services	Harvey	LA	Private	$1.50	32
Pajak Engineering Ltd.	Calgary, Alberta	Canada	Private	$38.00	22
Red Spider Technology AS	Aberdeen	UK	Private		50
Spartan Offshore Drilling LLC	Metairie	LA	Private	$0.71	11
Totals				>$38,523.51	121,573

3.9.2 Locations

Table A-9 lists the locations that offer completion services, while Table 29 summarizes the data by region. At least 2,450 jobs and at least $821.74 million in revenue are associated with the completion industry in the GOM region.

Texas claims 54 percent of the locations, 86 percent of the employees, and 88 percent of the identifiable revenues. Louisiana claims 46 percent of the locations, 14 percent of the employees, and 12 percent of the identifiable revenues. Employee and revenue data were unavailable for Dallas County, Hardin County, and Wharton County in Texas, and revenue data were unavailable for Webster Parish in Louisiana. Thus, the percentages may be skewed.

The locations, employees, and revenues are dispersed among 16 counties and parishes in the GOM region. Harris County has the highest number of locations (10), followed by Lafayette Parish in Louisiana, which has six locations. Harris County claims the highest percentage of employees (75 percent) and the highest percentage of 2007 revenues (84 percent).

Table 29

Regional Distribution of Employees and Revenue—Well Completion Services

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	19	46%	345	14.08%	$99.24	12.08%
Texas	22	54%	2,105	85.92%	$722.50	87.92%
Totals	41	100%	2,450	100%	$821.74	100%
LA - Lake Charles	1	2.44%	11	0.45%	$1.27	0.15%
TX - Dallas	1	2.44%				
TX - Hardin	2	4.88%				
TX - Harris	10	24.39%	1,838	75.02%	$691.19	84.11%
LA - Iberia	2	4.88%	36	1.47%	$4.51	0.55%
LA - Jefferson	4	9.76%	67	2.73%	$5.13	0.62%
TX - Jim Wells	1	2.44%	20	0.82%	$2.88	0.35%
LA - Lafayette	6	14.63%	183	7.47%	$65.48	7.97%
TX - Liberty	2	4.88%	90	3.67%	$10.36	1.26%
TX - Nueces	4	9.76%	75	3.06%	$8.63	1.05%
LA - Orleans	1	2.44%	18	0.73%	$14.65	1.78%
LA - Terrebonne	3	7.32%	20	0.82%	$7.10	0.86%
LA - Vermilion	1	2.44%	5	0.20%	$1.10	0.13%
TX - Victoria	1	2.44%	82	3.35%	$9.44	1.15%
LA - Webster	1	2.44%	5	0.20%		
TX - Wharton	1	2.44%				
Totals	41	100.00%	2,450	100.00%	$821.74	100.00%

Table 30 summarizes the location, revenue, and employee data by company. The large companies that offer a variety of contract oil services have less than 1 percent of employees offering completion services in the GOM. These include Baker Hughes Incorporated (0.16 percent), RPC Inc. (0.21 percent), BJ Services Co. (0.69 percent), and Superior Energy Services,

Inc. (0.73 percent). Smith International, Inc., has the greatest number of GOM locations (14) and the greatest identifiable number of employees working in the GOM locations (1,930 employees). All of the employees at Spartan Offshore Drilling LLC and Combined Technical Services work in the GOM region.

Table 30

Location Totals—Well Completion Services

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Spartan Offshore Drilling LLC	2	11	100.00%
Combined Technical Services	1	32	100.00%
Smith International Inc.	14	1,930	9.72%
Pajak Engineering Ltd.	1	1	4.55%
Key Energy Services	5	257	3.06%
Superior Energy Services, Inc.	4	33	0.73%
BJ Services Co.	2	125	0.69%
RPC, Inc.	3	5	0.21%
Baker Hughes Incorporated	3	56	0.16%
Chet Morrison Contractors, Inc.	2		
National Oilwell Varco Inc.	2		
Boots & Coots International Well Control, Inc.	1		
Red Spider Technology AS	1		
Totals	41	2,450	

3.10 FISHING

3.10.1 Ownership Patterns and Company Size

Table 31 lists the four companies that ERG identified as specializing in fishing operations. All of the companies listed are private, domestic, and relatively small. The largest firm is Logan Oil Tools, Inc., which reported at least $51.13 million in 2007 revenues and more than 309 employees.[21]

[21] Total revenue and employee information was unavailable for Logan Oil Tools, Inc. as a company. However, the information was available for all Gulf of Mexico locations. The sum of the location revenues and employees are $51.13 million and 309, respectively. Because the company has more locations in other regions, we know total revenue is greater than $51.13 million, and there are more than 309 employees.

Table 31

Companies in the GOM That Offer Fishing Services

Parent Company	Parent Headquarters City	Parent Headquarters State	Public/Private	2007 Revenues (Millions)	2007 Employees
Combined Technical Services	Harvey	LA	Private	$1.50	32
Dishman & Bennett Specialty Co, Inc.	Houma	LA	Private	$1.90	20
Knight Oil Tools, Inc.	Lafayette	LA	Private	$29.00	300
Logan Oil Tools, Inc.	Houston	TX	Private	>$51.13	>309
Totals				>$82.03	>629

3.10.2 Locations

Table A-10 lists the 11 locations in the GOM that specialize in offering fishing services. Logan Oil Tools, Inc. has the greatest number of GOM locations (four). This information is summarized by region and county/parish in Table 32 and by company in Table 33. An estimated 402 jobs and at least $60.94 million in revenue are associated with the fishing industry in the GOM region.

Louisiana claims nearly 64 percent of the locations, while Texas claims 36 percent. Even though Louisiana claims the majority of the locations, Texas claims the majority of employees (84 percent) and revenues (92 percent). Louisiana claims 16 percent of the employees and 8 percent of the identifiable revenues.

The 11 locations are spread among six counties and parishes. Lafayette Parish has the highest number of locations (three). Harris County, Jim Wells County, and Terrebonne Parish all claim two locations. Harris County claims the highest percentage of employees (82 percent) and the highest percentage of 2007 revenues (91 percent).

For two companies, all employees work in the GOM region. About 13.7 percent of employees at Knight Oil Tools, Inc., work at the company's GOM locations. An unknown proportion of employees at Logan Oil Tools work in the GOM.

Table 32

Regional Distribution of Employees and Revenue—Fishing Services

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	7	63.6%	66	16.4%	$5.02	8.2%
Texas	4	36.4%	336	83.6%	$55.92	91.8%
Totals	11	100.0%	402	100.0%	$60.94	100.0%
TX - Harris	2	18.2%	330	82.1%	$55.28	90.7%
LA - Jefferson	1	9.1%	32	8.0%	$1.50	2.5%
TX - Jim Wells	2	18.2%	6	1.5%	$0.64	1.1%
LA - Lafayette	3	27.3%	18	4.5%	$2.58	4.2%
LA - Terrebonne	2	18.2%	11	2.7%	$0.43	0.7%
LA - Webster	1	9.1%	5	1.2%	$0.51	0.8%
Totals	11	100.0%	402	100.0%	$60.94	100.0%

Table 33

Location Totals—Fishing Services

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Dishman & Bennett Specialty Co, Inc.	3	20	100.0%
Combined Technical Services	1	32	100.0%
Knight Oil Tools, Inc.	3	41	13.7%
Logan Oil Tools, Inc.	4	309	
Totals	11	402	

3.11 WELLHEAD EQUIPMENT

3.11.1 Ownership Patterns and Company Size

Table 34 lists the 16 companies that ERG identified as providing wellhead equipment services[22] to the offshore GOM. The table shows each company's corporate parents, headquarters locations, and ownership (public or private), as well as the 2007 revenues and employees of the corporate parent. Corporate ownership is 56 percent public and 44 percent private, with the public companies being substantially larger in revenues. General Electric Co. appears on the list because of its 2007 acquisition of Vetco Gray and 2008 acquisition of Hydril (GE 2007, 2008). Because oil production is only one part of GE's energy segment and energy is only one of many segments within GE, the company is an order of magnitude larger in revenues ($173 billion) than

[22] That is, the tools and supplies sector discussed in Section 3.4 encompasses the tubulars and mud pumps used in drilling wells up to the blowout protectors. Companies providing generalized supplies (e.g., valves, gaskets) that can be used within multiple components are also contained in the tools and supplies section.

the next largest company (National Oilwell Varco, with $9.8 billion in revenues). Only two firms are foreign-owned (John Wood Group PLC and Tenaris SA).

At the other end of the spectrum, Jamison Products LP reports less than $1 million in revenues and nine employees. The private firm with the highest revenue is National Flame & Forge, which reported 2007 revenues of $23.2 million. ERG could not locate employee or revenue information for two private firms—for Flow-Tech Industries, Inc., and Land & Sea Equipment International Corp.

Table 34

Wellhead Equipment Companies in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Cameron International Corp.	Houston	TX	Public	$4,666.37	15,400
General Electric Co.	Fairfield	CT	Public	$172,738.00	328,700
John Wood Group PLC	Aberdeen, Aberdeenshire	Scotland	Public	$4,432.70	21,613
NATCO Group, Inc	Houston	TX	Public	$570.12	2,522
National Oilwell Varco	Houston	TX	Public	$9,789.00	31,198
RPC, Inc.	Atlanta	GA	Public	$690.23	2,370
Robbins & Myers, Inc	Dayton	OH	Public	$787.17	3,357
T-3 Energy Services, Inc.	Houston	TX	Public	$217.43	734
Tenaris SA	Luxembourg	Luxembourg	Public	$10.04	23,500
Bill Poole Products Inc	New Iberia	LA	Private	$6.00	10
Flow-Tech Industries Inc.	Houston	TX	Private	>$1.00	>4
Greene's Energy Group LLC	Lafayette	LA	Private	$30.30	>571
Houma Valve Service Inc	Houma	LA	Private	$1.00	25
Land & Sea Equipment International Corp.	Tampa	FL	Private		
LE Simmons & Associates, Inc.	Houston	TX	Private	$17.50	235
National Flame & Forge	Houston	TX	Private	$23.20	215
Totals				>$193,980	>430,454

3.11.2 Locations

The 16 companies have about 110 offices within the GOM region. Table A-11 breaks down total 2007 revenues and 2007 employees among each of these locations to the extent possible. At least 4,523 jobs and at least $1.3 billion in revenue are associated with the wellhead equipment industry in the GOM region. Since many locations do not provide employee and revenue data, these figures underestimate the true values.

Table 35 lists the regional employment distribution. Texas claims 45 percent of the locations, 64 percent of the employees, and 68 percent of the identifiable revenues. Louisiana claims 54 percent of the locations, 36 percent of the employees, and 32 percent of the identifiable revenues. There is one location in Florida, for which employee and revenue data were unavailable. Locations, employees, and revenues are dispersed among 23 counties and parishes in the GOM.

Harris County has the highest number of locations (25), followed by Lafayette Parish in Louisiana, which has 20 locations. Harris County claims the highest percentage of employees (56 percent) and the highest percentage of 2007 revenues (59 percent). The regional distribution of employees and revenues is skewed by the absence of this information for several locations.

Table 35

Regional Distribution of Employees and Revenue—Wellhead Services

	Number of Locations		2007 Employees		2007 Revenue	
Region	Count	Percent	Count	Percent	Count	Percent
Florida	1	1%				
Louisiana	59	54%	1,641	36.28%	$421.69	31.60%
Texas	50	45%	2,882	63.72%	$912.77	68.40%
Totals	110	100%	4,523	100.00%	$1,334.46	100.00%
LA - Ascension	1	0.91%	3	0.07%	$0.25	0.02%
LA - Bossier	5	4.55%	14	0.31%	$4.25	0.32%
LA - Caddo	3	2.73%	35	0.77%	$11.85	0.89%
LA - Calcasieu	2	1.82%	80	1.77%	$15.17	1.14%
TX - Dallas	1	0.91%				
TX - Fort Bend	4	3.64%	5	0.11%	$7.30	0.55%
TX - Harris	25	22.73%	2,515	55.60%	$788.53	59.09%
TX - Hidalgo	1	0.91%	12	0.27%	$5.20	0.39%
FL - Hillsborough	1	0.91%				
LA - Iberia	6	5.45%	261	5.77%	$98.13	7.35%
LA - Jefferson	3	2.73%	170	3.76%	$36.02	2.70%
TX - Jim Wells	4	3.64%	45	0.99%	$8.99	0.67%
LA - Lafayette	20	18.18%	817	18.06%	$211.85	15.88%
LA - Lafourche	1	0.91%	13	0.29%	$5.64	0.42%
TX - Montgomery	3	2.73%	160	3.54%	$62.75	4.70%
TX - Nueces	8	7.27%	87	1.92%	$28.18	2.11%
LA - Orleans	2	1.82%	3	0.07%	$0.64	0.05%
LA - Plaquemines	2	1.82%	9	0.20%	$1.04	0.08%
TX - San Patricio	1	0.91%	22	0.49%	$2.53	0.19%
LA - St. Mary	3	2.73%	8	0.18%	$3.47	0.26%
LA - Terrebonne	11	10.00%	228	5.04%	$33.38	2.50%
TX - Victoria	2	1.82%	11	0.24%	$3.99	0.30%
LA - Waller	1	0.91%	25	0.55%	$5.30	0.40%
Totals	110	100.00%	4,523	100.00%	$1,334.46	100.00%

Table 36 summarizes the information by company. General Electric has the largest number of employees in the wellhead services sector; because GE is such a large conglomerate, though, these form less than 1 percent of the company's staff. National Oilwell Varco has a corporate focus on the oil and gas industry but has operations across the globe serving both land-based and ocean-based operations. Thus, although the latter company has the most locations (37) and 773 employees in the GOM region, this is still a small portion (about 2.5 percent) of its operations. ERG could not locate the total number of employees for Greene's Energy Group and its acquisitions or LE Simmons & Associates, and thus could not identify the percentage of employees at GOM locations. Other companies, such as Houma Valve Service, Bill Poole

Products, and T-3 Energy Services have a much stronger focus in the Gulf region, with the majority of their employees working within the region of interest.

Table 36

Location Totals by Company—Wellhead Services

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
National Oilwell Varco	37	773	2.48%
Greene's Energy Group	18	571	
John Wood Group PLC	10	243	1.12%
T-3 Energy Services	9	447	60.90%
NATCO Group, Inc	8	247	9.79%
General Electric Co.	6	1,050	0.32%
Cameron International Corp.	5	113	0.73%
LE Simmons & Associates, Inc.	3	105	
Robbins & Myers, Inc	3	223	6.64%
RPC, Inc.	3		
Tenaris SA	2	554	2.36%
Bill Poole Products Inc	2	8	80.00%
Flow-Tech Industries	1	4	
Houma Valve Service Inc	1	25	100.00%
Land & Sea Equipment International Corp.	1		
National Flame & Forge	1	160	74.42%
Totals	110	4,523	

3.12 ACCOMMODATIONS

The companies discussed in this section offer a range of products and services, including:

- Manufacture of living quarters for production structures
- Manufacture of modular living quarters
- Flotel or accommodation rig leasing
- Consulting services on design and layout of galley and living quarters

3.12.1 Ownership Patterns and Company Size

Table 37 lists the 11 companies that ERG identified as providing accommodations to the offshore GOM. Only four companies are public and the largest of these, Prosafe SE, is headquartered in Cyprus. Prosafe SE is organized into two divisions, one for its FPSO vessels and the other for its accommodation rigs (called Offshore Support Services). The company owns 11 of the world's 17 semi-submersible accommodation/service rigs and one jack-up accommodation/service rig. Utilization rates for its accommodation rigs for 2007 and 2008 were 88 percent and 92 percent, respectively.[23] In 2007, Prosafe SE reported $527 million in revenues,

[23] These high utilization rates and profitable returns encouraged the creation of Ocean Hotels, PLC, headquartered in Cyprus, with an office in Norway, and the stated intent of serving the GOM and other non–North Sea regions. As of

of which $376 million came from its Offshore Support Services division. During this period, six of its 12 rigs were in the GOM. In 2008, 34 percent of the company's operating revenues came from its GOM operations (Prosafe 2007, 2008). Most revenues associated with leasing Prosafe's rigs are not likely to stay in the GOM economic region due to its foreign headquarters and worldwide operations.

Table 37

Accommodation Companies in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Gulf Island Fabrication, Inc.	Houma	LA	Public	$472.74	1,850
Oil States International, Inc.	Houston	TX	Public	$2,088.24	6,551
Prosafe SE	Larnaca	Cyprus	Public	$527.10	1,360
Superior Energy Services, Inc	New Orleans	LA	Public	$1,572.47	4,400
Global Maritime Solutions LLC	Abbeville	LA	Private		
GulfLand Structures	Lafayette	LA	Private		
Leirvik Beacon Offshore	Orange	TX	Private		
Marine & Offshore Supplies, Inc	Tampa	FL	Private		
QCI Marine Offshore LLC	Houston	TX	Private	$24.00	175
Stallion Oilfield Services, Ltd.	Houston	TX	Private	$427.20	2,689
Taylors International Services, Inc.	Lafayette	LA	Private	$69.00	700
Totals				$5,180.75	17,725

Gulf Island Fabrication is a major fabricator of jackets and deck sections of fixed production platforms, ABS hull and/or deck sections of floating production platforms (TLPs, SPARs, FPSOs), conventional jackets for water depths up to 800 feet, deep-water structures, living quarters for offshore platforms, and other offshore components such as piles, wellhead protectors, and subsea templates. Gulf Island Fabrication, Inc., generated $472.74 million in 2007 revenues. One of the company's subsidiaries, Southport LLC, is involved in the design, construction, maintenance, and repair of accommodations for the offshore oil and gas industry. Southport LLC generated $33.02 million in 2007 revenues. Based on this information, about 7 percent of total revenues were generated from the accommodations industry (Gulf Island Fabrication, Inc. 2007; D&B 2009).

Oil States International, Inc., has three business segments—offshore products, tubular services, and well site services. Within the well site segment, the company offers modular workforce accommodations, catering, and logistics for remote onshore and offshore areas. In 2007, the company reported $2.1 billion in revenues, of which 15 percent ($312.8 million) were generated from accommodations (Oil States 2007). Oil States International is the largest company in Table

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February 2009, Ocean Hotels had to renegotiate higher costs and a longer delivery schedule with the Canadian shipyard (Davies Shipyard) building the vessels. Given the current economic downturn, it is unclear when and whether Ocean Hotels will operate in the GOM (Ocean Hotels 2009).

6, with $2.1 billion in revenues and about 6,550 employees, but only a fraction of these are associated with offshore accommodation services and supplies.

The fourth public company—Superior Energy Services, Inc.—generated $1.6 billion in 2007 revenues. Superior Energy has a subsidiary—HB Rentals—within its Rental Tool Division which supplies temporary on and offshore accommodation modules. About half of Superior Energy's revenues come from all operations in the GOM. The Rental Tool Division's total 2007 revenue was $496.3 million, of which $152 million came from GOM operations. That is, revenues from rental tool operations in the GOM accounted for almost 10 percent of Superior Energy Services' 2007 revenues. This is an upper bound estimate for the role played by accommodation services; there are eight subsidiaries within the Rental Tool Division.

ERG could not locate revenue for four of the seven private firms (Global Maritime Solutions, GulfLand Structures, Leirvik Beacon Offshore, and Marine & Offshore Supplies, Inc.) whose focus appears to be building accommodation modules (Global Maritime Solutions 2009; GulfLand Structures 2009; Marine & Offshore Supplies 2009). Leirvik Beacon Offshore is a joint venture between Beacon Maritime and Leirvik Module Technology to build offshore accommodation modules (Leirvik Beacon 2009).

Of the three private firms (Stallion Oilfield Services, Taylors International Services, and QCI Marine) for which ERG could find revenue information, Stallion Oilfield Services is apparently the largest, with $427 million in revenues and nearly 2,700 employees. The company serves both the onshore and offshore regions, however, and offers additional services such as rig hauling, oilfield trucking, surface equipment rental, solids control and remediation services, and well site construction. Thus, it is likely that only a small fraction of its operations are offshore accommodation services (Stallion Oilfield Services 2009).

Taylors International Services appears in both the accommodations and catering sectors. Their focus is the layout and design of galley and living quarters for onshore and offshore oil and gas job sites (Taylors International Services 2009). QCI Marine Offshore LLC is headquartered in Houston, Texas, with a regional office in Pascagoula, Mississippi.[24]

3.12.2 Locations

The parent companies listed in Table 37 have 21 locations in the GOM region, as shown in Table A-12. At least 1,338 jobs and at least $168.44 million in revenue are associated with the accommodations industry in the GOM region. ERG could not locate revenue and employment information for all locations, so there is a small degree of underestimation associated with the totals.

Table 38 lists the regional employment distribution. Louisiana claims over half of total locations (52 percent) and three-quarters of total 2007 revenues. Louisiana claims nearly all of the employees in the industry (94 percent), primarily due to three locations: Taylors International in

[24] Most locations for the contract offshore oilfield services are in Texas and Louisiana; however, QCI Marine is an example of the widespread distribution of economic support provided by the offshore oil and gas industry in the GOM region.

Lafayette (700 employees), Southport LLC/Gulf Island Fabrications in Houma (200 employees), and Stallion Offshore services in Abbeville (165 employees) (see Table A-12).

On the other hand, Texas, which claims 38 percent of the locations, claims only 6 percent of the employees and only a quarter of total 2007 revenues. Florida claims 5 percent of the locations; however, employee and revenue data for those locations are unavailable. Mississippi, which also claims 5 percent of the locations, only claims 0.9 percent of employees and 0.8 percent of revenues.

Locations, employees, and revenues are dispersed among 10 counties and parishes in the GOM. Employee and revenue data are unavailable for one county in Florida (Hillsborough) and one county in Texas (Orange). Thus, the percentages are zero for these counties when some economic activity would flow through them.

Table 38

Regional Distribution of Employees and Revenue—Accommodations

	Number of Locations		2007 Employees		2007 Revenue	
Region	Count	Percent	Count	Percent	Count	Percent
Florida	1	4.76%	0	0.00%	$0.00	0.00%
Louisiana	11	52.38%	1,251	93.50%	$125.57	74.55%
Mississippi	1	4.76%	12	0.90%	$1.38	0.82%
Texas	8	38.10%	75	5.61%	$41.49	24.63%
Totals:	21	100.00%	1,338	100.00%	$168.44	100.00%
TX – Brazoria	1	4.76%	15	1.12%	$2.64	1.57%
TX – Harris	5	23.81%	30	2.24%	$22.62	13.43%
FL – Hillsborough	1	4.76%	0	0.00%	$0.00	0.00%
MS – Jackson	1	4.76%	12	0.90%	$1.38	0.82%
TX - Jim Wells	1	4.76%	30	2.24%	$16.23	9.64%
LA – Lafayette	5	23.81%	803	60.01%	$72.24	42.89%
TX – Orange	1	4.76%	0	0.00%	$0.00	0.00%
LA – Plaquemines	1	4.76%	76	5.68%	$19.96	11.85%
LA – Terrebonne	2	9.52%	202	15.10%	$33.12	19.66%
LA – Vermilion	3	14.29%	170	12.71%	$0.25	0.15%
Totals	21	100.00%	1,338	100.00%	$168.44	100.00%

Lafayette Parish in Louisiana and Harris County in Texas claim the highest percentage of locations (24 percent) followed by Vermilion Parish and Terrebonne Parish in Louisiana, which claim 14 and 10 percent of locations, respectively. The rest of the counties and parishes have one location (i.e., 5 percent) each.

Table 39 summarizes the data in Table 38 by company. The relative importance of Taylors International to Louisiana and the offshore accommodation sector is evident. Although the company has only one location, it has 700 employees, all of whom work in the offshore accommodations and catering sector. Superior Energy Services has the largest number of locations (five) through its subsidiaries.

Table 39

Location Totals by Company—Accommodations

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Superior Energy Services, Inc	5	132	3.00%
Oil States International, Inc.	3	92	1.40%
Stallion Oilfield Services, Ltd.	3	167	6.21%
Global Maritime Solutions LLC	2	5	
QCI Marine Offshore LLC	2	42	24.00%
Marine & Offshore Supplies, Inc	1		
Gulf Island Fabrication, Inc.	1	200	10.81%
GulfLand Structures	1		
Leirvik Beacon Offshore	1		
Prosafe SE	1		
Taylors International Services, Inc.	1	700	100.00%

3.13 AIR TRANSPORT

3.13.1 Ownership Patterns and Company Size

Table 40 lists the 11 companies that ERG identified as providing air transportation services to the offshore GOM. All firms are domestic. The three public firms are substantially larger than the private companies, a pattern seen throughout the oilfield services industries. Seacor Holdings, Inc., which offers both air and water transport, is the largest with $1.4 billion in 2007 revenues. Seacor Holdings owns ERA Helicopters (Seacor Holdings 2008). The Bristow Group (formerly Offshore Logistics) is next-largest, with nearly $0.9 billion in 2007 revenues. PHI (formerly Petroleum Helicopters Inc.) reported $446 million in 2007 revenues. These three public companies are discussed in Dismukes (2010) with the observation that they account for nearly 80 percent of the available commercial aircraft in the GOM.

Among the private companies, Evergreen Holdings is most interesting. The company offers a mix of aviation services (e.g., personnel transport, firefighting, and medivac) as well as agricultural production. Evergreen Helicopters, Inc., is one of nine subsidiaries and offers transportation services out of Galveston, Texas (Evergreen 2009). While the total number of Evergreen employees is between that of the Bristow Group and PHI, it is apparent that transporting personnel and material to offshore GOM locations is only a small part of Evergreen Holdings' business.

The remaining private companies are small, with 25 or fewer employees and $4 million or less in revenues. Thus, although the industry appears to be concentrated in three large providers, it is sufficiently competitive that seven private companies are able to compete for business.

Table 40

Air Transportation Contractors in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Bristow Group Inc.	Houston	TX	Public	$897.86	4,159
Petroleum Helicopters Inc.	Lafayette	LA	Public	$446.41	2,299
Seacor Holdings Inc.	Fort Lauderdale	FL	Public	$1,359.23	5,268
Central Helicopter Service Inc.	Houston	TX	Private	$1.30	15
Evergreen Holdings Inc.	McMinnville	OR	Private		3,942
Go Helitrans Co Inc.	Manvel	TX	Private	$4.00	
Houston Helicopters, Inc.	Pearland	TX	Private	$4.00	25
Industrial Helicopters Inc.	Scott	LA	Private		10
Pelican Aviation Corp	New Iberia	LA	Private	$1.10	17
Rotocraft Leasing	Broussard	LA	Private		350
Southern Helicopters	Sunshine	LA	Private	$3.70	15
Total					16,100

3.13.2 Locations

ERG identified 64 locations offering helicopter services to the GOM region; see Table A-13. At least 913 jobs and at least $158 million in revenue are associated with the air transportation contracting industry in the GOM region. Since a substantial number of locations do not provide employee and revenue data, these figures underestimate the true values. For example, Bristow Group reports that approximately 20 percent of its revenues come from GOM operations (Bristow Group 2009). This would be about $180 million for this company alone. PHI reports that 64 percent of its 2007 operating income (or about $285 million) came from its oil and gas segment, which provides helicopter transport to offshore platforms/structures in the GOM, Angola, and the Democratic Republic of Congo (PHI 2008).

Table 41 lists the regional employment distribution. Louisiana claims 59 percent of the locations, 82 percent of the employees, and 86 percent of the revenues. Texas claims 33 percent of the locations, 17 percent of the employees, and 13 percent of the revenues. Alabama claims 6 percent of the locations, 0.2 percent of the employees, and 0.06 percent of the revenues. Florida claims 2 percent of the locations, 0.4 percent of the employees, and 0.6 percent of the revenues. Because employee and revenue data are unavailable for nearly half of the counties and parishes listed, the percentages are likely to be skewed.

Helicopter services for offshore oil and gas operations originate at 64 locations in 22 counties and parishes in the GOM. Because there are so many counties and parishes, no single region claims a majority of locations, employees, or revenues. Galveston County (Texas), Terrebonne Parish (Louisiana), and Vermilion Parish (Louisiana) each claim 8 percent of the locations. Iberia Parish in Louisiana claims 37 percent of employees, which is the highest percentage, followed by Calcasieu Parish, Lafayette Parish, and Vermilion Parish, which claim 16 percent, 12 percent, and 11 percent, respectively. Calcasieu Parish in Louisiana claims the highest percentage of revenues (47 percent), and Iberia Parish claims the second highest percentage of revenues (26 percent).

Table 42 summarizes the data in Table 41 by company. Seacor Holdings (ERA Helicopters) and Bristow Group represent about 69 percent of the known GOM employment in this sector. This percentage would be lower if any information could be located for individual sites for PHI. For Seacor Holdings and Bristow Group, however, only a small fraction of employees work at GOM locations that offer air transport services. In contrast, the smaller private firms are unlikely to have more than 50 employees but more likely to have all of them work in the GOM in air transport for oil and gas operations.

Table 41

Regional Distribution of Employees and Revenue—Air Transport

	Number of Locations		2007 Employees		2007 Revenue	
Region	Count	Percent	Count	Percent	Count	Percent
Alabama	4	6%	2	0.22%	$0.10	0.06%
Florida	1	2%	4	0.44%	$0.90	0.57%
Louisiana	38	59%	751	82.26%	$136.28	86.13%
Texas	21	33%	156	17.09%	20.95	13.24%
Totals	64	100%	913	100.00%	$158.23	100.00%
TX - Aransas	3	4.69%	0	0.00%	$0.00	0.00%
TX - Brazoria	4	6.25%	59	6.46%	$4.00	2.53%
LA - Calcasieu	3	4.69%	150	16.43%	$74.30	46.96%
TX - Calhoun	2	3.13%	0	0.00%	$0.00	0.00%
LA - Cameron	4	6.25%	30	3.29%	$3.95	2.50%
TX - Galveston	5	7.81%	57	6.24%	$15.56	9.83%
TX - Harris	2	3.13%	38	4.16%	$1.30	0.82%
LA - Iberia	2	3.13%	336	36.80%	$40.61	25.67%
LA - Iberville	1	1.56%	15	1.64%	$3.70	2.34%
LA - Jefferson	1	1.56%	0	0.00%	$0.00	0.00%
TX - Jefferson	2	3.13%	0	0.00%	$0.00	0.00%
LA - Lafourche	4	6.25%	4	0.44%	$0.09	0.06%
LA - Lafayette	3	4.69%	110	12.05%	$0.00	0.00%
TX - Matagorda	2	3.13%	2	0.22%	$0.09	0.06%
FL - Miami-Dade	1	1.56%	4	0.44%	$0.90	0.57%
AL - Mobile	4	6.25%	2	0.22%	$0.10	0.06%
TX - Nueces	1	1.56%	0	0.00%	$0.00	0.00%
LA - Orleans	2	3.13%	0	0.00%	$0.00	0.00%
LA - Plaquemines	4	6.25%	0	0.00%	$0.00	0.00%
LA - Saint Mary	4	6.25%	2	0.22%	$0.09	0.06%
LA - Terrebonne	5	7.81%	2	0.22%	$0.26	0.16%
LA - Vermilion	5	7.81%	102	11.17%	$13.28	8.39%
Totals	64	100%	913	100.00%	$158.23	100.00%

Table 42

Location Totals by Company—Air Transport

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Seacor Holdings Inc.	18	153	2.9%
Bristow Group Inc.	14	480	11.5%
Petroleum Helicopters Inc.	12		
Rotocraft Leasing	12	114	
Go Helitrans Co Inc.	2	34	
Central Helicopter Service Inc.	1	15	100%
Houston Helicopters, Inc.	1	25	100%
Industrial Helicopters Inc.	1	10	100%
Pelican Aviation Corp	1	17	100%
Southern Helicopters	1	15	100%
Evergreen Holdings Inc.	1	50	1.3%
Totals	64	913	

3.14 WATER TRANSPORT

3.14.1 Ownership Patterns and Company Size

Table 43 lists the 100 companies that ERG identified as providing water transportation services to the offshore GOM. About 12 percent of the companies listed are public and 88 percent are private. The public firm with the highest revenues is Saipem SpA, which has 2007 revenues of 9,530 million euros, equivalent to 13.3 billion U.S. dollars, followed by Superior Energy Services Inc., Seacor Holdings, Inc., and Tidewater, Inc., which have 2007 revenues of $1.6 billion, $1.4 billion, and $1.1 billion, respectively. Seacor Holdings and Michael Baker Corporation have a joint venture in Energy Logistics, Inc. Both companies appear in Table 43, while the locations in Table A-14 appear under Energy Logistics.

Table 43

Water Transportation Contractors in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Allegro Biodiesel Corp.	Los Angeles	CA	Public	$7.40	200
GulfMark Offshore Inc.	Houston	TX	Public	$306.03	1,300
Hercules Offshore	Houston	TX	Public	$766.79	3,300
Hornbeck Offshore Services, Inc.	Covington	LA	Public	$338.97	1,092
Martin Midstream Partners L.P.	Kilgore	TX	Public	$770.92	396
Michael Baker Corp	Moon Township	PA	Public	$727.00	4,546
Saipem SpA	Milan	Italy	Public	EUR 9,530	33,373
Seacor Holdings Inc.	Fort Lauderdale	FL	Public	$1,359.23	5,268
Smit Internationale NV	Rotterdam, Zuid-Holland	The Netherlands	Public	EUR 551.5	2,783
Superior Energy Services, Inc.	New Orleans	LA	Public	$1,572.47	4,400
Tidewater Inc.	New Orleans	LA	Public	$1,125.26	8,000

Table 43. Water Transportation Contractors in the Gulf of Mexico (continued).

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Trico Marine Services, Inc.	Houston	TX	Public	$256.12	659
ABC Marine Towing LLC	Belle Chasse	LA	Private	$0.12	1
Abdon Callais Offshore LLC	Golden Meadow	LA	Private	$87.99	300
Adams Towing Corp	Morgan City	LA	Private	$0.72	10
AMC Liftboats Inc.	Golden Meadow	LA	Private	$2.20	20
Apex Oil Company Inc.	Saint Louis	MO	Private	$7,800.00	700
Argosy Shipping (USA) LP	Bellaire	TX	Private	$1.90	20
B&J Martin Inc.	Galliano	LA	Private	$8.05	30
Barnett Marine, Inc.	Belle Chasse	LA	Private	$4.90	45
Basin Marine, Inc.	Berwick	LA	Private		
Bay Houston Towing Co.	Houston	TX	Private	$11.70	146
BBC Chartering	Bellaire	TX	Private	$2.20	20
Belle Pass Towing Corp	Golden Meadow	LA	Private	$2.80	35
Big E Marine Corp	New Orleans	LA	Private		
Big R Towing Inc	Jeanerette	LA	Private	$0.09	2
Bordelon Marine Inc.	Lockport	LA	Private	$19.48	85
Broussard Brothers Inc.	Abbeville	LA	Private	$9.90	150
Brown Water Marine Service Inc.	Rockport	TX	Private	$10.60	100
BSI Marine Contractors Inc.	Cut Off	LA	Private	$0.08	2
Bud's Boat Rental Inc.	Venice	LA	Private		
Buffalo Marine Service	Houston	TX	Private	$25.40	90
C & G Boats Inc.	Golden Meadow	LA	Private	$1.40	20
Caillou Island Towing Co Inc.	Houma	LA	Private		30
Cameron Offshore Boats Inc.	Cameron	LA	Private	$5.03	45
Candy Fleet Corp	Morgan City	LA	Private	$0.33	5
Cashman Equipment Corp.	Boston	MA	Private	$2.60	20
Celtic Marine Corp.	Baton Rouge	LA	Private	$1.76	30
Cenac Towing Co Inc.	Houma	LA	Private	$95.55	458
Central Boat Rentals, Inc.	Berwick	LA	Private	$13.00	150
Central Gulf Towing Inc.	Cut Off	LA	Private	$20.00	47
COMAR Marine Corp	Amelia	LA	Private	$0.45	10
Crewboats Inc.	Chalmette	LA	Private	$7.20	132
Crowley Marine Services Inc.	Jacksonville	FL	Private	$1,622.30	4,074
D & B Boat Rentals Inc.	New Iberia	LA	Private	$1.10	15
Dawn Services Inc.	Gretna	LA	Private	$5.90	80
Dean Maritime Ltd. Co.	Houston	TX	Private	$1.00	3
Denet Towing Service Inc.	Boothville	LA	Private	$1.30	30
Diamond Services Corp.	Amelia	LA	Private	$17.10	161
Dockwise USA Inc.	Houston	TX	Private	$0.48	6
Doerle's Quarterboats Inc.	New Iberia	LA	Private	$0.14	2
Double Eagle Marine LLC	New Iberia	LA	Private	$31.87	70
Ed Broussard Marine Service Inc.	Loreauville	LA	Private	$0.98	13
Freedom Marine Services, Inc.	Houma	LA	Private	$0.95	8
G & H Towing Co	Galveston	TX	Private		124
Galiano Tugs Inc.	Cut Off	LA	Private	$2.00	40
Garber Industries Inc.	Broussard	LA	Private	$8.50	140
Global Marine Transport, Inc.	Houston	TX	Private	$0.50	6
Harbor Towing & Fleeting Inc.	Metairie	LA	Private		

Table 43. Water Transportation Contractors in the Gulf of Mexico (continued).

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Harvey Gulf International Marine Inc.	Harvey	LA	Private	$2.60	15
Hustler Marine Services Inc.	Port O Connor	TX	Private	$0.33	7
Iberia Marine Service LLC	New Iberia	LA	Private	$4.00	28
Inland Marine Management Corp./Huey L Cheramie Inc.	Galliano	LA	Private	$2.50	70
International Offshore Services	Larose	LA	Private	$54.30	88
JW Banta Towing Inc.	Sunshine	LA	Private	$4.50	55
Kevin Gros Consulting & Marine Services Inc.	Larose	LA	Private	$6.70	115
Kilgore Offshore Inc.	Scott	LA	Private		
KMJ Services Inc.	Cut Off	LA	Private	$0.31	2
L & M BoTruc Rental Inc.	Galliano	LA	Private	$5.40	150
Louisiana International Marine, Inc.	Gretna	LA	Private	$1.00	20
Mammoet USA Inc.	Rosharon	TX	Private	$0.09	75
Marine Centre, Inc.	Hahnville	LA	Private	$0.50	6
Marine Transportation Consultants	Houston	TX	Private		
McDonough Marine Service	Metairie	LA	Private		
MegaFleet Towing Co Inc.	Pasadena	TX	Private	$5.80	75
Moran Transportation Co	New Canaan	CT	Private	$51.30	550
Movable Offshore Boats Inc.	Larose	LA	Private	$0.01	3
Muchowich Offshore Oil Services Inc.	Freeport	TX	Private	$12.72	55
NMA Maritime & Offshore Contractors Inc.	Houston	TX	Private	$2.00	5
Oceanic Fleet Inc.	Boutte	LA	Private	$2.70	37
Odyssea Marine	Berwick	LA	Private	$1.60	20
Offshore Express Inc.	Houma	LA	Private	$6.00	325
Offshore Marine Contractors Inc.	Cut Off	LA	Private	$2.10	44
Offshore Towing Inc.	Larose	LA	Private		
Otto Candies LLC	Des Allemands	LA	Private	$21.70	250
Phil Guilbeau Offshore Service Inc.	Galliano	LA	Private	$0.94	23
Port Technical Services Inc.	Bellaire	TX	Private	$0.30	6
Rene J Cheramie & Sons Inc.	Lafayette	LA	Private		
Rentrop Tugs	Morgan City	LA	Private		
Ryan Marine Services	Galveston	TX	Private	$1.10	36
Sea Boat Rentals Inc.	Galliano	LA	Private	$3.30	35
Sea Horse Marine Inc.	Lockport	LA	Private	$20.00	40
Signet Maritime Corp	Houston	TX	Private	$41.27	65
Southern States Offshore Inc.	Houston	TX	Private	$3.00	65
Stagg Marine Inc.	Morgan City	LA	Private	$2.30	24
Supreme Offshore Service Inc.	Houma	LA	Private	$1.41	100
Teekay Corp	Houston	TX	Private	$7.20	30
Tiger Towing	Morgan City	LA	Private	$0.36	6
United Tugs Inc.	Harvey	LA	Private		50
Waterways Towing & Offshore Services, Inc.	Mobile	AL	Private	$0.90	15
Total					75,282

The industry sector is sufficiently competitive to include 87 private companies. For some companies, such as Apex Oil Company, water transportation in the GOM is a small part of overall business activities. Apex Oil Company was named by *Forbes* magazine as the 258th largest private American company (Forbes 2008) and is the largest private company in Table 43, with $7.8 billion in revenue. Apex is primarily an oil distributor with a small tug and barge business. At the other end of the range are several small businesses with five or fewer employees and $100,000 or less in revenues.

3.14.2 Locations

The parent companies listed in Table 43 have 144 offices in the GOM region. Table A-14 breaks down total 2007 revenues and 2007 employees among each of these individual office locations. At least 5,055 jobs and at least $794 million in revenue are associated with the water transportation contracting industry in the GOM region. Table 44 lists the regional employment distribution based on the information in Table A-14. Employee and revenue data were unavailable for two counties in Texas (Nueces and San Patricio), two parishes in Louisiana (Jefferson Davis and Orleans), and one county in Florida (Escambia). Louisiana claims 65 percent of the locations, 80 percent of the employees, and 81 percent of the revenues. Texas claims 29 percent of the locations, 17 percent of the employees, and 18 percent of the revenues. Alabama claims 3 percent of the locations, 0.8 percent of the employees, and 0.6 percent of the revenues. Florida claims 2 percent of the locations, 2 percent of the employees, and 0.4 percent of the revenues.

Locations, employees, and revenues are dispersed among 33 counties and parishes in the GOM, with no single region claiming a majority of locations, employees, or revenues. Even though Louisiana claims the majority of locations (94), these are distributed along the coastal parishes. In contrast, in Texas, Harris County claims the highest percentage of locations (18 percent). Lafourche Parish in Louisiana claims the second highest percentage of locations (16 percent) along with the highest percentage of employees (23 percent) and revenues (30 percent). Terrebonne Parish in Louisiana claims the second highest percentage of employees (22 percent), and Calcasieu Parish in Louisiana claims the second highest percentage of revenues (25 percent).

Table 45 summarizes the data by company. This sector is characterized by a large number of single-location companies (81 percent), and most of these (61 percent of the total population) have all of their employees offering water transportation services in the GOM. Seacor Holdings, Inc., has the greatest number of GOM locations (10), while Hercules Offshore has the largest number of employees (560) working at its two locations in the GOM. Saipem SpA lists only one employee at one location. This is likely to indicate a sales office where the company would be bringing in a chartered/leased vessel into the GOM. On the other hand, ABC Marine Towing LLC and McDonough Marine Service also list a single employee. ABC Marine Towing's revenues are small enough that this could be a single-person operation. ERG could not locate revenue information for McDonough Marine Service, so we cannot speculate whether it is a one-person operation or uses contract personnel.

Table 44

Regional Distribution of Employees and Revenue—Water Transport

Region	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Alabama	5	3%	42	0.83%	$4.81	0.61%
Florida	3	2%	83	1.64%	$2.93	0.37%
Louisiana	94	65%	4,050	80.12%	$646.08	81.33%
Texas	42	29%	880	17.41%	140.59	17.70%
Totals	144	100%	5,055	100.00%	$794.41	100.00%
TX - Aransas	1	0.69%	15	0.30%	$0.00	0.00%
TX - Brazoria	4	2.78%	160	3.17%	$12.81	1.61%
LA - Calcasieu	4	2.78%	208	4.11%	$201.26	25.33%
TX - Calhoun	1	0.69%	7	0.14%	$0.33	0.04%
LA - Cameron	2	1.39%	12	0.24%	$0.00	0.00%
TX - Cameron	1	0.69%	15	0.30%	$1.46	0.18%
LA - East Baton Rouge	2	1.39%	20	0.40%	$1.16	0.15%
FL - Escambia	1	0.69%	0	0.00%	$0.00	0.00%
TX - Galveston	4	2.78%	68	1.35%	$1.36	0.17%
TX - Harris	26	18.06%	486	9.61%	$108.83	13.70%
FL - Hillsborough	1	0.69%	70	1.38%	$1.00	0.13%
LA - Iberia	7	4.86%	130	2.57%	$38.18	4.81%
LA - Iberville	1	0.69%	4	0.08%	$0.00	0.00%
LA - Jefferson	7	4.86%	165	3.26%	$9.50	1.20%
TX - Jefferson	3	2.08%	129	2.55%	$15.80	1.99%
LA - Jefferson Davis	1	0.69%	0	0.00%	$0.00	0.00%
LA - Lafayette	4	2.78%	160	3.17%	$11.20	1.41%
LA - Lafourche	23	15.97%	1,176	23.26%	$235.26	29.61%
LA - Lake Charles	1	0.69%	45	0.89%	$5.03	0.63%
FL - Miami-Dade	1	0.69%	13	0.26%	$1.93	0.24%
AL - Mobile	5	3.47%	42	0.83%	$4.81	0.61%
TX - Nueces	1	0.69%	0	0.00%	$0.00	0.00%
LA - Orleans	2	1.39%	0	0.00%	$0.00	0.00%
LA - Plaquemines	6	4.17%	79	1.56%	$8.67	1.09%
LA - Saint Bernard	1	0.69%	132	2.61%	$7.20	0.91%
LA - Saint Charles	4	2.78%	256	5.06%	$22.20	2.79%
LA - Saint John the Baptist	1	0.69%	12	0.24%	$1.55	0.20%
LA - Saint Mary	15	10.42%	362	7.16%	$29.42	3.70%
LA - Saint Tammany	1	0.69%	33	0.65%	$0.00	0.00%
TX - San Patricio	1	0.69%	0	0.00%	$0.00	0.00%
LA - Terrebonne	9	6.25%	1,093	21.62%	$41.78	5.26%
LA - Vermilion	2	1.39%	150	2.97%	$9.90	1.25%
LA - West Baton Rouge	1	0.69%	13	0.26%	$23.77	2.99%
Totals	144	100.00%	5,055	100.00%	$794.41	100.00%

Table 45

Location Totals by Company—Water Transport

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Seacor Holdings Inc.	10	315	6.0%
Allegro Biodiesel Corp.	7	35	17.5%
Bay Houston Towing Co.	4	42	28.8%
Energy Logistics, Inc.	4	18	
Odyssea Marine	4		
Signet Maritime Corp	4	20	30.8%
Celtic Marine Corp.	3	13	43.3%
GulfMark Offshore Inc.	3		
Martin Midstream Partners L.P.	3	56	14.1%
McDonough Marine Service	3	1	
Apex Oil Company Inc.	2	25	3.6%
Cashman Equipment Corp.	2	7	35.0%
Cenac Towing Co Inc.	2	458	100%
Crowley Marine Services Inc.	2	230	5.6%
Hercules Offshore	2	560	17.0%
Hornbeck Offshore Services, Inc.	2	33	3.0%
International Offshore Services	2	85	96.6%
Moran Transportation Co	2	69	12.5%
Trico Marine Services, Inc.	2		
ABC Marine Towing LLC	1	1	100%
Abdon Callais Offshore LLC	1	300	100%
Adams Towing Corp	1	10	100%
AMC Liftboats Inc.	1	20	100%
Argosy Shipping (USA) LP	1	20	100%
B&J Martin Inc.	1	30	100%
Barnett Marine, Inc.	1	45	100%
Basin Marine, Inc.	1		
BBC Chartering	1	20	100%
Belle Pass Towing Corp	1	35	100%
Big E Marine Corp	1		
Big R Towing Inc	1	2	100%
Bordelon Marine Inc.	1	85	100%
Broussard Brothers Inc.	1	150	100%
Brown Water Marine Service Inc.	1	15	15.0%
BSI Marine Contractors Inc.	1	2	100%
Bud's Boat Rental Inc.	1		
Buffalo Marine Service	1	90	100%
C & G Boats Inc.	1	20	100%
Caillou Island Towing Co Inc.	1	30	100%
Cameron Offshore Boats Inc.	1	45	100%
Candy Fleet Corp	1	5	100%
Central Boat Rentals, Inc.	1	150	100%
Central Gulf Towing Inc.	1	47	100%
COMAR Marine Corp	1	10	100%
Crewboats Inc.	1	132	100%
D & B Boat Rentals Inc.	1	15	100%

Table 45. Location Totals by Company—Water Transport (continued).

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Dawn Services Inc.	1	80	100%
Dean Maritime Ltd. Co.	1	3	100%
Denet Towing Service Inc.	1	30	100%
Diamond Services Corp.	1	100	62.1%
Dockwise USA Inc.	1	6	100%
Doerle's Quarterboats Inc.	1	2	100%
Double Eagle Marine LLC	1	70	100%
Ed Broussard Marine Service Inc.	1	13	100%
Freedom Marine Services, Inc.	1	8	100%
G & H Towing Co	1	30	24.2%
Galiano Tugs Inc.	1	40	100%
Garber Industries Inc.	1	25	17.9%
Global Marine Transport, Inc.	1	6	100%
Harbor Towing & Fleeting Inc.	1		
Harvey Gulf International Marine Inc.	1	15	100%
Hustler Marine Services Inc.	1	7	100%
Iberia Marine Service LLC	1	28	100%
Inland Marine Management Corp./Huey L Cheramie Inc.	1	70	100%
JW Banta Towing Inc.	1	4	7.3%
Kevin Gros Consulting & Marine Services Inc.	1	115	100%
Kilgore Offshore Inc.	1		
KMJ Services Inc.	1	2	100%
L & M BoTruc Rental Inc.	1	150	100%
Louisiana International Marine, Inc.	1	20	100%
Mammoet USA Inc.	1	75	100%
Marine Centre, Inc.	1	6	100%
Marine Transportation Consultants	1		
MegaFleet Towing Co Inc.	1	75	100%
Movable Offshore Boats Inc.	1	3	100%
Muchowich Offshore Oil Services Inc.	1	55	100%
NMA Maritime & Offshore Contractors Inc.	1	5	100%
Oceanic Fleet Inc.	1	30	81.1%
Offshore Express Inc.	1	75	23.1%
Offshore Marine Contractors Inc.	1	44	100%
Offshore Towing Inc.	1		
Otto Candies LLC	1	250	100%
Phil Guilbeau Offshore Service Inc.	1	23	100%
Port Technical Services Inc.	1	6	100%
Rene J Cheramie & Sons Inc.	1		
Rentrop Tugs	1	4	
Ryan Marine Services	1	36	100%
Saipem SpA	1	1	0.003%
Sea Boat Rentals Inc.	1	35	100%
Sea Horse Marine Inc.	1	40	100%
Smit Internationale NV	1	12	0.4%
Southern States Offshore Inc.	1	65	100%
Stagg Marine Inc.	1	24	100%
Superior Energy Services, Inc.	1		

Table 45. Location Totals by Company—Water Transport (continued).

Parent Company	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Supreme Offshore Service Inc.	1	20	20.0%
Teekay Corp	1	30	100%
Tidewater Inc.	1		
Tiger Towing	1	6	100%
United Tugs Inc.	1	50	100%
Waterways Towing & Offshore Services, Inc.	1	15	100%
Totals	144	5,055	

3.15 CATERING

Catering services in the GOM are offered by a variety of companies. Some are large, multinational firms that focus on food management services for a wide variety of businesses and institutions across the world. Annual reports for these companies might include all offshore oil and gas operations under "remote services" with no further distinction by geography.

Other companies offer a mix of accommodation and food services. Accordingly, some companies and locations might appear in both the accommodations sectors and food service sectors of this study. However, duplicate entries are removed when we discuss the broad spectrum of service industries to the offshore oil and gas industry (see Table 1 in the Executive Summary, p. 3).

Some companies, usually the smaller ones, focus on catering to the offshore oil and gas industry operating in the GOM. In some cases, small companies that service only the GOM have been absorbed into larger multinational firms that serve many geographic regions. For example, Delta Catering Management was acquired by Sodexo in 2009 (Offshore Oil & Gas News 2009). But, as we have seen in other sectors, some small businesses find their niche and compete successfully.

3.15.1 Ownership Patterns and Company Size

Table 46 lists the 15 parent companies that ERG identified as providing catering services to the offshore GOM, along with their corporate headquarters states, ownership (public or private), and 2007 revenues and employees.

Of the 15 companies, three are publicly traded: Compass Group PLC, Oil Services International, and Sodexo Alliance.[25] Compass Group PLC and Sodexo Alliance are foreign-owned. Compass Group PLC, a British firm, has the second highest revenues with £10,268 million (approximately $14,526 million), of which £4,162 million (about $5,888 million) was generated in North America (Compass 2007). Compass Group PLC falls into the category of large, multinational

[25] Formerly known as Sodexho Alliance, the company changed its name in January 2008 (Sodexo 2008). Although the baseline for this project is 2007, we have changed the name in the text and tables for clarity.

firms, with the "remote sector" covering international offshore and military food management projects.

Table 46

Catering Companies in the Gulf of Mexico

Parent Company	Headquarters City	Head-quarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Compass Group PLC	Chertsey, Surrey	England	Public	£10,268.00	365,630
Oil States International, Inc.	Houston	TX	Public	$2,088.24	6,551
Sodexo Alliance SA	Issy Les Moulineaux, Hauts De Seine	France	Public	$17,694.00	342,380
Affiliated Marine Supply Inc	Houma	LA	Private	$0.30	8
Aramark Holdings Corp.	Philadelphia	PA	Private	$11,621.20	250,000
ART Catering Inc	Belle Chasse	LA	Private	$22.00	380
Cardinal Culinary Services, LLC	Seabrook	TX	Private	$0.57	26
Coastal Catering LLC	Houma	LA	Private	<$.50	9
Craig Group Ltd.	Aberdeen	Scotland	Private	£110.00	1,000
Doerle Food Service LLC	Broussard	LA	Private	$66.50	206
G & J Land & Marine Food Distributors Inc.	Morgan City	LA	Private	$15.70	75
Jakes Finer Foods Inc.	Houston	TX	Private	$25.60	120
Sonoco	Houma	LA	Private	$6.50	300
Taylors International Services Inc.	Lafayette	LA	Private	$69.00	700
Trinity Catering Inc.	Houma	LA	Private	$12.00	200
Total					967,585

Sodexo Alliance has the highest revenue listed in Table 46 (about $17.7 billion in 2007, see Sodexho 2007). With more than 1,400 entries in its worldwide family tree (D&B 2009) Sodexo is a large, multinational firm with a "remote sites" segment. The company lists itself as the second largest company offering food and facilities management services to remote sites worldwide. This sector represents about 7 percent of total revenues ($1,153 million) and 27,366 employees worldwide. Sodexo appears to have grown its market for GOM services by the acquisition of Delta Catering Management and Energy Catering Services (Offshore Oil & Gas News 2009).

Oil States International, a domestic firm, has several major business sectors including the design and fabrication of connector products for subsea pipelines and offshore platforms, the distribution of casing and production tubing (primarily for onshore oil and gas operations), and well site services including accommodations and food services. Oil States International is about one-fifth to one-ninth the size of Compass Group PLC or Sodexo.

The lower part of Table 46 summarizes the information on privately held companies. Aramark Holdings Corporation is similar in size to the public companies Compass Group PLC and Sodexo Alliance and is considered the largest domestic food service company. For awhile, Aramark was a public company but went private at the end of 2006 (AP 2006; Aramark 2007). Craig Group, Inc., was the only company in the food services sector that was both foreign-owned and private. Craig Group sold its food service to Strachan's Ltd. in 2008 but is retained in Table

46 and Table A-15 because of the 2007 baseline (Craig Group 2008). All the remaining companies on Table 46 had less than $70 million in revenues.

3.15.2 Locations

The companies listed in Table 46 have 21 locations serving the GOM; see Table A-15. The catering subsector accounts for 4,270 jobs and $439 million in revenues.

Compass Group PLC illustrates the difficulty with integrating data from various sources to tease out the revenues and employees associated with specific locations that offer services in the offshore GOM. The Gulf Coast Oil Directory (GCOD 2008) lists Coastal Food Service, Inc., in Carencro, Louisiana, and Eurest Support Services in Lafayette, Louisiana, both of which are owned by Compass Group PLC. ERG could confirm the information in GCOD easily for the Carencro location. GCOD (2008) lists an employee range of 28 to100 and revenues of less than $25 million, which is consistent with the information ERG located in D&B (2009): 80 employees and $2 million in revenue.

The difficulties arise with the Lafayette location. GCOD (2008) lists between 500 and 1,000 employees and revenues of $1 billion or more for the Eurest Support Services location in Lafayette. For the same location, D&B (2009) lists 1,200 employees and $42.5 million in revenue while manta.com lists 20 to 49 employees but no estimated revenues (manta.com 2009). The manta.com report provided an alternate name of SHRM Catering. A further Internet search identified SHRM Catering as a company acquired by Compass Group in 1997 (Catererserach 2008). The D&B (2009) corporate tree for Compass Group lists the Lafayette location (among the 1,100 entries in the Compass Group corporate tree) under SHRM Catering with the 1,200 employees and $42.5 million in revenue. ERG identified a third estimate of the number of Compass Group employees from the Lafayette Economic Development Authority, which listed 831 employees at Compass Group "locations"—implying that there is more than one location—within the Parish (LEDA 2008). ERG placed a call to resolve the discrepancy. The callee replied that they do not give out company information but opined that the 1,200 estimate was closer to reality than the 20 to 49 estimate. ERG decided that the employee estimate of 831 probably represented the recent number of employees at both the Carencro and Lafayette locations. The D&B data estimates are therefore more credible than the manta.com estimate and the 1,200 number is more likely to be the number of employees in 2007 before the general economic downturn of late 2008. As a result, Table A-15 lists the information from D&B (2009). For Compass Group, then, catering services rendered in the offshore GOM represent 0.30 percent of total revenues and 0.76 percent of revenues generated in North America. From another perspective, Compass Group represents about a quarter of the employment (but only 10 percent of the revenues) in this oil services contract industry subsector.

Table 47 summarizes the regional distribution of jobs and revenues. Louisiana claims most (81 percent) of the locations and nearly all of the employees and revenues (92 percent). Texas claims 19 percent of the locations and about 8 percent of both employees and revenues.

Locations, employees, and revenues are dispersed among eight counties and parishes in the GOM region. Lafayette and Terrebonne Parishes in Louisiana claim nearly half the locations, two-thirds of the employees, but only 40 percent of the revenues. In contrast, Jefferson Parish contains about 9.5 percent of the locations, 15 percent of the employees, but 32 percent of the

revenues.[26] The few locations in Texas are all in Harris County and appear to be smaller in terms of employees and revenues. That is, Harris County has nearly 20 percent of the locations but about 8 percent of the employees and revenues.

Table 47

Regional Distribution of Employees and Revenue

	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	17	81%	3,915	91.7%	$403.3	91.9%
Texas	4	19%	355	8.3%	$35.6	8.1%
Totals	21	100%	4,270	100%	$438.8	100%
LA – Caddo	1	4.8%	29	0.7%	$24.98	5.7%
TX - Harris	4	19.0%	355	8.3%	$35.55	8.1%
LA - Jefferson	2	9.5%	650	15.2%	$138.70	31.6%
LA - Lafayette	5	23.8%	2,166	50.7%	$151.58	34.5%
LA - Lafourche	1	4.8%	7	0.2%	$6.03	1.4%
LA - Plaquemines	2	9.5%	456	10.7%	$41.96	9.6%
LA - Saint Mary	1	4.8%	75	1.8%	$15.70	3.6%
LA - Terrebonne	5	23.8%	532	12.5%	$24.30	5.5%
Totals	21	100%	4,270	100%	$438.80	100%

Table 48 summarizes the information by parent company. For large, multinational companies in food services (such as Sodexo, Compass Group, and Aramark), the operations in the GOM are a very small part of overall operations (less than 0.5 percent). Similarly, for the large multinational firms with other oilfield service sectors, food management and catering account for less than 2 percent of revenues (Oil States 2009). These four large companies account for about 30 percent of the jobs in this subsector. This implies that the remaining 60 percent of the employment is provided by small, private companies that focus on the GOM.

[26] ERG will not speculate whether this indicates that Sodexo Alliance locations are run more efficiently than Compass locations or is an artifact of finding location-specific data.

Table 48

Summary of GOM Employment in Catering by Company

Parent Company	2007 Employees	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Sodexo Alliance SA	342,380	3	665	0.2%
Oil States International, Inc.	6,551	2	92	1.4%
Doerle Food Service LLC	206	3	206	100%
Compass Group PLC	365,630	2	1,280	0.4%
Affiliated Marine Supply Inc	8	1	8	100%
Aramark Holdings Corp.	250,000	1	200	0.1%
ART Catering Inc	380	1	380	100%
Cardinal Culinary Services, LLC	26	1	26	100%
Coastal Catering LLC	9	1	9	100%
Craig Group Ltd.	1,000	1	9	0.9%
G & J Land & Marine Food Distributors Inc.	75	1	75	100%
Jakes Finer Foods Inc.	120	1	120	100%
Sonoco Wholesale Grocers	300	1	300	100%
Taylors International Services Inc.	700	1	700	100%
Trinity Catering Inc.	200	1	200	100%
Totals		21	4,270	

3.16 WORKOVERS

3.16.1 Ownership Patterns and Company Size

Table 49 lists the 18 companies that ERG identified as providing workover services in the GOM. The baseline for the profile is 2007, so W-H Energy Services is listed although it was acquired by Smith International in 2008 (Kamalakaran 2008). Unlike the catering sector described in Section 3.15, the workover/well services sector is dominated by large public companies whose primary business is oil and gas operations. Two of the companies are foreign—Expro International and Helix Energy Solutions Group. The few privately owned companies are less than 1 percent of the size of the publicly owned firms.

3.16.2 Locations

The 18 companies listed in Table 49 have 86 locations that appear to service the GOM; see Table A-16. ERG could not find location-specific data for nearly one-third of entries. This might indicate that the large, multi-location companies do not maintain location-specific records or, more likely, that they do not report information they consider to be business sensitive. Two focal points of this project are to 1) present the data as they are available and 2) present the geographic distribution of the revenues as a percent of the total rather than the absolute value of the total. Although the study can document 5,367 employees and about $557 million in revenues for this subsector, these are likely to be underestimates that provide a lower bound estimate for this subsector. More important, however, is the identification of the regional distribution of these firms within the GOM region. There are methods to impute missing data, such as using the

average number of employees and revenues for all locations where a company does not report such information, that can be taken by future projects to refine the data for further analysis.

Table 49

Companies Offering Workover Services in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Allis-Chalmers Energy Inc.	Houston	TX	Public	$675.95	3,050
BJ Services Co.	Houston	TX	Public	$4,802.4	16,700
Boots & Coots	Houston	TX	Public	$105.3	521
Complete Production Services	Houston	TX	Public	$1,838.0	7,062
Expro International Group Ltd.	Reading	Great Britain	Public	£518.8	4,000
Halliburton Co.	Houston	TX	Public	$15,264	51,000
Helix Energy Solutions Group	Perth	Western Australia	Public	$1,767.40	3,370
Nabors Industries Ltd	Houston	TX	Public	$4,956	23,965
Pride International Inc.	Houston	TX	Public	$2,043.80	6,900
RPC Incorporated	Atlanta	GA	Public	$690	2,370
Schlumberger NV	Houston	TX	Public	$23,276	80,000
Superior Energy Services Inc.	Harvey	LA	Public	$1,573	4,500
TETRA Technologies Inc.	The Woodlands	TX	Public	$982	2,895
W-H Energy Services	Broussard	LA	Public	$1,127	2,959
Estis Well Service LLC	New Iberia	LA	Private	$3.9	40
Major Equipment & Remediation Services Inc.	Morgan City	LA	Private	$10	50
Spartan Offshore Drilling LLC	Metairie	LA	Private	$1	8
Thru Tubing Systems Inc.	New Iberia	LA	Private	$1	10
Total					209,400

Table 50 summarizes the regional distribution of employees and revenues. The lack of information for nearly one-third of the locations results in some skewing of the data. Louisiana and Texas split the number of locations fairly evenly, yet Louisiana appears to claim nearly 60 percent of the employees and nearly three-quarters of the revenues. Revenue data are missing for 20 of the 41 Texas locations, although employee data were identified for 27 of the 41 Texas locations. The workover subsector appears to be concentrated in Terrebonne Parish, Louisiana, which has about 35 percent of the subsection employees.

Table 51 summarizes the information by parent company. BJ Services tops the list in terms of the number of locations; a focus on workover and well service activities made it attractive to Baker Hughes, which acquired the firm in August 2009 (Offshore Magazine 2009). Pride International appears to have the largest number of employees; however, it is difficult to separate the number of employees offering workover and well service from those involved in drilling activities. Helix Energy Solutions is a foreign-owned company and the lack of information regarding its number of employees and revenues means that we do not have a complete picture of everyone operating in this subsector. However, the majority of the economic activity in this sector appears to be performed by large, publicly held firms that either offer workover services to additional locations (i.e., onshore) or offer additional services to the oil and gas industry operating in the GOM.

Table 50

Regional Distribution of Employees and Revenue

	Number of Locations		2007 Employees		2007 Revenue	
	Count	Percent	Count	Percent	Count	Percent
Louisiana	44	51.16%	3,160	58.88%	$400.24	71.86%
Mississippi	1	1.16%	10	0.19%	$0.00	0.00%
Texas	41	47.67%	2,197	40.94%	$156.77	28.14%
Totals:	86	100.00%	5,367	100.00%	$557.01	100.00%
LA- Acadia	1	1.16%	103	1.92%	$11.86	2.13%
TX- Brazoria	3	3.49%	150	2.79%	$5.76	1.03%
TX- Calhoun	2	2.33%	6	0.11%	$0.69	0.12%
LA- Cameron	2	2.33%	101	1.88%	$11.62	2.09%
TX- Chambers	1	1.16%	0	0.00%	$0.00	0.00%
TX- Dallas	1	1.16%	15	0.28%	$1.75	0.31%
TX- Fayette	1	1.16%	10	0.19%	$0.56	0.10%
TX- Galveston	2	2.33%	3	0.06%	$0.36	0.06%
TX- Gregg	1	1.16%	0	0.00%	$0.00	0.00%
TX - Harris	11	12.79%	802	14.94%	$21.55	3.87%
TX- Hidalgo	1	1.16%	80	1.49%	$0.00	0.00%
LA- Iberia	3	3.49%	50	0.93%	$4.41	0.79%
LA- Jefferson	2	2.33%	8	0.15%	$0.73	0.13%
TX- Jefferson	1	1.16%	0	0.00%	$0.00	0.00%
TX- Jim Wells	2	2.33%	66	1.23%	$7.60	1.36%
LA - Lafayette	14	16.28%	637	11.87%	$66.24	11.89%
LA- Lafourche	2	2.33%	0	0.00%	$0.00	0.00%
TX- Liberty	1	1.16%	30	0.56%	$3.45	0.62%
MS- Lowndes	1	1.16%	10	0.19%	$0.00	0.00%
TX- Midland	1	1.16%	500	9.32%	$57.00	10.23%
TX- Montgomery	2	2.33%	150	2.79%	$0.00	0.00%
TX- Nueces	6	6.98%	95	1.77%	$10.94	1.96%
LA- Orleans	3	3.49%	71	1.32%	$8.17	1.47%
TX- Pecos	1	1.16%	30	0.56%	$6.81	1.22%
LA- Plaquemines	2	2.33%	27	0.50%	$3.11	0.56%
TX- Smith	1	1.16%	20	0.37%	$2.30	0.41%
LA- South Webster	1	1.16%	12	0.22%	$1.44	0.26%
LA- St. Landry	1	1.16%	65	1.21%	$11.43	2.05%
LA- St. Martin	1	1.16%	50	0.93%	$10.28	1.85%
LA- St. Mary	1	1.16%	0	0.00%	$0.00	0.00%
LA- Terrebone	10	11.63%	1,856	34.58%	$260.64	46.79%
LA- Vermilion	1	1.16%	220	4.10%	$25.32	4.55%
TX- Victoria	2	2.33%	100	1.86%	$11.51	2.07%
TX- Webb	1	1.16%	100	1.86%	$11.50	2.06%
Totals	86	100.00%	5,367	100.00%	$557.01	100.00%

Table 51

Summary of GOM Employment in Workover Services by Company

Parent Company	2007 Employees	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
BJ Services Co.	16,700	20	839	5.02%
Allis-Chalmers Energy Inc.	3,050	11	319	10.46%
Superior Energy Services Inc.	4,500	11	127	2.82%
Halliburton Co.	51,000	10	701	1.37%
Schlumberger NV	80,000	8	798	1.00%
Expro International Group Ltd.	4,000	5	103	2.58%
Spartan Offshore Drilling LLC	8	4	8	100.00%
W-H Energy Services	2,959	4	280	9.46%
Nabors Industries Ltd	23,965	2	40	0.17%
Pride International Inc.	6,900	2	1,800	26.09%
RPC Incorporated	2,370	2	40	1.69%
Boots & Coots	521	1	2	0.38%
Complete Production Services	7,062	1	60	0.85%
Estis Well Service LLC	40	1	40	100.00%
Helix Energy Solutions Group	3,370	1	0	0.00%
Major Equipment & Remediation Services Inc.	50	1	50	100.00%
TETRA Technologies Inc.	2,895	1	150	5.18%
Thru Tubing Systems Inc.	10	1	10	100.00%
Totals	209,400	86	5,367	

3.17 DIVING

3.17.1 Companies

Table 52 lists the 37 companies that offer diving services in the GOM. Of these, seven are publicly owned. The list contains four foreign-owned firms, one of which is also private, and for which no revenue information can be located. With the exceptions of Crowley Maritime Corporation and the Switzerland-based Allseas Group, S.A., the private companies are substantially smaller than the public firms. The presence of 30 private firms, however, is an indication of the competitive nature of the subsector.

3.17.2 Locations

The 37 companies listed in Table 52 have 60 locations that serve the GOM; see Table A-17. The diving subsector accounts for 3,567 jobs and $2,072 million in revenues.

Table 53 summarizes the regional distribution of jobs and revenues. An interesting feature of this subsector is that 10 percent of the locations and revenues are in Florida and there is a small amount of economic activity in Alabama. While the remaining 90 percent of locations and employees are split roughly equally between Texas and Louisiana, Texas claims about 82 percent of the revenues. Most of this income flows to Harris County; Cal Dive International, Saipem, Acergy, and nine other companies have locations in Houston. Oceaneering has a location in Morgan City, Louisiana, that leads to the 25 percent employment for St. Mary Parish.

Houma, Louisiana, hosts a second Oceaneering location and a Chet Morrison location, resulting in the nearly 16 percent of employees seen for Terrebonne Parish.

Table 52

Companies Offering Diving Services in the Gulf of Mexico

Parent Company	Headquarters City	Headquarters State	Public/ Private	2007 Revenues (Millions)	2007 Employees
Acergy S.A.	London	United Kingdom	Public	$2,663.40	6,883
Global Industries Offshore, LLC	Houston	TX	Public	$1,071.00	3,009
Helix Energy Solutions Group, Inc.	Houston	TX	Public	$1,767.40	3,370
Neptune Marine Services	Perth	Australia	Public	AUS $15.50	650
Oceaneering International Inc.	Houston	TX	Public	$1,743.00	7,500
Saipem S.p.A.	Milan	Italy	Public	€12,011.00	33,373
TETRA Technologies, Inc.	The Woodlands	TX	Public	$982.48	2,895
Phoenix International, Inc.	Largo	MD	Private	$60.00	250
Allseas Group, S.A.	Chatel St Denis	Switzerland	Private		2,000
American Inshore Divers	Boca Raton	FL	Private	$0.10	10
Anders Construction, Inc	Harvey	LA	Private	$0.25	3
Aqueos Corporation	Broussard	LA	Private		
Bisso Marine Co.	Houston	TX	Private		400
CA Richards & Associates, Inc.	Houston	TX	Private	$0.50	5
Chet Morrison Contractors	Houma	LA	Private	$6.00	600
Commercial Diving Services Inc.	Mobile	AL	Private	$1.00	9
Crowley Maritime Corporation	Pompano Beach	FL	Private	$1,955.83	4,074
Deep Marine Technology, Inc.	Houston	TX	Private	$300.00	200
DivCon LLC	Morgan City	LA	Private		
Diver Dan Diving Services, Inc.	Nederland	TX	Private		
Independent Divers, Inc.	New Orleans	LA	Private	$1.44	12
In-Depth Offshore Technologies	Baton Rouge	LA	Private	$0.13	2
J&J Diving Corp.	Belle Chase	LA	Private	$1.20	40
Legacy Offshore, LLC	Broussard	LA	Private		
Lone Star Diving, Inc	Texas City	TX	Private	$1.15	25
Louisiana Oilfield Divers, LLC	Belle Chasse	LA	Private	$10.00	50
MADCON Corp	Pearl River	LA	Private	$3.90	57
RVE Inc.	Corpus Christi	TX	Private	$3.00	14
S&J Diving, Inc.	Houston	TX	Private	$18.00	80
Saltwater Salvage	Freeport	TX	Private		
Seamar Divers, Inc.	Stafford	TX	Private	$25.00	200
Seaquest Diving, LLC	Houston	TX	Private	$0.10	2
Submersible Systems, Inc.	Patterson	LA	Private	$1.30	14
Superior Offshore International	Houston	TX	Private	$243.44	550
T & T Marine Salvage, Inc.	Galveston	TX	Private	$1.84	22
Tiburon Divers, Inc.	The Woodlands	TX	Private	$35.55	232
Triton Diving Services, LLC	Metairie	LA	Private	$8.00	65
Total					66,596

Table 53

Regional Distribution of Employees and Revenue

	Number of Locations		2007 Employees		2007 Revenue (millions)	
	Count	Percent	Count	Percent	Count	Percent
Alabama	1	1.67%	9	0.25%	$1.00	0.05%
Florida	5	8.33%	62	1.74%	$194.73	9.40%
Louisiana	28	46.67%	1,890	52.99%	$174.46	8.42%
Texas	26	43.33%	1,606	45.02%	$1,702.31	82.14%
Totals:	60	100.00%	3,567	100.00%	$2,072.50	100.00%
AL-Mobile	1	1.67%	9	0.25%	$1.00	0.05%
FL-Bay	1	1.67%	0	0.00%	$0.00	0.00%
FL-Broward	1	1.67%	30	0.84%	$193.00	9.31%
FL-Miami-Dade	2	3.33%	22	0.62%	$1.63	0.08%
FL-Palm Beach	1	1.67%	10	0.28%	$0.10	0.00%
LA-East Baton Rouge	1	1.67%	2	0.06%	$0.13	0.01%
LA-Iberia	3	5.00%	17	0.48%	$1.80	0.09%
LA-Jefferson	5	8.33%	139	3.90%	$10.33	0.50%
LA-Lafayette	3	5.00%	76	2.13%	$9.08	0.44%
LA-Lafourche	1	1.67%	1	0.03%	$0.05	0.00%
LA-Orleans	3	5.00%	12	0.34%	$1.44	0.07%
LA-Plaquemines	2	3.33%	90	2.52%	$11.20	0.54%
LA-St. Martin	2	3.33%	50	1.40%	$3.76	0.18%
LA-St. Mary	4	6.67%	884	24.78%	$119.91	5.79%
LA-St. Tammany	1	1.67%	57	1.60%	$3.90	0.19%
LA-Tangipahoa	1	1.67%	1	0.03%	$0.06	0.00%
LA-Terrebone	2	3.33%	561	15.73%	$12.80	0.62%
TX-Brazoria	1	1.67%	0	0.00%	$0.00	0.00%
TX-Fort Bend	1	1.67%	65	1.82%	$23.40	1.13%
TX-Galveston	3	5.00%	47	1.32%	$2.99	0.14%
TX-Harris	14	23.33%	1,394	39.08%	$1,644.76	79.36%
TX-Jefferson	3	5.00%	21	0.59%	$2.54	0.12%
TX-Johnson	1	1.67%	50	1.40%	$11.00	0.53%
TX-Montgomery	1	1.67%	0	0.00%	$0.00	0.00%
TX-Nueces	1	1.67%	14	0.39%	$3.00	0.14%
TX-San Patricio	1	1.67%	15	0.42%	$14.63	0.71%
Totals	60	100.00%	3,567	100.00%	$2,072.50	100.00%

Table 54 summarizes the information by the parent company. While Oceaneering International is not the largest company in terms of total employees, it is the largest in terms of the number of locations serving the GOM with diving activities. About half the companies concentrate on offering diving services in the GOM.

Table 54

Summary of GOM Employment in Diving Services by Company

Parent Company	2007 Employees	Number of GOM Locations	Number of Employees at GOM Locations	Percentage of Employees at GOM Locations
Oceaneering International Inc.	7,500	7	892	11.89%
Helix Energy Solutions Group, Inc.	3,370	5	121	3.59%
Seamar Divers, Inc.	200	4	88	44.00%
Superior Offshore International	550	3	160	29.09%
Bisso Marine Co.	400	2	390	97.50%
Chet Morrison Contractors	600	2	550	91.67%
DivCon LLC		2	46	
Diver Dan Diving Services, Inc.		2	3	
Lone Star Diving, Inc	25	2	25	100.00%
Phoenix International, Inc.	250	2	27	10.80%
S&J Diving, Inc.	80	2	80	100.00%
Tiburon Divers, Inc.	232	2		0.00%
Acergy S.A.	6,883	1	150	2.18%
Allseas Group, S.A.	2,000	1	35	1.75%
American Inshore Divers	10	1	10	100.00%
Anders Construction, Inc	3	1	3	100.00%
Aqueos Corporation		1		
CA Richards & Associates, Inc.	5	1	5	100.00%
Commercial Diving Services Inc.	9	1	9	100.00%
Crowley Maritime Corporation	4,074	1	30	0.74%
Deep Marine Technology, Inc.	200	1	200	100.00%
Global Industries Offshore, LLC	3,009	1	203	6.75%
Independent Divers, Inc.	12	1	12	100.00%
In-Depth Offshore Technologies	2	1	2	100.00%
J&J Diving Corp.	40	1	40	100.00%
Legacy Offshore, LLC		1		
Louisiana Oilfield Divers, LLC	50	1	50	100.00%
MADCON Corp	57	1	57	100.00%
Neptune Marine Services	650	1	50	7.69%
RVE Inc.	14	1	14	100.00%
Saipem S.p.A.	33,373	1	192	0.58%
Saltwater Salvage		1		
Seaquest Diving, LLC	2	1	2	100.00%
Submersible Systems, Inc.	14	1	14	100.00%
T & T Marine Salvage, Inc.	22	1	22	100.00%
Tetra Technologies, Inc.	2,895	1	20	0.69%
Triton Diving Services, LLC	65	1	65	100.00%
Totals	66,596		3,567	

4 INTEGRATING CONTRACT SERVICES INTO MAG-PLAN

Section 2.2 contains a brief description of MAG-PLAN. Section 4 focuses on how the information gathered on the oil services contract industry can be incorporated within the MAG-PLAN analytical framework. Section 4.1 describes types of costs and disaggregating those costs into labor and non-labor components. Section 4.2 illustrates how the approach can be used with the G&G contract industry sector.

4.1 METHODOLOGICAL APPROACH

4.1.1 Cost Types

Figure 5 illustrates the lifetime of an oil and gas project with its associated activity functions.[27] The time dimension is shown on the *y* axis; that is, the beginning operations are at the top of the figure while the final stage—platform removal—is at the bottom of the figure. The *x* axis represents two types of costs (one-time and recurring) which should be handled differently in the impacts evaluation.

4.1.1.1 One-Time Costs

The left column lists activities with one-time costs. These costs happen in a particular year, indicated in the E&D scenario specified by the BOEMRE Resource Evaluation office in charge of the relevant OCS region. Most of the costs are costs of exploration, production, and non-production wells, associated production structures, onshore and offshore gas processing facilities, pipeline construction, and structure removal. Oil spill cleanup costs are not construction costs, but they are listed on the left side of Figure 5 because they one-time costs incurred only when a spill accidentally occurs.

Two additional activities are shown in the left column: lease bids and geological and geophysical prospecting. Lease bid amounts are included in the scenario definition and in the calculation of socioeconomic impacts, but industry expenditures related to bid preparation and submission process are not included. In MAG-PLAN's current configuration, geological and geophysical prospecting costs are not included for the Gulf of Mexico region.

4.1.1.2 Recurring Costs

The right column lists recurring costs. For example, after a development well is drilled and goes into production, the operating and maintenance costs (O&M) are incurred that year and every year thereafter until the well or structure is no longer economically viable. Likewise, O&M costs are incurred once a new gas processing facility or pipeline goes into operation. These costs are continued until the end the economic life of a well or the analysis period (for other types of infrastructure).

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[27] For reasons of space, some boxes contain more than one activity function and include a footnote identifying the different activities. Sections 4.2.2 and 4.2.3 explain why the G&G box is shown before the exploratory drilling box in Figure 5.

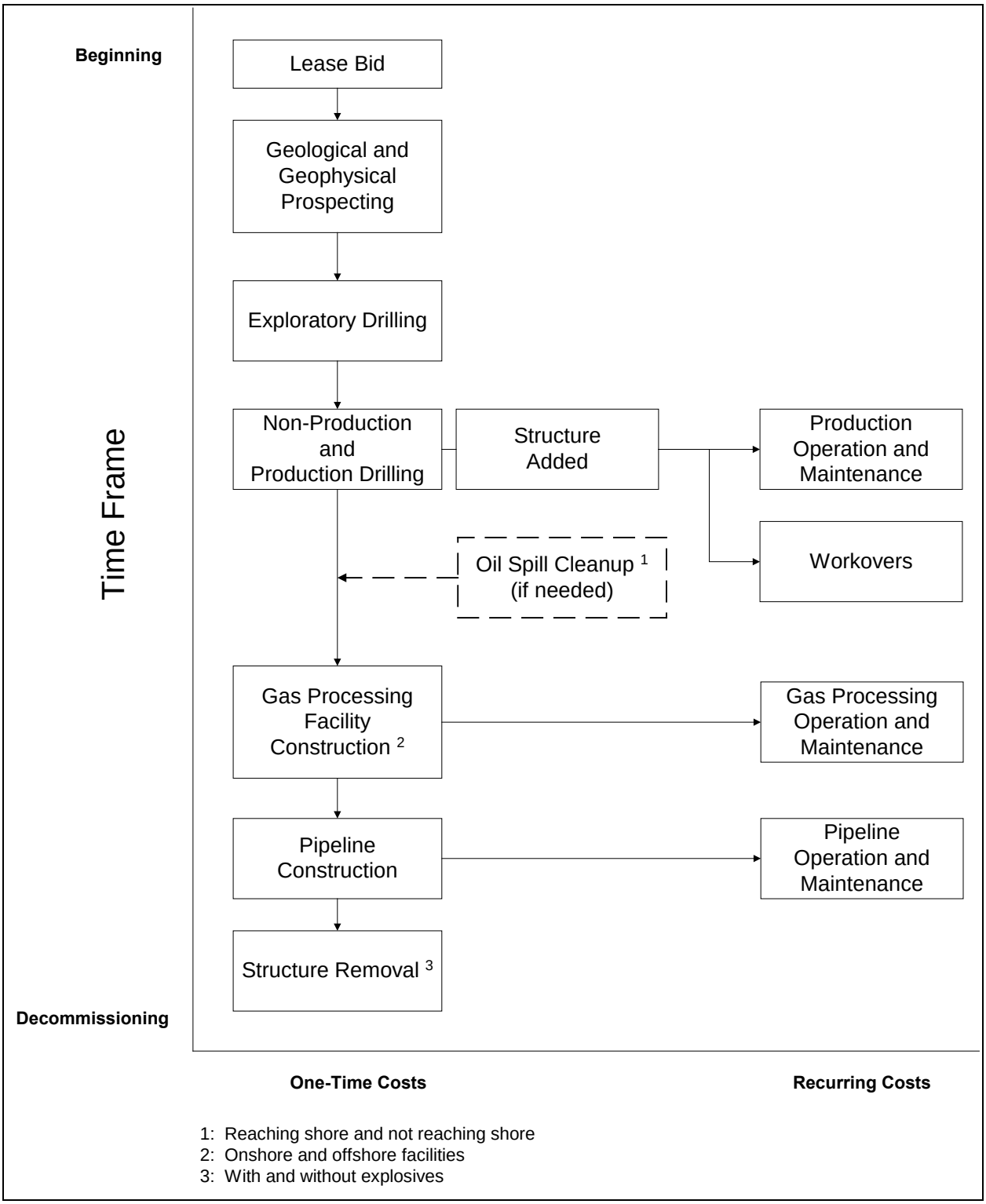


Figure 5. Activity functions and cost types for an offshore oil and gas project.

4.1.2 Disaggregating Activity Functions Into Economic Sectors

Each of the activity functions shown in Figure 5 can be considered as a "shock" to the economic region. In MAG-PLAN, the shock is measured as the total cost per unit of activity. Much of BOEMRE 2005a (USDOI, BOEMRE 2005a) is devoted to the development of the magnitude of the estimated shocks. The focus of this project is to disaggregate each of the activity functions into the different service industries and goods that make up the activity. That is, the focus is on developing the production functions rather than the total or unit cost of the activity.

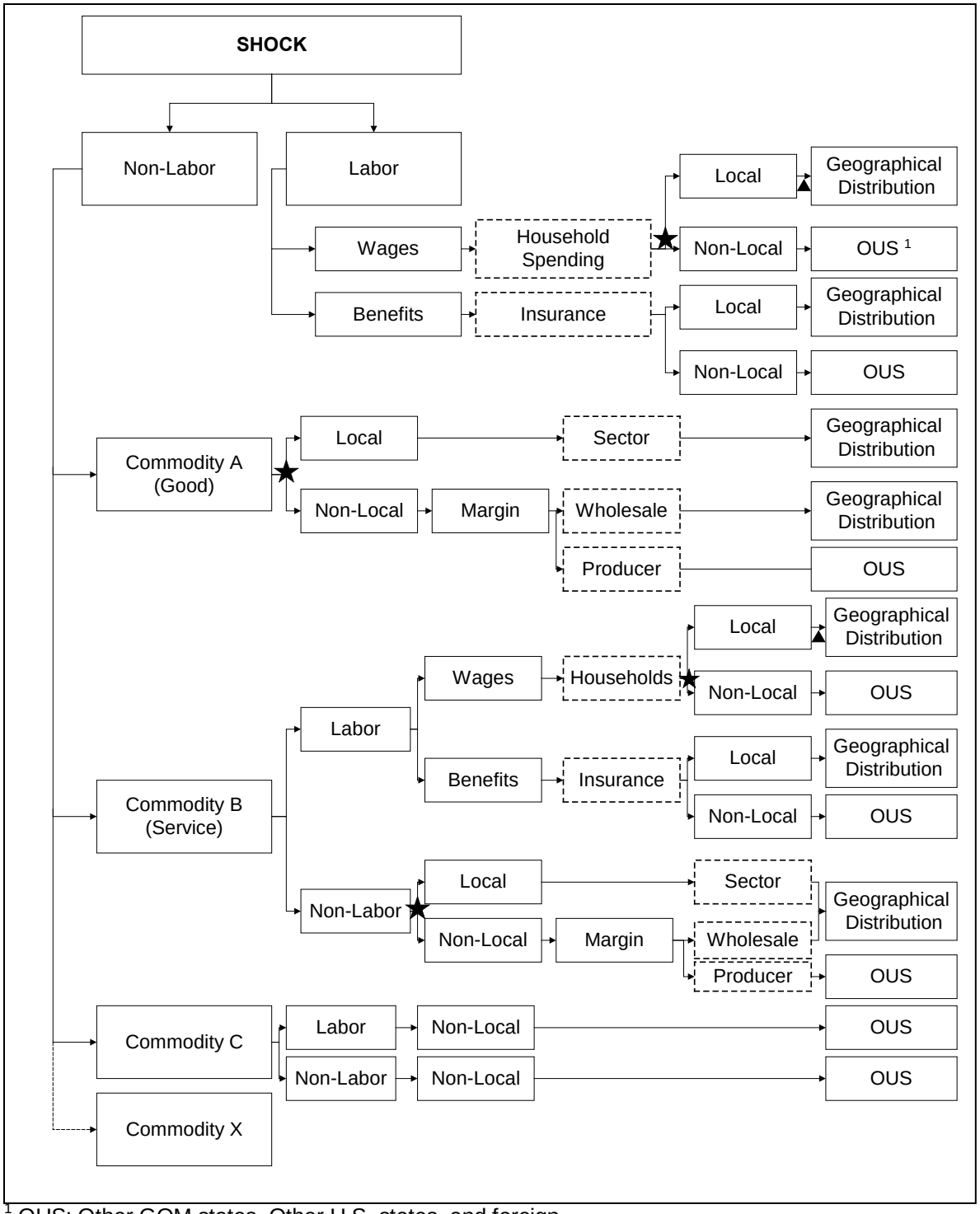
The process is illustrated in Figure 6. In the upper left corner, the initial shock is applied to the system. The first level of disaggregation is to separate the shock into labor and non-labor costs. (The non-labor costs might be goods or services; hence, we do not use the term "capital" costs to describe these commodities.) An initial estimate of the labor/non-labor ratio can be calculated from a ratio of payroll costs to total receipts reported in the 2002 Economic Census for the appropriate NAICS code.

4.1.2.1 Labor Costs

Labor costs can be divided into wage and benefit components. Within MAG-PLAN, wages are allocated to a series of sectors based on the Census Bureau's Consumer Expenditures. The share of labor spending that flows to each economic onshore area will be estimated from the industry data for each sector (see stars in Figure 6). The location data reported for each of the oil services contract industries in Appendix A provide an estimate of the amount of local labor available for these services.[28] If labor is imported into the region for the task, then the impact of the associated wages is lost to the Gulf economic region. In other words, this portion "leaks" out of the region. Depending on the analysis for which MAG-PLAN is used, the leakage is allocated to "Other Gulf states, Other U.S. states, and foreign" or any aggregation of these three regions. For reasons of legibility, leakages to all other regions are listed as "OUS" in Figure 6. Local wages are spent within the Gulf region based on the Personal Consumption Expenditure data developed by the U.S. Census Bureau (see the triangles in Figure 6).

Benefits, such as health and life insurance, are associated with labor costs but are not included in payroll costs. The Bureau of Labor Statistics collects benefits as a percent of total compensation data by industry group in its "Employer Costs for Employee Compensation" series and the data for the natural resources manufacturing occupational group can be used as an initial estimate for this factor. The portion of the shock attributable to benefits costs is allocated to IMPLAN Sector 428, insurance agencies and brokerages. (IMPLAN sectors are shown in dotted outlines in Figure 6.)

[28] Future researchers could use the Appendix A information to estimate onshore allocations based on either employment or revenues.



[1] OUS: Other GOM states, Other U.S. states, and foreign
★ : Local Knowledge
▲: Personal Consumption Expenditures (PCE)

Figure 6. Disaggregation of activity function shock into labor and non-labor components.

4.1.2.2 Non-Labor Costs

Non-labor costs might be goods or services. The canonical method of disaggregating a commodity is to use the margin data in IMPLAN to separate the commodity into producer, transportation, wholesale, and retail margins. Then IMPLAN's regional purchase coefficients (RPCs) are used to allocate the expenditures to the Gulf of Mexico area and OUS. The IMPLAN data, however, are based on national accounts. Sections 4.2 through 4.5 illustrate an alternative approach to disaggregating activity function data into component parts.

Figure 6 illustrates the possible use of this approach through the disaggregation of four different commodities. In Figure 6, Commodity A is a good, such as well tubulars. If the good is manufactured in the Gulf economic region, we assume that local production is used first to satisfy local demand and any excess is exported. Similarly, if local demand exceeds local supply, then some of the good will be imported. A good is considered an import to the Gulf economic region whether it comes from somewhere else in the United States or another country. If we cannot develop the data to identify the existence or percent of the commodity manufactured in the Gulf of Mexico region, the percent of Commodity A allocated to the IMPLAN sector (such as 205, iron, steel pipe and tube from purchased steel[29]) is based on the IMPLAN RPC. If, however, the commodity is manufactured outside the region and is purchased through a dealer in the region, the impact is the margin between the producer and purchaser price.[30] We would use the IMPLAN margin data to allocate a portion of the expenditures to the wholesale sector and distribute this portion geographically according to the sector profile. The impact of the remaining expenditure, the producer price for the commodity imported into the region and transport to the region, is lost from the Gulf of Mexico region.

Commodity B is a service, such as a workover. Note that the series of boxes associated with labor costs for Commodity B is the same as above and that the boxes associated with non-labor costs follow the same pattern as for Commodity A. In other words, the input into Commodity B is treated as a shock to the economic subset of goods and services that make up Commodity B. The disaggregation of Commodity B begins with the separation of labor and non-labor costs which are then subject to the process of sector identification, RPC, and geographic distribution described in the preceding paragraphs.

Commodity C is an example of a good or service that is a total import into the GOM. For example, the hulls for BP's Atlantis and Murphy Oil's Thunder Hawk semi-submersible platforms were built in Korea and Singapore, respectively (BP 2006, Offshore-Technology n.d.). In this example, hull fabrication results in no economic impact to the onshore Gulf of Mexico economic region. However, joining the hull to the topsides is done in a GOM shipyard; this part of an activity function for constructing a production structure would have economic effects in the onshore regions.

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[29] This report uses the IMPLAN 509-sector numbering scheme that was in effect at the beginning of the project. Minnesota IMPLAN Group released the 2007 440-sector numbering scheme during the course of this project.

[30] For reasons of space in Figure 6, transportation margins for local and non-local goods as well as retail margins for local goods are not shown.,

The process continues until all the commodities that form the activity function have been identified and disaggregated (see the dotted line leading to Commodity X in Figure 6).

4.2 GEOPHYSICAL AND GEOLOGICAL PROSPECTING

This section focuses on addressing how the G&G contract service industry might be more explicitly incorporated into MAG-PLAN. The sections below discuss considerations for recognizing the role of the G&G industry in onshore impacts by defining the industry activity cost function, considering the import of services from other regions, scaling the shock, and suggesting how it would be incorporated into an E&D scenario.

4.2.1 Estimating the Cost Function

4.2.1.1 Labor Share

It was not possible to estimate the labor share from the company data collected for Section 3.1. The public companies are large and have a multitude of different activities under a single corporate umbrella, e.g., Schlumberger. On the other hand, no cost information is available from the private companies.

ERG turned to Census data to estimate the labor share for the G&G contract services industry. Although many of the companies in Section 3.1 listed their NAICS code as 211xxx (oil and gas services), a more accurate NAICS code is 541360 (Geophysical Surveying and Mapping). The 2007 NAICS definition is:

> This industry comprises establishments primarily engaged in gathering, interpreting, and mapping geophysical data. Establishments in this industry often specialize in locating and measuring the extent of subsurface resources, such as oil, gas, and minerals, but they may also conduct surveys for engineering purposes. Establishments in this industry use a variety of surveying techniques depending on the purpose of the survey, including magnetic surveys, gravity surveys, seismic surveys, or electrical and electromagnetic surveys. (U.S. Census Bureau 2009b)

In 2002, there were 742 establishments in the geophysical surveying and mapping services industry with revenues of $1.049 billion and an annual payroll of $0.395 billion (U.S. Census Bureau 2005a). This results in a payroll-to-revenues ratio of 37.7 percent. The Census data reflect both onshore and offshore operations, as do data for some of the firms in Section 3.1. One might argue that the capital expenditures for vessels needed to perform offshore seismic surveys might lead to a lower labor ratio. However, the industry also makes large use of human capital. For example, data brokers are needed to maintain and process digital libraries, and the most important asset for individuals (sole proprietorships) that work in the field is their deep knowledge and experience. Thus, having no information that can be used to modify the estimated labor percentage, ERG proposes to use 37.7 percent as the labor share for the G&G industry.

4.2.1.2 Wages and Benefits

The Bureau of Labor Statistics (BLS) collects employer costs for employee compensation on a quarterly basis. ERG used the December 2008 data for workers in private industry in the

professional and business services industries (that is, equivalent to industries in the two-digit NAICS industry 540000 to which G&G services belongs), see USDOL BLS (2008). BLS breaks out compensation for this group as:

- 73.2 percent wages and salaries
- 7.1 percent paid leave
- 2.9 percent supplemental pay (e.g., overtime work, shift differentials, and bonuses)
- 6.2 percent insurance
- 3.0 percent retirement and savings
- 7.7 percent legally required benefits (such as Social Security, Medicare, federal unemployment, state unemployment, and worker's compensation).[31]

For this project, ERG considered that paid leave and supplemental pay should be added to wages and salaries because the money from the two benefits would be available for a household to spend. Thus, ERG proposes the following split of the labor share:

- 83.2 percent are considered pre-tax wages available for spending.
- 16.8 percent are benefits assigned to IMPLAN Sector 428 (insurance agencies and brokerages)

4.2.1.3 Wage Distribution

ERG proposes to use the percentage of revenues by county/parish shown in Table 5 on page 35, as the geographical wage distribution. G&G services are highly mobile and any company operating in the GOM could serve any site in the GOM.

4.2.1.4 Non-Labor Spending

If the labor share is estimated as 37.7 percent of the shock, the non-labor share will constitute 62.3 percent of the shock. This 62.3 percent among the input industries using the same pattern for non-labor spending in IMPLAN Sector 439 (architectural and engineering services). Sector 439 corresponds to NAICS 4-digit code 5413 of which G&G is a part.

ERG recognizes that G&G non-labor spending differs from the rest of the architectural and engineering services in the IMPLAN sector. For example, G&G is likely to spend more on air and water transportation and equipment than other industries in the sector. ERG examined two approaches to address the role of transportation in the G&G sector—location analysis and expert judgment. For some of the entries in Table A-1, ERG could identify whether the services offered involve air and/or water transportation (e.g., Fugro Airborne Surveys), but the sector also includes data processing and data brokering. ERG determined that there is insufficient information to develop a weighted average of the acquisition, processing, and analysis subsectors

[31] Data taken directly from USDOL BLS (2008) and may not sum due to rounding.

to propose non-labor shares for air and water transportation. For the second approach, we prefer to rely on transparent, publicly verifiable estimates rather than substitute our own or our experts' judgment. This is an area that might require further research to resolve if the model results are sensitive to these parameters.

4.2.2 Timing and Frequency

G&G activities can occur at many phases in an offshore oil and gas operation—before a lease bid, before drilling an exploratory well, or after an exploratory well if data collected while drilling the well (e.g., velocity) are used to process the G&G data properly (DeCort 2010). For the purpose of including these costs in MAG-PLAN, ERG needs to be able to associate G&G expenses with the activities in E&D scenarios. Based on how the publicly available data are presented, ERG makes two modeling assumptions--that all G&G costs are associated with exploratory wells and the costs are incurred in the year prior to drilling the exploratory well.

4.2.3 Magnitude of the Shock

The Energy Information Administration collects financial data on major energy producers (USDOE, EIA 2008). In completing the Form EIA-28, financial reporting, companies with oil and gas activities file a Schedule 5211 that provides expense information by geographic region (USDOE, EIA 2009c). In USDOE, EIA (2008) Table T7, exploration costs are subdivided into:

- acquisition of unproved acreage
- geological and geophysical
- drilling and equipping
- other

while development costs are subdivided into:

- acquisition of proved acreage
- lease equipment
- drilling and equipping
- other

Geological and geophysical expenses are reported only under exploration activities. This supports ERG's decision to assign G&G costs only to exploratory wells.

Table 55 is derived from the Schedule 5211 submissions (USDOE, EIA 2009c). "Other" costs include direct overhead costs associated with exploration, carrying costs of undeveloped properties (lease rents), test hole contributions, and land development, leasing, and scouting (USDOE, EIA 2009d). Because direct overhead costs are included as drilling costs in the Joint Association Survey on Drilling Costs (API 2008), we have included them in the calculation.

Table 55

Geological and Geophysical Costs as a Percentage of Exploratory Drilling Costs

Parameter	Year								Average
	2000	2001	2002	2003	2004	2005	2006	2007	
Geological and Geophysical (G&G)	$573	$466	$466	$394	$607	$616	$590	$664	
Drilling and Equipment	$2,004	$2,169	$1,781	$1,804	$1,320	$2,163	$3,402	$2,458	
Other	$340	$340	$421	$398	$661	$726	$654	$831	
G&G as a Percentage of Drilling Costs	24%	19%	21%	18%	31%	21%	15%	20%	21%

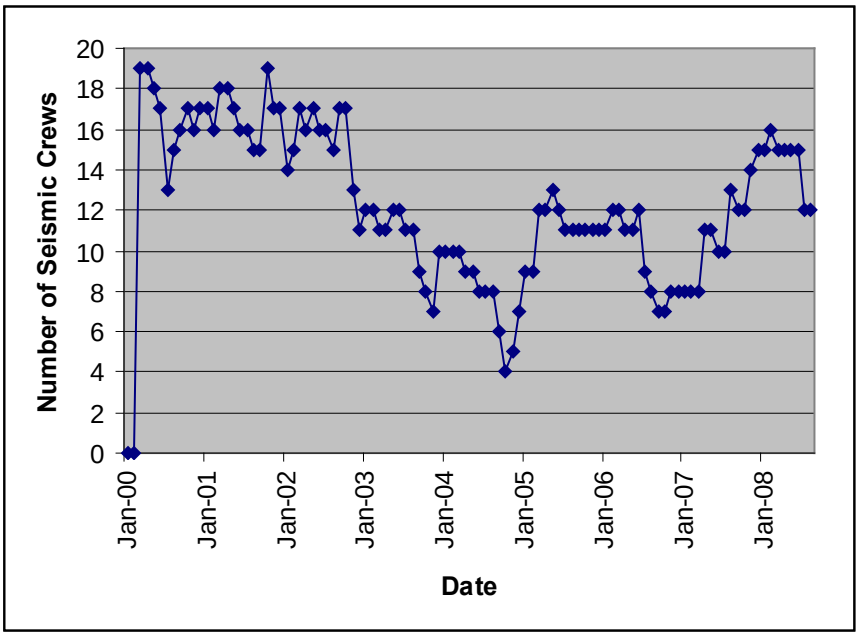
Source: USDOE, EIA 2009c.

From Table 55, we see that G&G costs range from a low of 15 percent of exploration drilling costs in 2006 to a high of 31 percent in 2004. The data for 2003 are likely to include the costs for Encana's well in the Beaufort Sea, but this is the only Alaskan well that we could identify during the 2000 to 2007 time period (USDOI BOEMRE 2006). However, since the G&G-to-drilling cost percentage for 2003 lies within the range shown for the other years, we do not consider the inclusion of an Alaskan well to substantially change the average value of 21 percent.

In other words, the G&G cost per exploratory well could be calculated as 21 percent of the drilling cost. This approach has the effect of associating higher G&G costs with more expensive wells which is a logical relationship. G&G services are less expensive than drilling an offshore well.

4.2.4 Supply and Demand for Geological and Geophysical Prospecting Services in the Offshore Gulf of Mexico

Spending for G&G services will affect the regional economy only if the region has the capacity to provide the services. When demand exceeds the regional supply, G&G services will be imported from other areas and spending will flow out of the regional economy. The Energy Information Administration tracks the maximum number of seismic crews active offshore on a monthly basis; see Figure 7. The peak number of crews—19—occurred in early 2001 and 2002. The number of crews declined until January 2005 and then rose again until it reached 16 seismic crews in February 2008.



Source: USDOE, EIA (2009e).

Figure 7. Monthly peak number of active seismic crews in the offshore United States, January 2000–August 2008.

An evaluation of G&G capacity in the GOM indicates that there are more than enough crews available to meet the likely demand. Fairfield Industries has six vessels in the Gulf of Mexico (Fairfield Industries 2009). Fugro N.V. owns 28 vessels and operates an additional 22 vessels worldwide (Fugro 2007). On its website, Fugro provides descriptions for 12 of these vessels. Three of the 12 (Geodetic Surveyor, Universal Surveyor, and Seis Surveyor) are registered in the Gulf of Mexico region and Fugro states that most of the others can be rapidly mobilized anywhere in the world. WesternGeco has four seismic vessels of which at least one, Western Neptune, has worked in the Gulf of Mexico (Mouawad 2006). With its acquisition of AOA Marine Geoscience, WesternGeco also obtained the Geoexplorer (AOA Geophysics 2009). CGGVeritas spent $368 million in 2007 acquiring geophysical data. Because most of these data were acquired in the Gulf of Mexico, it is likely that some of their 20 vessels are located in the region (CGGVeritas 2007). Tesla Offshore operates two vessels year-round in the Gulf of Mexico (Tesla Offshore 2009). Marine Surveys, LLC has two vessels based in Louisiana (Silvetti 2009). DWS International appears to have at least one vessel (DWS 2009). Other firms appear to use long-term charters to collect their data.

In other words, there appears to be a sufficient number of seismic vessels within the region to support the peak number of seismic crews. For the purpose of this study, performance of a service by a foreign corporate parent is not considered to allocate the spending to a "Rest of the World" region if the parent has a location and staff in the GOM region to perform the task. Thus, all staff listed in Table A-1 are considered local even if the corporate parent is foreign.

As a simplifying assuming for the purpose of modeling the impact of G&G expenditures within MAG-PLAN, ERG proposes that all G&G expenses within MAG-PLAN be allocated within the

Gulf of Mexico economic region for two reasons. First, it appears there is sufficient local supply to meet local demand and, second, ERG could not find a basis for prorating the portion of revenues that would leave the region.

4.3 EXPLORATORY WELL DRILLING

Sections 4.3 and 4.4 identify publicly available detailed cost data for "typical" offshore wells, disassembles them into components, and reconfigures them into IMPLAN sectors. For this report, it is the proportion of costs per sector that provides an understanding of the interrelationships among the commodities and services. Thus, the cost function can be used to scale updated well costs into the appropriate commodities and services. Section 4.3 focuses on exploratory wells while Section 4.4 addresses development wells.

4.3.1 Cost Function Description

Schlumberger, under contract to the Department of Energy's National Energy Technology Laboratory, collected Authorization for Expenditure (AFE) data for wells drilled from approximately 1999 to 2004 with a true vertical depth of at least 15,000 feet (USDOE NETL 2005). The data set included 2,363 wells and 140 operators in the U.S. and Canada. Figure 8 is taken from USDOE NETL (2005) and indicates that the majority of the sample is located in the GOM OCS and Gulf Coast.

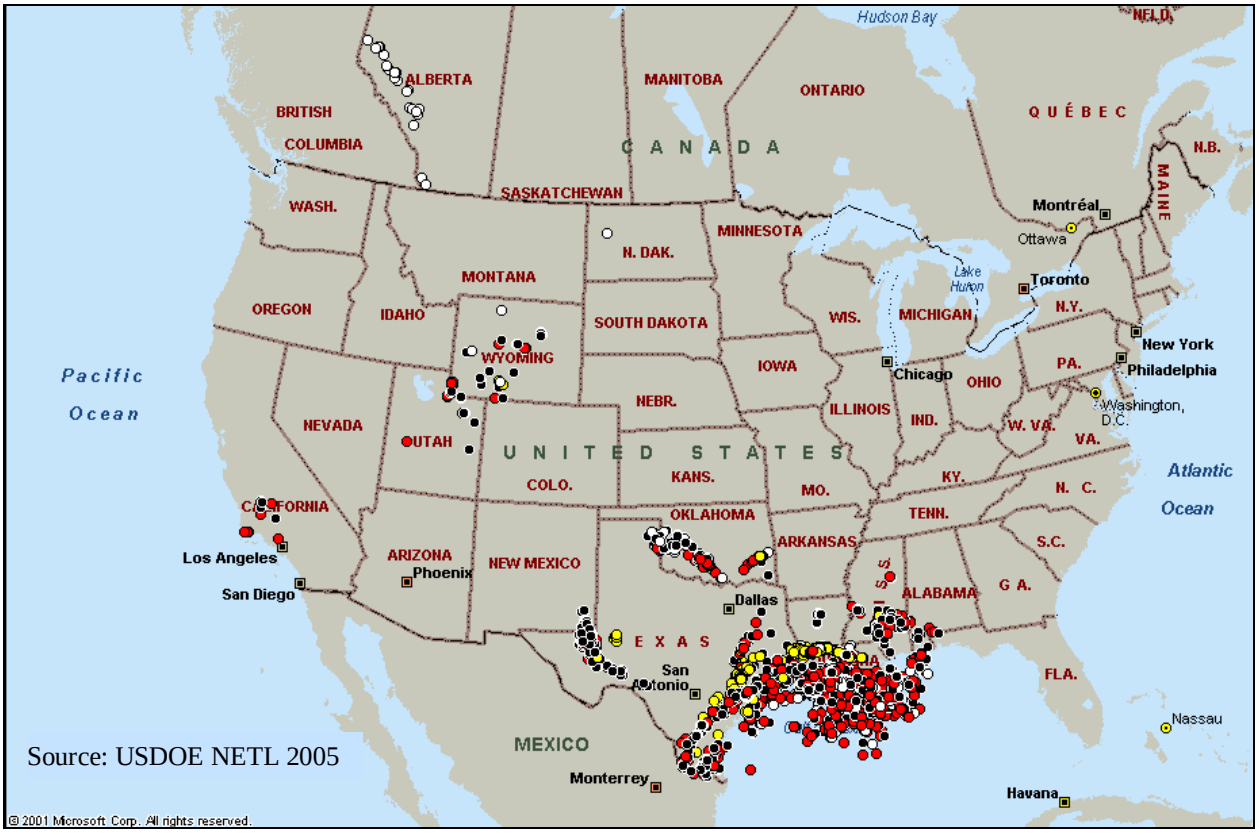


Figure 8. Location of deep wells, 1997–2001.

Schlumberger began by examining each AFE form and coding every line item to a set of code names developed for the project. The study divided the wells into 13 "scenarios" and developed average costs for each cost component within each scenario. The most relevant scenario for the exploratory drilling activity function is Scenario 7DE, an offshore GOM directional well with a depth of 19,000 feet and a total vertical depth of 18,000 feet.[32]

Table 56 is the detailed list of average expenditures for Scenario 7DE, taken from USDOE NETL (2005), Appendix A, as well as the standardized cost category. The term "N/R" appears on lines for which data were not reported. The total well cost is approximately $8.8 million.

Table 56

Expenditures for Offshore GOM Exploratory Well, 19,000 Feet Depth

Authorization for Expenditure	Cost Category	Detailed Cost
Cement	Cement And Services, Cementing Accessories	$245,000
Services Cementing	Cement And Services, Cementing Accessories	$27,900
Services Open Hole Logging	Logging, Openhole	$92,000
	Packer & Downhole Equipment	N/R
	Production Equipment	N/R
	Special Services/Coiled Tubing/Testing/DST & Coring	N/R
Drilling Bits	Bits, Reamers, And Stabilizers	$100,500
	Contingencies	N/R
Drilling Rig	Contract Drilling	$3,410,000
Services Directional Survey	Directional Drilling Services	$12,000
Services Directional Tools	Directional Drilling Services	$205,500
	Drilling, Construction, & Company Overhead	N/R
Drlg Fuel	Fuel, Power, Water, Hauling And Disposal	$161,200
Rent Elect Line Unit	Fuel, Power, Water, Hauling And Disposal	$15,500
Trans Fuel	Fuel, Power, Water, Hauling And Disposal	$72,500
Drlg Water	Fuel, Power, Water, Hauling And Disposal	$12,400
	Miscellaneous Materials & Expenses	N/R
Drlg Mob Demob	Mobilization / Demobilization	$375,000
Drlg Tools - Stab, Oh, Ur	Rental Tools And Equipment	$48,300
Rent Drill String	Rental Tools And Equipment	$13,400
Rent Misc	Rental Tools And Equipment	$48,300
Trans Air	Transportation	$99,200
Trans Crewboats	Transportation	$105,400
Services Docks	Trucking & Freight	$7,800

[32] The reader should be aware that the focus of the USDOE NETL (2005) report is deep wells. That is, a well with a total vertical depth of 18,000 feet represents only a small percentage of all wells drilled in the GOM OCS. In addition, USDOE NETL (2005) does not provide the water depth in which the well is located. Water depth can have a substantial impact on cost because it affects the type of MODU that will be used to drill the well. (See Section 3.2.1 for a discussion of the different types of MODUs.) However, USDOE NETL (2005) is the only publicly available source that ERG identified with detailed cost data; thus the emphasis that Section 4.3 illustrates the methodology to develop a cost curve that integrates the contract services within the activity function.

Table 56. Expenditures for Offshore GOM Exploratory Well, 19,000 Feet Depth (continued).

Authorization for Expenditure	Cost Category	Detailed Cost
Trans Workboats	Trucking & Freight	$475,200
Services Trucking	Trucking & Freight	$75,000
Services BOP Testing	Wellhead Equipment, BOP Testing, Assembly, Christmas Tree	$10,600
Rent BOPs	Wellhead Equipment, BOP Testing, Assembly, Christmas Tree	$8,700
Wellhead	Wellhead Equipment, BOP Testing, Assembly, Christmas Tree	$100,000
Mud Chemicals	Drilling And Completion Fluids And Services	$486,400
Mud Corrosion Inhibitor	Drilling And Completion Fluids And Services	$30,000
Rent Mud Equipment	Drilling And Completion Fluids And Services	$21,600
Loc Contingency	Location And Road Building	$945,800
Loc Preparation	Location And Road Building	$17,500
Loc Misc	Location And Road Building	$5,600
Loc Clean Up	Permit/Survey/Damages/Restoration	$5,000
Loc Permits	Permit/Survey/Damages/Restoration	$5,000
Loc Surveys	Permit/Survey/Damages/Restoration	$40,000
Services Trash	Permit/Survey/Damages/Restoration	$8,900
Loc Insurance	Well Insurance	$106,600
Rent Communications	Communications, Dims, Computer	$25,200
Services Dispatcher	Communications, Dims, Computer	$28,800
Supr Engineer	Company Labor (Time, Exp. & Benefits)	$25,000
Supr Consultant	Consulting, Contract Labor, And Professional Fees	$77,500
Services Misc	Consulting, Contract Labor, And Professional Fees	$44,500
Services Welding & Labor	Consulting, Contract Labor, And Professional Fees	$18,000
Services Wellhead	Consulting, Contract Labor, And Professional Fees	$14,400
Services Mud Logging	Consulting, Contract Labor, And Professional Fees	$31,100
Services Galley	Living Quarters	$30,700
Rent Casing Tools	Casing Crew, Tongs And Tools, P&A Services	$97,500
Casing Equipment	Casing Equipment, Float, Liner Pipe, And Hanger	$17,000
Pipe Drive	Conductor Pipe	$45,000
Pipe Conductor	Conductor Pipe	$70,000
Pipe Intermediate	Intermediate Casing	$646,200
	Production Casing	N/R
Pipe Surface	Surface Casing	$192,500
	Tubing	N/R
Services Casing Inspection	Tubular Testing And Inspection	$36,600
Services Drill Pipe Inspec	Tubular Testing And Inspection	$26,500
Services BHA Inspec	Tubular Testing And Inspection	$7,100
	Completion And Workover Rig	N/R
	Stimulation	N/R
	Wireline Services, Logging, Perforating	N/R
	Total Well Cost	$8,827,400

Source: USDOE NETL (2005), Appendix A, Scenario 7DE.

Table 57 aggregates the costs into the categories discussed in Sections 3.2 through 3.10. The drilling contractor, which includes the drilling rig, accounts for about 43 percent of the overall costs. Unexpectedly, insurance is the next largest cost category, accounting for almost 12 percent of the overall well costs. This is driven by nearly $1 million in a "location contingency" cost that reflects the uncertainties of working in the offshore. Casing materials represent about 11 percent of the costs. Transportation costs total about 8.6 percent. (Air and water transportation are discussed in Sections 3.13 and 3.14. Accommodations are discussed in Section 3.12.)

Table 57

Cost Summary by Sector

Cost Summary	Cost	Percent
Drilling contractor (including mobilization/demobilization)	$3,785,000	42.9%
Directional Drilling	$217,500	2.5%
Drilling fluids	$538,000	6.1%
Drilling tools	$210,500	2.4%
Mud logging	$31,100	0.4%
Casing-materials	$970,700	11.0%
Casing-services	$97,500	1.1%
Cementing-materials	$245,000	2.8%
Cementing-services	$27,900	0.3%
BOPs	$119,300	1.4%
Formation Evaluation	$92,000	1.0%
Inspection Fees	$70,200	0.8%
Insurance	$1,052,400	11.9%
Company Labor	$25,000	0.3%
Contract Labor (inc. dispatcher)	$183,200	2.1%
G&G	$40,000	0.5%
Misc.	$67,200	0.8%
Fuel	$233,700	2.6%
Water	$12,400	0.1%
Power	$15,500	0.2%
Transportation - air	$99,200	1.1%
Transportation - water	$588,400	6.7%
Transportation - land	$75,000	0.8%
Accommodations	$30,700	0.3%
Total	$8,827,400	

4.3.2 Cost Function Estimation

As can be seen from Table 57, the cost function for the exploratory well drilling activity is a composite of commodity and service cost functions for the different sectors. That is, the cost of an exploratory well is disaggregated into its constituent goods and services. The rest of this section will cover the further disaggregation of each good and service into the local/non-local and IMPLAN sectors. Finally, the sectors will be re-aggregated to a single function.

4.3.2.1 Grouping Into Like Services and Commodities

Table 58 groups the line items in Table 56 and Table 57 into services and commodities. The first 13 entries are considered services, represented by seven NAICS/IMPLAN sectors. Slightly more

than 40 percent of the well cost goes to the drilling contractor (IMPLAN Sector 27, drilling oil and gas wells). The services supporting directional drilling, drilling fluids, mud logging, casing, cementing, and formation evaluation—representing 11.4 percent of the well costs—are combined under IMPLAN Sector 28 (support activities for oil and gas operations). Geophysical and geological prospecting and inspection fees fall under IMPLAN Sector 439, architectural and engineering services.

Table 58

Grouping Well Costs Into Services and Commodities

Cost Summary	Percent		NAICS	IMPLAN	Sector Name
	Individual	Aggregate			
Drilling contractor (including mobilization/ demobilization)	42.9%	42.9%	213111	27	Drilling Oil and Gas Wells
Directional Drillling	2.46%	11.4%	213112	28	Support Activities for Oil and Gas Operations
Drilling fluids	6.1%				
Mud logging	0.4%				
Casing-services	1.1%				
Cementing-services	0.3%				
Formation Evaluation	1.0%				
G&G	0.5%	1.2%	541300	439	Architectural and Engineering Services
Inspection Fees	0.8%				
Transportation – air	1.1%	1.1%	481000	391	Air Transportation
Transportation - water	6.7%	6.7%	483000	393	Water Transportation
Transportation - land	0.8%	0.8%	484000	394	Truck Transportation
Accommodations	0.3%	0.3%	721A00	480	Other Accommodations
Drilling tools	2.4%	3.7%	333132	261	Oil and Gas Field Equipment and Machinery
BOPs	1.4%				
Casing-materials	11.0%	11.0%	331111	203	Iron and steel mills
Cementing-materials	2.8%	2.8%	327310	191	Cement manufacturing
Fuel	2.6%	2.6%	447000	407	Gasoline Stations
Water	0.1%	0.1%	221300	32	Water, Sewage, and Other Systems
Power	0.2%	0.2%	221100	30	Power Generation and Supply
Insurance	11.9%	11.9%	524100	427	Insurance Carriers
Company Labor	0.3%	3.1%			Wages (will be divided between households and insurance carriers)
Contract Labor (inc. dispatcher)	2.1%				
Misc	0.8%				
Total		100.0%			

The next seven items are commodities purchased and consumed during the activity. These include drill bits and other drilling tools, BOPs, steel pipe for casing, cement for sealing the borehole, and utilities (electric, water, and fuel). Steel casing and pipes are called oil country

tubular goods (OCTG) and are produced by a limited number of companies located in the United States.[33] These are assigned to the sectors that produce them.

Insurance for offshore operators is likely to be handled by carriers that specialize in evaluating the risks of such activities. Thus, the nearly 12 percent of the cost represented by insurance is allocated to IMPLAN Sector 427 (insurance carriers). There is a line entry for the "company man" who supervises operations, as well as another entry for other types of contract labor. These are combined with the remaining miscellaneous expenses and treated as labor.

4.3.3 Cost Function Components

4.3.3.1 Labor Share

Table 59 illustrates the methods and data used to derive the preliminary estimate of the labor share. Beginning at the left margin, the columns list the sector name, NAICS code, and the cost percentage from Table 58. The data in the next two columns are taken from the 2002 Census and they are the revenues and payroll by NAICS code. The ratio of the two is the preliminary estimate of the labor share for services. These range from a low of 13.7 percent for water transportation to a high of 42.0 percent for architectural and engineering services. Note that the labor share now reflects all architectural and engineering services (NAICS 514300) while the geophysical and geological prospecting cost function discussed in Section 4.2 is restricted to NAICS 514360. No labor percentage is assigned to the commodity costs and 100 percent is assigned to the company and contract labor line items in the AFE listing.

4.3.3.2 Wages and Benefits

The Bureau of Labor Statistics (BLS) collects employer costs for employee compensation on a quarterly basis. ERG used the detailed December 2008 data for workers in private industry (USDOL BLS 2008). Labor is considered as the sum of wages, salaries, paid leave, and supplemental pay because this money would be available for a household to spend. The correspondence between the industry sectors and the BLS tables used for the data is:

- Drilling, support services to oil and gas operations, and wages: Table 1
- Architectural and engineering services: Table 10
- Transportation (air, water, truck): Table 4
- Other accommodations: Table 14
- Oil and gas field equipment and machinery: Table 2

The final labor share is calculated as:

$$\text{Final Labor Share (\%)} = \text{Cost (\%)} \times \text{Labor Share (\%)} \times \text{Household (\%)}$$

When summed, these result in a weighted average estimate of the household income taken home from exploratory drilling operations. In Table 59, for every dollar spent in an exploratory drilling

[33] U.S. Steel, Maverick Tube Corporation, Evraz Rocky Mountain Steel Corporation, IPSCO, and Wheatland Tube (ITA 2009).

Table 59

Derivation of Labor Share for Exploratory Drilling

Sector Name	NAICS	Cost (Percent)	Census Data ($Million) Revenues	Census Data ($Million) Payroll	Labor Share	BLS Household	BLS Insurance	Final Labor Share	Final Insurance Share	Percent to IMPLAN Sector
Drilling Oil and Gas Wells	213111	42.88%	$9,069	$2,490	27.5%	74.5%	25.5%	8.77%	3.00%	31.11%
Support Activities for Oil and Gas Operations	213112	11.37%	$11,543	$3,847	33.3%	74.5%	25.5%	2.82%	0.97%	7.58%
Architectural and Engineering Services	541300	1.25%	$161,835	$68,015	42.0%	83.2%	16.8%	0.44%	0.09%	0.72%
Air Transportation	481000	1.12%	$19,735	$3,805	19.3%	79.6%	20.4%	0.17%	0.04%	0.91%
Water Transportation	483000	6.67%	$23,331	$3,194	13.7%	79.6%	20.4%	0.73%	0.19%	5.75%
Truck Transportation	484000	0.85%	$164,219	$47,750	29.1%	79.6%	20.4%	0.20%	0.05%	0.60%
Other Accommodations	721A00	0.35%	$128,098	$34,955	27.3%	83.3%	16.7%	0.08%	0.02%	0.25%
Oil and Gas Field Equipment and Machinery	333132	3.74%	$5,579	$1,313	23.5%	77.9%	22.1%	0.68%	0.19%	2.86%
Iron and steel mills	331111	11.00%								11.00%
Cement manufacturing	327310	2.78%								2.78%
Gasoline Stations	447000	2.65%								2.65%
Water, Sewage, and Other Systems	221300	0.14%								0.14%
Power Generation and Supply	221100	0.18%								0.18%
Insurance Carriers	524100	11.92%								11.92%
Wages		3.12%			100.0%	74.5%	25.5%	2.32%	0.80%	
Totals		100.00%						16.21%	5.34%	78.44%

Sources: U.S. Census Bureau (2005a through 2005e) and U.S. DOL BLS (2008).

activity, 16.21 cents go to households, 5.34 cents go to insurance agencies and brokerages (IMPLAN Sector 428),[34] and 78.44 cents are distributed among the 14 other IMPLAN sectors

4.3.3.3 Regional Distribution of Costs

The regional distribution of exploratory drilling costs appears to be more appropriately represented by two distributions. Beyond a certain water depth, a drill ship is necessary for exploratory drilling. If a drill ship is used, it is possible that a larger percent the wages, insurance, and non-labor expenses for NAICS 213111 (drilling rigs), NAICS 213112 (support services), and NAICS 721A00 (accommodations) will go outside the region. The vessels listed in Table 3 have quarters for 100 to 200 people and bring all necessary materials with them to the remote drilling site (Offshore Magazine 2008). If other types of MODUs can perform the drilling, the drilling is more likely to be performed with local companies. When local rigs drill the well, the regional distributions in this report can be used to allocate the dollars spent in the GOM to onshore areas.

4.4 DEVELOPMENT WELL DRILLING

4.4.1 Cost Function Description

ERG uses the same data source—(USDOE NETL 2005)—for development well drilling as for exploratory wells. The most relevant scenario in USDOE NETL (2005) for the productive drilling activity function is Scenario 7DD, an offshore GOM directional well with a depth of 17,000 feet and a total vertical depth of 15,000 feet.[35] Table 60 is the detailed list of average expenditures for Scenario 7DD, taken from USDOE NETL (2005), Appendices B and C. The total well cost is approximately $4.1 million.

Table 61 aggregates the costs into the categories discussed in Sections 3.2 through 3.14. The drilling contractor (including the drilling rig) accounts for about 35 percent of the overall costs. Casing materials represent about 10 percent. Tubulars and drilling tools account for about 4 percent each. Transportation costs—air, water, and land—total about 9.3 percent.

[34] It is more likely for employee benefits to go through an insurance agency while insurance for the exploratory drilling operation goes through an insurance carrier.

[35] The individual cost items are listed in USDOE NETL (2005), Appendix B. However, the sum of the expenditures listed for Scenario 7DD in Appendix B is double the total listed in Appendix C for the same scenario. One possible interpretation is that the AFE data describe two completions or two directional wells branching off a single vertical borehole. The basis for the interpretation is two entries for each of tangible-drilling wellhead, tangible-completion wellhead, wellhead services, and other items. At times, the two entries have identical costs, and at other times the costs differ. In this report, ERG uses the cost presented in Appendix C because the values are those discussed in the remainder of the report.

Table 60

Expenditures for Offshore GOM Development Well, 15,000 Feet Depth

Authorization for Expenditures (AFE)	Cost Category	Detailed Cost
Cement	Cement And Services, Cementing Accessories	$103,000
Services Cementing	Cement And Services, Cementing Accessories	$18,950
Services Open Hole Logging	Logging, Openhole	$63,450
	Packer & Downhole Equipment	$17,500
	Production Equipment	$20,000
Drilling Bits	Bits, Reamers, And Stabilizers	$56,400
	Contingencies	$371,350
Drilling Rig	Contract Drilling	$924,750
Services Directional Survey	Directional Drilling Services	$2,500
Services Directional Tools	Directional Drilling Services	$124,300
	Drilling, Construction, & Company Overhead	$22,000
Drilling Fuel	Fuel, Power, Water, Hauling And Disposal	$59,200
Rent Elect Line Unit	Fuel, Power, Water, Hauling And Disposal	$6,350
Trans Fuel	Fuel, Power, Water, Hauling And Disposal	$30,200
Drilling Water	Fuel, Power, Water, Hauling And Disposal	$4,300
Drilling Mob Demob	Mobilization / Demobilization	$90,000
Drilling Tools - Stab, Oh, Ur	Rental Tools And Equipment	$8,900
Rent Drill String	Rental Tools And Equipment	$64,900
Services-Fishing	Services-Fishing	$1,250
Rent Misc	Rental Tools And Equipment	$15,750
Trans Air	Transportation	$37,300
Trans Crewboats	Transportation	$87,650
Services Docks	Trucking & Freight	$16,650
Trans Workboats	Trucking & Freight	$205,400
Services Trucking	Trucking & Freight	$34,250
Services Bop Testing	Wellhead Equipment, Bop Testing, Assembly, Christmas Tree	$15,800
Rent Bops	Wellhead Equipment, Bop Testing, Assembly, Christmas Tree	$10,400
Wellhead	Wellhead Equipment, Bop Testing, Assembly, Christmas Tree	$81,000
Mud Chemicals	Drilling And Completion Fluids And Services	$423,950
Mud Corrosion Inhibitor	Drilling And Completion Fluids And Services	$7,500
Rent Mud Equipment	Drilling And Completion Fluids And Services	$16,200
Loc Contingency	Location And Road Building	
Loc Preparation	Location And Road Building	$41,750
Loc Misc	Location And Road Building	$1,800
Loc Clean Up	Permit/Survey/Damages/Restoration	$7,500
Loc Permits	Permit/Survey/Damages/Restoration	$12,250
Loc Surveys	Permit/Survey/Damages/Restoration	
Services Trash	Permit/Survey/Damages/Restoration	$3,800
Loc Insurance	Well Insurance	$51,300
Rent Communications	Communications, Dims, Computer	$22,650
Services Dispatcher	Communications, Dims, Computer	$20,000
Supervisor-Engineer	Company Labor (Time, Exp. & Benefits)	$11,600
Supervisor-Consultant	Consulting, Contract Labor, And Professional Fees	$57,300
Services Misc	Consulting, Contract Labor, And Professional Fees	$33,500
Services Welding & Labor	Consulting, Contract Labor, And Professional Fees	$14,500
Services Mud Logging	Consulting, Contract Labor, And Professional Fees	$19,100
Services Galley	Living Quarters	$21,150

Table 60. Expenditures for Offshore GOM Development Well, 15,000 Feet Depth (continued).

Authorization for Expenditures (AFE)	Cost Category	Detailed Cost
Services Casing	Casing Equipment, Float, Liner Pipe, And Hanger	$2,400
Rent Casing Tools	Casing Crew, Tongs And Tools, P&A Services	$55,250
Casing Equipment	Casing Equipment, Float, Liner Pipe, And Hanger	$55,200
Pipe Drive	Conductor Pipe	$43,950
Pipe Conductor	Conductor Pipe	$120,400
Pipe Intermediate	Intermediate Casing	$158,950
Pipe Surface	Surface Casing	$41,050
	Tubing	$161,850
Services Casing Inspection	Tubular Testing And Inspection	$2,750
Services Drill Pipe Inspec	Tubular Testing And Inspection	$26,300
Services BHA Inspec	Tubular Testing And Inspection	$31,300
	Stimulation	$40,000
	Wireline Services, Logging, Perforating	$85,000
	Total	$4,083,750

Source: USDOE NETL (2005), Appendices B and C, Scenario 7DD.

Table 61

Cost Summary by Sector

Cost Summary	Cost	Percent
Drilling contractor (including mobilization/demobilization, and contingencies)	$1,408,100	34.5%
Directional drilling services	$126,800	3.1%
Drilling fluids	$447,650	11.0%
Drilling tools	$145,950	3.6%
Mud logging	$19,100	0.5%
Casing-materials	$419,550	10.3%
Casing-services	$57,650	1.4%
Cementing-materials	$103,000	2.5%
Cementing-services	$18,950	0.5%
BOPs/Wellheads	$91,400	2.2%
Fishing – services	$1,250	0.0%
Formation Evaluation	$100,950	2.5%
Testing and Inspection Fees	$76,150	1.9%
Well completion-services	$125,000	3.1%
Insurance	$51,300	1.3%
Company Labor	$11,600	0.3%
Contract Labor (inc. dispatcher)	$125,300	3.1%
Tubing	$161,850	4.0%
Fuel	$89,400	2.2%
Water	$4,300	0.1%
Power	$6,350	0.2%
Transportation – air	$37,300	0.9%
Transportation - water	$309,700	7.6%
Transportation – land	$34,250	0.8%
Accommodations	$21,150	0.5%
Misc.	$89,750	2.2%
Total	$4,083,750	100.0%

4.4.2 Cost Function Estimation

As Table 61 shows, the cost function for the development well drilling activity is a composite of commodity and service cost functions for the different sectors. That is, the cost of a development well is disaggregated into its constituent goods and services. The rest of this section will cover the further disaggregation of each good and service into the local/non-local and IMPLAN sectors. Finally, the sectors will be re-aggregated to a single function.

Table 62 groups the line items in Table 60 and Table 61 like services and commodities. The first 13 entries are considered services, represented by seven NAICS/IMPLAN sectors. The support services—directional drilling, drilling fluids, mud logging, casing, cementing, fishing, and formation evaluation, representing 22 percent of the well costs—are combined under IMPLAN Sector 28 (support activities for oil and gas operations). Inspection fees fall under the general category of architectural and engineering services (IMPLAN Sector 439). Various forms of transportation and accommodation are listed with their associated IMPLAN sectors.

The next eight items are commodities purchased and consumed during the activity. These include drill bits and other drilling tools, BOPs, cement for sealing the borehole, and utilities (electric, water, and fuel).The AFE detailed cost list for the development well makes a distinction between pipes/casing and tubing. As mentioned for the exploratory drilling activity function, steel casing pipes are called oil country tubular goods (OCTG) and are produced by a limited number of companies located in the United States. ERG thus assigned casing pipe to the iron and steel manufacturing sector (IMPLAN Sector 203). Because the model well is a directional well, ERG assumes that the materiel listed as tubing is likely to be coiled tubing. This is a specialized product that needs further manufacture after the steel mill. Thus, ERG assigned this cost to IMPLAN Sector 261 (oil and gas field equipment and machinery).

Table 63 is a comparison of the cost functions for exploratory and development wells based on the USDOE NETL (2005). The most striking change is the reduction in insurance costs from 11.9 percent of the total well cost for an exploratory well to 1.3 percent for a development well. This is due to a $1 million location contingency cost for the exploratory well compared to $0.1 million for a development well. This is, perhaps, a reflection of the uncertainties of exploratory drilling in the offshore from a MODU compared to drilling development wells from an installed structure.

The likely difference between the costs of drilling from a MODU and drilling from a platform or other installed structure can be seen in the relative percent of the well cost assigned to the contract drilling operations themselves. In the exploratory well, IMPLAN Sector 27 accounts for 43 percent of the total costs, compared with 35 percent of the total costs for a development well. The percentage of the costs associated with support activities increases from about 11 percent for an exploratory well to 22 percent for a development well. This is consistent with the need for additional services to run in the set of production tubulars, perform final cementing, install the wellhead, perforate, swab, and possibly acidize.

Table 62

Grouping Well Costs Into Services and Commodities

Cost Summary	Percent Individual	Percent Aggregate	NAICS	IMPLAN	Sector Name
Drilling contractor (including mobilization/demobilization)	34.5%	34.5%	213111	27	Drilling Oil and Gas Wells
Directional drilling services	3.1%				
Drilling fluids	11.0%				
Mud logging	0.5%				
Casing-services	1.4%				
Cementing-services	0.5%				
Fishing - services	0.0%				Support Activities for Oil and Gas
Well completion - services	3.1%				
Formation Evaluation	2.5%	22.0%	213112	28	Operations
Inspection Fees	1.9%	1.9%	541300	439	Architectural and Engineering Services
Transportation - air	0.9%	0.9%	481000	391	Air Transportation
Transportation - water	7.6%	7.6%	483000	393	Water Transportation
Transportation - land	0.8%	0.8%	484000	394	Truck Transportation
Accommodations	0.5%	0.5%	721A00	480	Other Accommodations
Drilling tools	3.6%				Oil and Gas Field Equipment and
Tubing	4.0%				
BOPs/Wellheads	2.2%	9.8%	333132	261	Machinery
Casing-materials	10.3%	10.3%	331111	203	Iron and steel mills
Cementing-materials	2.5%	2.5%	327310	191	Cement manufacturing
Fuel	2.2%	2.2%	447000	407	Gasoline Stations
Water	0.1%	0.1%	221300	32	Water, Sewage, and Other Systems
Power	0.2%	0.2%	221100	30	Power Generation and Supply
Insurance	1.3%	1.3%	524100	427	Insurance Carriers
Company Labor	0.3%				Wages (will be
Contract Labor (inc. dispatcher)	3.1%				divided between households and
Misc	2.2%	5.6%			insurance carriers)

Table 63

Comparison of Cost Functions for Exploratory and Development Wells

NAICS	IMPLAN	Sector Name	Percentage	
			Exploratory	Development
213111	27	Drilling Oil and Gas Wells	42.9%	34.5%
213112	28	Support Activities for Oil and Gas Operations	11.4%	22.0%
541300	439	Architectural and Engineering Services	1.2%	1.9%
481000	391	Air Transportation	1.1%	0.9%
483000	393	Water Transportation	6.7%	7.6%
484000	394	Truck Transportation	0.8%	0.8%
721A00	480	Other Accommodations	0.3%	0.5%
333132	261	Oil and Gas Field Equipment and Machinery	3.7%	9.8%
331111	203	Iron and steel mills	11.0%	10.3%
327310	191	Cement manufacturing	2.8%	2.5%
447000	407	Gasoline Stations	2.6%	2.2%
221300	32	Water, Sewage, and Other Systems	0.1%	0.1%
221100	30	Power Generation and Supply	0.2%	0.2%
524100	427	Insurance Carriers	11.9%	1.3%
		Wages	3.1%	5.6%
		Totals	100.0%	100.0%

The production tubing is assigned to IMPLAN Sector 261 (oil and gas field equipment and machinery). Unless an exploratory well is put into production,[36] production tubing is not installed. Thus the cost percentage for this sector is 3.7 percent for an exploratory well and 9.8 percent for a development well.

The model exploratory well is 19,000 feet in depth, while the development well is 17,000 feet in depth. This is consistent with the slightly higher percentages for pipe, cement, and fuel costs in the exploratory well than the development well. But the differences are very slight (no more than 0.3 percent).

4.4.3 Cost Function Components

ERG uses the same methodology to derive the preliminary estimate of the labor share for the development well as for the exploratory well. Table 64 repeats the data and calculations presented in Table 59, but with the cost percentage profile for the development well. For every dollar spent in drilling an offshore development well, 20.37 cents go to households, 6.66 cents go to insurance agencies and brokerages, and 72.98 cents are distributed among 14 other IMPLAN sectors.

[36] Such a well would appear in the BOEMRE database as a single-slot structure; many such wells are not listed as having production equipment. These are more likely to be older structures in shallow water.

Table 64

Derivation of Labor Share for Development Drilling

Sector Name	NAICS	Percent	Census Data ($Million)		Labor	BLS		Final Household	Final Insurance	Percent to IMPLAN
			Revenues	Payroll	Share	Household	Insurance	Share	Share	Sector
Drilling Oil and Gas Wells	213111	34.5%	$9,069	$2,490	27.5%	74.5%	25.5%	7.05%	2.41%	25.01%
Support Activities for Oil and Gas Operations	213112	22.0%	$11,543	$3,847	33.3%	74.5%	25.5%	5.46%	1.87%	14.65%
Architectural and Engineering Services	541300	1.9%	$161,835	$68,015	42.0%	83.2%	16.8%	0.65%	0.13%	1.08%
Air Transportation	481000	0.9%	$19,735	$3,805	19.3%	79.6%	20.4%	0.14%	0.04%	0.74%
Water Transportation	483000	7.6%	$23,331	$3,194	13.7%	79.6%	20.4%	0.83%	0.21%	6.55%
Truck Transportation	484000	0.8%	$164,219	$47,750	29.1%	79.6%	20.4%	0.19%	0.05%	0.59%
Other Accommodations	721A00	0.5%	$128,098	$34,955	27.3%	83.3%	16.7%	0.12%	0.02%	0.38%
Oil and Gas Field Equipment and Machinery	333132	9.8%	$5,579	$1,313	23.5%	77.9%	22.1%	1.79%	0.51%	7.47%
Iron and steel mills	331111	10.3%								10.27%
Cement manufacturing	327310	2.5%								2.52%
Gasoline Stations	447000	2.2%								2.19%
Water, Sewage, and Other Systems	221300	0.1%								0.11%
Power Generation and Supply	221100	0.2%								0.16%
Insurance Carriers	524100	1.3%								1.26%
Wages		5.6%			100.0%	74.5%	25.5%	4.13%	1.42%	
Totals		100.00%						20.37%	6.66%	72.98%

Sources: US Census Bureau (2005a through 2005e) and USDOL BLS (2008).

4.5 PRODUCTION AND OPERATIONS

4.5.1 Cost Function Description

ERG uses data published by EIA for annual operating costs for offshore oil and gas platforms in the GOM. The most recent data available are for 2006 (USDOE, EIA 2007). Table 65 lists the cost components tracked by EIA for onshore and offshore oil and gas operations as well as coalbed methane projects. One item that does not seem to be tracked is diving, unless it is included as part of "oilfield maintenance - marine."

Table 65

Items Tracked for Oil, Gas, or Coal Bed Natural Gas Lease Equipment and Operating Costs

Cost Item	
Automobile costs	Oil transfer pumps
Communications costs - land	Oilfield chemicals
Electric lease power	Oilfield maintenance - marine
Electric motors and controllers	Packers
Electric labor - field	Perforating
Electric materials - field	Pipe coating
Fences	Plastic tanks
Field structures - small	Pumping engines- gas
Fishing tools	Pumping motors - electric
Miscellaneous fittings	Pumping unit bases
Gas compressors	Pumping units
Gas lift equipment	Slick line work - offshore
Gas sales meters	Speciality tubing
Gross national product deflator	Submersible pumps
Helicopter service	Submersible hydraulic pumps
Hot oil service	Sucker rods
Insulation	Tubular goods - lease
Insurance - offshore	Tublar goods - well
Labor statistics - oil field	Tugs and barges
Labor - clerical	Valves, pumps, misc. - land
Labor - supervisory	Water filter cases
Labor - technical	Water filters
Large engine for hydraulic pumping	Water injection pumps
Lease processing and storage equipment	Well costs - secondary recovery
Lubricants	Well servicing - land
Marine food services	Well servicing - offshore
Natural gas prices	Wellheads
Oil sales meters	Work boats

Source: USDOE, EIA (2007).

Table 66 presents the 2006 annual costs for a 12-slot platform in 100-foot and 300-foot water depth and for an 18-slot platform in water depths of 100, 300, and 600 feet. EIA does not present costs for depths beyond 600 feet, which will clearly hinder future evaluation efforts in the GOM. However, the approach presented here for mapping the cost components for operating costs to IMPLAN sectors is transferable to other data sources.

The top part of Table 66 shows the 2006 annual O&M costs as reported in USDOE, EIA (2007). The bottom part of the table shows the percentage of the annual O&M cost each component forms. Immediately noticeable is that nearly two-thirds of the annual O&M cost is due to two components: labor transportation and workover costs. Each accounts for between 30 percent and 38 percent of the annual costs.

Table 66

2006 Annual Operating Costs for Gulf of Mexico Offshore Platforms

	Number of Wellslots				
	12		18		
	Water Depth (ft)		Water Depth (ft)		
Component	100	300	100	300	600
COST					
Labor	$1,062,700	$1,062,700	$1,171,300	$1,171,300	$1,171,300
Supervision	$159,400	$159,400	$175,700	$175,700	$175,700
Payroll overhead	$488,800	$488,800	$538,800	$538,800	$538,800
Food expense	$95,000	$95,000	$108,500	$108,500	$108,500
Labor transportation	$3,472,948	$3,560,200	$3,472,948	$3,560,200	$3,590,364
Surface equipment	$176,700	$176,700	$176,700	$176,700	$201,300
Operating supplies	$35,300	$35,300	$35,300	$35,300	$40,300
Workover	$2,832,800	$2,974,800	$4,215,800	$4,428,600	$4,557,600
Communications	$57,800	$59,000	$77,000	$77,800	$78,200
Administrative	$509,900	$509,900	$553,300	$553,300	$565,200
Insurance	$445,800	$502,500	$654,000	$697,700	$1,121,500
Totals	$9,337,148	$9,624,300	$11,179,348	$11,523,900	$12,148,800
PERCENT					
Labor	11%	11%	10%	10%	10%
Supervision	2%	2%	2%	2%	1%
Payroll overhead	5%	5%	5%	5%	4%
Food expense	1%	1%	1%	1%	1%
Labor transportation	37%	37%	31%	31%	30%
Surface equipment	2%	2%	2%	2%	2%
Operating supplies	0%	0%	0%	0%	0%
Workover	30%	31%	38%	38%	38%
Communications	1%	1%	1%	1%	1%
Administrative	5%	5%	5%	5%	5%
Insurance	5%	5%	6%	6%	9%
Totals	100%	100%	100%	100%	100%

Source: USDOE, EIA 2007.

A flow of cost relationships can be traced through Table 66. It costs only 10 percent more labor (and supervisory) effort to operate 50 percent more wells. There are small differences in labor transportation costs depending on whether the platform is located in 100-, 300-, or 600-foot water depth, but it costs no more to transport the crew for an 18-well platform than for a 12-well platform. Thus, labor transportation is 37 percent of total operating costs for a 12-well platform

while it is about 30 percent of operating costs for an 18-well platform. Workover costs are about 50 percent higher for the 18-well platform, as anticipated.

In a pattern seen for exploratory wells, insurance ranges from 5 percent to 9 percent of total operating costs.

4.5.2 Cost Function Estimation

Table 67 groups the line items in Table 66 into like components, and items are ordered by decreasing percentage of total costs. Labor transportation forms between 30 percent and 37 percent of total costs. Because we do not know the method of transportation, we split the costs equally between air and water transportation.

Workover services are the next largest contributor to total cost and are assigned to IMPLAN Sector 28 (support activities for oil and gas operations). Labor, supervision, and administrative costs are assumed to be wages; these form between 16 percent and 18 percent of total costs. Payroll overhead is already a separate line item in the EIA data and is assigned to the IMPLAN Sector 427 (insurance carriers). Insurance costs account for between 10 percent and 14 percent of total costs.

Table 67

Grouping Operating Costs Into IMPLAN Sectors

	Individual Percents Number of Well Slots		Aggregate Percents Number of Well Slots				
Percent	12	18	12	18	NAICS	IMPLAN	Sector Name
			18%	15%	481000	391	Air Transportation
Labor							Water
Transportation	37%	30%	18%	15%	483000	393	Transportation
							Support Activities for Oil and Gas
Workover	31%	38%	31%	38%	213112	28	Operations
Labor	11%	10%					
Supervision	2%	1%					
Administrative	5%	5%	18%	16%		494	Households
Payroll							
Overhead	5%	4%					
Insurance	5%	9%	10%	14%	524100	427	Insurance Carriers
							Food Services and
Food Expense	1%	1%	1%	1%	722000	481	Drinking Places
Surface							
Equipment	1.8%	1.7%					Oil and Gas Field
Operating							Equipment and
Supplies	0.4%	0.3%	2.2%	2.0%	333132	261	Machinery
Communications	0.6%	0.6%	0.6%	0.6%	517300	422	Telecommunications
Total	100%	100%	100%	100%			

ERG verified that food expense covers only food expense and not transport to the platform. The transportation cost for food and supplies is included in the labor transportation category (Funk, personal communication 2009; Thibodeaux, personal communication 2009b). Surface equipment and operating supplies are miscellaneous categories that do not exceed 2 percent of total costs in the aggregate. These are assigned to the IMPLAN sector for its largest component—oil and gas field equipment and machinery. Less than 1 percent of the operating cost is assigned to telecommunications (IMPLAN Sector 422).

4.5.3 Cost Function Components

Table 68 contains the data and calculations for estimating the labor share for the O&M activity function for the 12-slot and 18-slot platforms. New industries that need to be added are NAICS 722310 (food service contractors)[37] and NAICS 517300 (telecommunications). The ratio of payroll to revenues provides the estimated labor share (U.S. Census Bureau 2005e and 2005f). Paid leave and supplemental pay are added to wages and salaries to estimate the final household and insurance share (USDOL BLS 2008).

There are slight differences for the 12-slot and 18-slot structures. For every dollar spent in annual O&M:

- 31.3 cents go to households (12-well)
  29.6 cents go to households (18-well)
- 4.1 cents go to insurance agencies (12-well)
  4.4 cents go to insurance agencies (18-well)
- 64.7 cents are distributed among other IMPLAN sectors (12-well)
  66.0 cents are distributed among other IMPLAN sectors (18-well)

[37] NAICS 722320 (caterers) describes the industry that prepares food for single events while NAICS 722310 (food service contractors) provides prepares food for multiple meals during a set contractual period (U.S. Census Bureau 2009a).

Table 68

Derivation of Labor Share for O&M Activity Function

Sector Name	NAICS	Percent	Census Data ($Million) Revenues	Census Data ($Million) Payroll	Labor Share	BLS Household	BLS Insurance	Final Household Share	Final Insurance Share	Percent to IMPLAN Sector
For 12-slot Platform										
Air Transportation	481000	18.5%	$19,735	$3,805	19.3%	79.6%	20.4%	2.84%	0.73%	14.93%
Water Transportation	483000	18.5%	$23,331	$3,194	13.7%	79.6%	20.4%	2.02%	0.52%	15.96%
Support Activities for Oil and Gas Operations	213112	30.9%	$11,543	$3,847	33.3%	74.5%	25.5%	7.67%	2.63%	20.61%
Oil and Gas Field Equipment and Machinery	333132	2.2%	$5,579	$1,313	23.5%	77.9%	22.1%	0.40%	0.11%	1.68%
Telecommunications	517300	0.6%	$9,717	$1,397	14.4%	80.6%	19.4%	0.07%	0.02%	0.52%
Food Services	722310	1%	$20,859	$6,096	29.2%	83.3%	16.7%	0.24%	0.05%	0.70%
Insurance Carriers	524100	10.3%								10.30%
Wages		18.0%			100.0%	100.0%	0.0%	18.00%	0.00%	0.00%
Total		100.00%						31.24%	4.05%	64.71%
For 18-slot Platform										
Air Transportation	481000	14.8%	$19,735	$3,805	19.3%	79.6%	20.4%	2.27%	0.58%	11.93%
Water Transportation	483000	14.8%	$23,331	$3,194	13.7%	79.6%	20.4%	1.61%	0.41%	12.75%
Support Activities for Oil and Gas Operations	213112	37.5%	$11,543	$3,847	33.3%	74.5%	25.5%	9.31%	3.19%	25.01%
Oil and Gas Field Equipment and Machinery	333132	2.0%	$5,579	$1,313	23.5%	77.9%	22.1%	0.36%	0.10%	1.52%
Telecommunications	517300	0.6%	$9,717	$1,397	14.4%	80.6%	19.4%	0.07%	0.02%	0.55%
Food Services	722310	1%	$20,859	$6,096	29.2%	83.3%	16.7%	0.22%	0.04%	0.63%
Insurance Carriers	524100	13.7%								13.67%
Wages		15.7%			100.0%	100.0%	0.0%	15.74%	0.00%	0.00%
Total		100.00%						29.59%	4.35%	66.06%

Source: USDOL BLS 2008; U.S. Census Bureau 2005a through 2005f.

5 SUMMARY AND OBSERVATIONS

The goal of this study is a better understanding of the oil services contract industry and the roles played by the different sectors in the Gulf of Mexico. ERG identified 17 oil service industry sectors associated with searching for offshore oil and gas reservoirs, exploratory drilling, development drilling, and annual production. These are:

- Geological and geophysical prospecting (G&G)
- Contract drilling
- Drilling fluid supplies
- Drilling tools and supplies
- Mud logging
- Measurement while drilling (MWD)
- Cementing
- Formation evaluation
- Completion
- Fishing (retrieval of lost or broken equipment from a borehole)
- Wellhead equipment
- Accommodations
- Air transport
- Water transport
- Catering
- Workovers
- Diving support

ERG identified more than 1,140 locations in Texas, Louisiana, Mississippi, Alabama, and Florida that offer these services to the offshore oil and gas industry in the Gulf of Mexico. In three of four cases, ERG could identify either the 2007 number of employees, revenues, or both associated with the location. Overall, oilfield services account for more than 63,000 employees and approximately $19.3 billion in revenues.

One result of the study is the realization that, although the oil services contract industry contains giants such as Halliburton and Schlumberger that provide thousands of jobs and earn millions in revenue, it also contains hundreds of small companies. Most of these are privately owned and play an integral part in the economic life of the communities in which they are located. Companies with a good idea and a handful of employees can and do carve niches in which to operate.

A second realization is the wide diversity of activities that support oil and gas operations in the GOM OCS show areas of regional concentration. Table 69 through Table 71 summarize the number of locations, revenues, and number of employees by sector and state, respectively. The tables are calculated on the basis of all locations in every sector, that is, they include the duplicate locations because ERG did not have the data to determine how to split the revenues and employment for a location listed under more than one sector. Thus, Table 69 shows 1,195 locations, Table 70 shows $20.2 billion in revenue, and Table 71 shows 64,447 employees and

not the 1,143 locations, $19.3 billion in revenue, and 63,021 employees shown in Table 1 in the Executive Summary

The geological and geophysical prospecting sector is extremely concentrated in the Houston, Texas area in Harris County. About two-thirds of the locations, 85 percent of the employees, and 95 percent of the revenues listed in Table 5 are located in the Houston area. Texas claims 84 percent of the locations, 90 percent of the employees, and 99 percent of the identifiable revenues. The percentage of revenues might be skewed because revenues for the Louisiana locations could not be identified for seven of the 17 locations.

In terms of employment, Texas represents the majority for five sectors: drilling, drilling equipment, completions, and fishing. When revenues are considered, Texas represents the majority for an additional two sectors: measurement while drilling and diving.

Louisiana accounts for about 43 percent of the employment in the oil services contract industry and approximately 21 percent of the revenues. The imbalance is due to a combination of factors, including the sectors in which Louisiana shows more activity and the lack of revenue data for some Louisiana locations. If Texas is prospecting, Louisiana is food. Louisiana represents more than 90 percent of the revenues and employment for the catering sector. Louisiana also represents the majority of revenues and employment in air transportation, water transportation, accommodations, and cementing.

ERG identified 26 locations in Mississippi, Alabama, and Florida, about two percent of the total. Six locations, however, offer diving services which constitutes about 10 percent of the revenues and locations for this sector. The other twenty locations offer drilling fluid supplies, drilling equipment, wellhead equipment, accommodations, air transportation, water transportation, or workover services.

Table 69

Number of Locations by Sector and State

Service Sector	Number of Locations				Percent			
	All	Texas	Louisiana	Other	All	Texas	Louisiana	Other
Geological & Geophysical Prospecting	104	87	17	0	100%	84%	16%	0%
Drilling	67	53	14	0	100%	79%	21%	0%
Drilling Fluid Supplies	89	46	41	2	100%	52%	46%	2%
Drilling Equipment	179	99	79	1	100%	55%	44%	1%
Mudlogging	14	9	5	0	100%	64%	36%	0%
Measurement While Drilling (MWD)	46	29	17	0	100%	63%	37%	0%
Cementing	21	9	12	0	100%	43%	57%	0%
Reservoir Evaluation	117	62	55	0	100%	53%	47%	0%
Completions	41	22	19	0	100%	54%	46%	0%
Fishing	11	4	7	0	100%	36%	64%	0%
Accomodations	21	8	11	2	100%	38%	52%	10%
Air Transportation	64	21	38	5	100%	33%	59%	8%
Water Transportation	144	42	94	8	100%	29%	65%	6%
Wellhead Equipment	110	50	59	1	100%	45%	54%	1%
Workover	86	41	44	1	100%	48%	51%	1%
Catering	21	4	17	0	100%	19%	81%	0%
Diving	60	26	28	6	100%	43%	47%	10%
Total:	1195	612	557	26	Average:	49%	48%	2%

Table 70

Revenues by Sector and State

Service Sector	Reported Revenues				Percent			
	All	Texas	Louisiana	Other	All	Texas	Louisiana	Other
Geological & Geophysical Prospecting	$2,941.99	$2,902.05	$39.94	$0.00	100%	99%	1%	0%
Drilling	$6,332.14	$5,904.50	$427.64	$0.00	100%	93%	7%	0%
Drilling Fluid Supplies	$846.32	$387.97	$457.71	$0.64	100%	46%	54%	0%
Drilling Equipment	$2,242.85	$1,738.51	$501.16	$3.18	100%	78%	22%	0%
Mudlogging	$69.20	$47.54	$21.66	$0.00	100%	69%	31%	0%
Measurement While Drilling (MWD)	$674.82	$499.29	$175.53	$0.00	100%	74%	26%	0%
Cementing	$114.09	$44.66	$69.43	$0.00	100%	39%	61%	0%
Reservoir Evaluation	$544.75	$341.88	$202.87	$0.00	100%	63%	37%	0%
Completions	$821.74	$722.50	$99.24	$0.00	100%	88%	12%	0%
Fishing	$60.94	$55.92	$5.02	$0.00	100%	92%	8%	0%
Accomodations	$168.44	$41.49	$125.57	$1.38	100%	25%	75%	1%
Air Transportation	$158.23	$20.95	$136.28	$1.00	100%	13%	86%	1%
Water Transportation	$794.41	$140.59	$646.08	$7.74	100%	18%	81%	1%
Wellhead Equipment	$1,334.46	$912.77	$421.69	$0.00	100%	68%	32%	0%
Workover	$557.01	$156.77	$400.24	$0.00	100%	28%	72%	0%
Catering	$438.80	$35.55	$403.25	$0.00	100%	8%	92%	0%
Diving	$2,072.50	$1,702.31	$174.46	$195.73	100%	82%	8%	9%
Total:	$20,172.69	$15,655.25	$4,307.77	$209.67	Average:	58%	42%	1%

Table 71

Number of Employees by Sector and State

Service Sector	Number of Employees				Percent			
	All	Texas	Louisiana	Other	All	Texas	Louisiana	Other
Geological & Geophysical Prospecting	5,883	5,330	553	0	100%	91%	9%	0%
Drilling	11,088	8260	2828	0	100%	74%	26%	0%
Drilling Fluid Supplies	1,303	587	713	3	100%	45%	55%	0%
Drilling Equipment	10,660	7,988	2657	15	100%	75%	25%	0%
Mudlogging	652	323	329	0	100%	50%	50%	0%
Measurement While Drilling (MWD)	2,150	1,103	1,047	0	100%	51%	49%	0%
Cementing	1,018	388	630	0	100%	38%	62%	0%
Reservoir Evaluation	3,808	2,046	1,762	0	100%	54%	46%	0%
Completions	2,450	2,105	345	0	100%	86%	14%	0%
Fishing	402	336	66	0	100%	84%	16%	0%
Accomodations	1,338	75	1251	12	100%	6%	93%	1%
Air Transportation	913	156	751	6	100%	17%	82%	1%
Water Transportation	5,055	880	4050	125	100%	17%	80%	2%
Wellhead Equipment	4,523	2,882	1,641	0	100%	64%	36%	0%
Workover	5,367	2197	3160	10	100%	41%	59%	0%
Catering	4,270	355	3915	0	100%	8%	92%	0%
Diving	3,567	1606	1890	71	100%	45%	53%	2%
Total:	64,447	36,617	27588	242	Average:	50%	50%	0%

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Appendix A: Location Tables

Table A-1

Locations Offering Geological and Geophysical Surveying in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Alpha Geo Inc		Houston	TX	Harris	Less than $0.5	1
AOA Geomarine Operations	Schlumberger	Houston	TX	Harris	$1.5	8
Apex Geophysical Services Inc		Metairie	LA	Jefferson	$0.2	2
Austin Exploration Inc		Houston	TX	Harris	$0.7	8
Baird Petrophysical International, Inc.		Houston	TX	Harris	$0.1	1
Bell Geospace Inc		Houston	TX	Harris	$11.0	15
Bird Geophysical		Houston	TX	Harris		26 to 100
Bois D'Arc Energy	Stone Energy Corporation	Lafayette	LA	Lafayette		17
Bois D'Arc Energy	Stone Energy Corporation	Houston	TX	Harris	$100 to $500	3
C & C Technologies		Lafayette	LA	Lafayette		
C & C Technologies		Houston	TX	Harris		6
Centerline Geophysical, Inc.		Houston	TX	Harris	$0.8	15
CGGVeritas	CGGVeritas	Houston	TX	Harris		500
CR Willingham & Associates		Houston	TX	Fort Bend		1 to 25
dGB Earth Sciences	dGB Beheer BV	Sugar Land	TX	Fort Bend	Less than $25.0	20
Dune International		Houston	TX	Harris	Less than $25.0	1 to 25
DWS International Inc.		Corpus Christi	TX	Nuceses	$3.6	16
Earthfield Technology Inc		Cypress	TX	Harris	$0.5 to $1.0	5
EMGS	EMGS	Houston	TX	Harris	$2.5	10
Ensoco Inc		Houston	TX	Harris	$1.4	23
EPIC Geophysical LLC		Conroe	TX	Montgomery	Less than $0.5	1 to 4
eSeis Inc		Houston	TX	Harris	$1.6	15
Explorer Group 1, The		Spring	TX	Harris	$0.4	5
Fairfield Industries Inc		Lafayette	LA	Lafayette	$31.7	275
Fairfield Industries Inc		New Orleans	LA	Orleans		2
Fairfield Industries Inc		Sugar Land	TX	Fort Bend	$47.5	205
First Exchange Corp		Houston	TX	Harris	$2.2	1 to 25
Fugro Airborne Surveys	Fugro N.V.	Houston	TX	Harris	$136.5	156

Table A-1. Locations Offering Geological and Geophysical Surveying in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Fugro GeoServices Inc	Fugro N.V.	Lafayette	LA	Lafayette		100
Fugro GeoServices Inc	Fugro N.V.	Patterson	LA	St. Mary	$3.8	30
Fugro GeoServices Inc	Fugro N.V.	Houston	TX	Harris	$9.5	40
Geocenter Inc		Houston	TX	Harris	$1.6	29
Geokinetics Inc		Houston	TX	Harris		60
Geokinetics Processing Inc.	Geokinetics, Inc.	Houston	TX	Harris	$2.4	46
Geokinetics USA Inc.	Geokinetics, Inc.	Houston	TX	Harris	$8.0	4
Geophysical Pursuit Inc		New Orleans	LA	Orleans		
Geophysical Pursuit Inc		Houston	TX	Harris	Under $0.5	1 to 5
Geophysical Service Inc		Houston	TX	Harris	$0.4	4
Geoscience Solutions LLC		Magnolia	TX	Montgomery	$0.0	1
Geotrace Technologies Inc		Houston	TX	Harris	$10.4	194
Geotrak Corp		Houston	TX	Harris	$0.6	6
GETECH Inc		Houston	TX	Harris		
Grant Geophysical Inc.	Geokinetics, Inc.	Houston	TX	Harris	$119.3	1000
Gulf Coast Velocity Data Inc		Katy	TX	Harris		
Hunter 3D Inc.		Houston	TX	Harris	$0.5 to $1.0	3
IGC, Integrated Geophysics Corp		Houston	TX	Harris	Less than $25.0	6
IHS Energy Log Services, Inc.	IHS, Inc.	Houston	TX	Harris	$4.4	44
Interactive Interpretation & Training, Inc.		Houston	TX	Harris	$0.3	2
Ion Geophysical Corporation		Harahan	LA	Jefferson		
Ion Geophysical Corporation		Stafford	TX	Fort Bend		
Ion Geophysical Corporation		Houston	TX	Harris	$713.1	200
Istech Energy Resources		Houston	TX	Harris		50
JD Silvetti Group of Companies		Lafayette	LA	Lafayette	Less than $0.5	26 to 100
Jebco Seismic LLC		Houston	TX	Harris	$5.0	9
Kapadia & Associates International Inc.		Houston	TX	Harris	$0.3	1
Kelman Technologies Inc		Houston	TX	Harris	Under $0.5	1 to 5
Kevin M. Smith, Inc.		Houston	TX	Harris	$0.2	1
Kinnickinnick Exploration		Lafayette	LA	Lafayette	$0.4	3

Table A-1. Locations Offering Geological and Geophysical Surveying in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Lynx Information Systems, Inc.		Houston	TX	Harris	$1 to $2.5	7
Marine Surveys LLC	J.D. Silvetti Group of Companies	Lafayette	LA	Lafayette	Less than $0.5	1 to 4
Meredith Minerals Co		Houston	TX	Harris		
Micro Strat Inc		Houston	TX	Harris	$0.6	8
NS Neidell & Associates		Houston	TX	Harris	$0.9	10
OYO Geospace Corp		Houston	TX	Harris	$138.1	627
OYO Geospace Corp		Houston	TX	Harris		
PAC Geophysical Inc		Houston	TX	Harris	$1.8	2
Padgett Exploration		Houston	TX	Harris	$0.4	1
Paradigm Geophysical Corp.	Paradigm, Woking, Great Britain	Houston	TX	Harris	$9.2	120
Pellegrini Exploration		The Woodlands	TX	Montgomery	$0.2	2
Petroalliance Services Co Ltd	Schlumberger	Houston	TX	Harris		
Petrophysical Solutions Inc		Houston	TX	Harris	$0.3	9
Polaris E & E Services Inc		The Woodlands	TX	Montgomery	$0.5 to $1.0	7
Read Well Services Americas		Houston	TX	Harris	$2.5	5
Reservoir Definition Inc		Houston	TX	Harris	$0.3	5
Resolve GeoSciences Inc.		Katy	TX	Fort Bend	Less than $25.0	1 to 25
Rock Solid Images	Offshore Hydrocarbon Mapping plc	Houston	TX	Harris	$1.3	38
SAI Sydboten & Associates Inc		Lafayette	LA	Lafayette		
Seabird	Seabird Exploration	Houston	TX	Harris	$0.8	3
Seis Strat Services	Willis Group	Houston	TX	Harris	$4.2	14
Seisborg Geophysical		Seabrook	TX	Harris		
Seismic Exchange Inc		New Orleans	LA	Orleans		30
Seismic Exchange Inc		Corpus Christi	TX	Nuceses		
Seismic Exchange Inc		Houston	TX	Harris	$9.2	95
Seismic Micro-Technology Inc USA		Houston	TX	Harris	$9.0	125
Seismic Solutions		Sugar Land	TX	Fort Bend	$0.1	1
Seitel Inc	Seitel Holdings, Inc.	New Orleans	LA	Orleans	Less than $0.5	2
Seitel Inc	Seitel Holdings, Inc.	Houston	TX	Harris	$18.7	90
Spectrum Energy & Information Technology Inc		Houston	TX	Harris	$4.7	44

Table A-1. Locations Offering Geological and Geophysical Surveying in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Swinehart Consulting		Spring	TX	Harris		1
Tesla Offshore LLC	Tesla Exploration Ltd.	Prarieville	LA	Ascension	$2.3	65
Tesla Offshore LLC	Tesla Exploration Ltd.	Houston	TX	Harris		5
Texseis Inc		Houston	TX	Harris	$0.9	9
TGS-NOPEC Geophysical Co LP	TGS-NOPEC Geophysical Company ASA (Norway	New Orleans	LA	Orleans		
TGS-NOPEC Geophysical Co LP	TGS-NOPEC Geophysical Company ASA (Norway	Humble	TX	Harris		
TGS-NOPEC Geophysical Co LP	TGS-NOPEC Geophysical Company ASA (Norway	Houston	TX	Harris		63
Timeslice Technology Inc		Houston	TX	Harris	$1.2	23
Trabant & Associates		Houston	TX	Harris	$0.1	2
Trabant & Associates		Spicewood	TX	Travis	$0.3	2
Vector Seismic Data Processing Inc		Houston	TX	Harris		5
Weinman Geoscience Inc		Houston	TX	Harris		2
Weinman Geoscience Inc		Dallas	TX	Dallas	$0.3	8
WesternGeco	Schlumberger	Houston	TX	Harris	$1,200	1200
WesternGeco	Schlumberger	La Marque	TX	Galveston	$6.0	52
Xcel Seismic Inc		Richmond	TX	Fort Bend		

Table A-2

Locations Offering Drilling Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Appalachian Permit Co.	Hercules Offshore, Inc.	Houston	TX	Harris	$0.13	2
Applied Drilling Technology, Inc.	Transocean, Inc.	Houston	TX	Harris	$634.92	100
Asia Ensco Co.	ENSCO International, Inc.	Dallas	TX	Dallas	$11.90	100
Atwood Falcon Co.	Atwood Oceanics, Inc.	Houston	TX	Harris	$3.30	50
Atwood Hunter Co.	Atwood Oceanics, Inc.	Houston	TX	Harris	$4.20	70
Atwood Oceanics, Inc.		Houston	TX	Harris		
Axxis Drilling	Trinidad Drilling Ltd.	Broussard	LA	Lafayette		
Deepwater Drilling II LLC	Transocean, Inc.	Houston	TX	Harris	$0.12	2
Diamond Offshore Drilling, Inc.	Loews Corp.	Houston	TX	Harris	$2,567.72	300
Diamond Offshore Drilling, Inc.	Loews Corp.	New Iberia	LA	Iberia	$2.16	15
Diamond Offshore Drilling, Inc.	Loews Corp.	New Iberia	LA	Iberia	$2.88	20
Ensco International Inc.	ENSCO International, Inc.	Broussard	LA	Lafayette	$14.40	100
ENSCO International Inc.		Dallas	TX	Dallas		100
Ensco Offshore Co. II	ENSCO International, Inc.	Broussard	LA	Lafayette	$215.70	75
Ensco Platform Co	ENSCO International, Inc.	Dallas	TX	Dallas	$5.90	100
Fred Olson ASA.		Houston	TX	Harris		1
Global Marine Inc.	Transocean, Inc.	Houston	TX	Harris	$50.40	
Global Santa Fe Drilling Co.	Transocean, Inc.	Houston	TX	Harris	$39.60	58
Global Santa Fe Inc.	Transocean, Inc.	Houston	TX	Harris	$34.90	485
Helmerich & Payne International Drilling Co.	Helmerich & Payne Inc.	Alice	TX	Jim Wells	$30.24	210
Helmerich & Payne International Drilling Co.	Helmerich & Payne Inc.	Houston	TX	Harris	$0.72	5
Helmerich & Payne International Drilling Co.	Helmerich & Payne Inc.	Houston	TX	Harris	$0.86	6
Hercules Offshore Inc.		Houston	TX	Harris		50
International Chandlers Inc.	Transocean, Inc.	Houston	TX	Harris	$0.24	4
Nabors Acquisition Corp., Inc.	Nabors Industries, Ltd.	Houston	TX	Harris	$28.80	400
Nabors Drilling US LP	Nabors Industries, Ltd.	Alice	TX	Jim Wells	$0.86	6

Table A-2. Locations Offering Drilling Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Nabors Drilling US LP	Nabors Industries, Ltd.	Crosby	TX	Harris	$2.88	20
Nabors Drilling US LP	Nabors Industries, Ltd.	Houston	TX	Harris	$117.80	150
Nabors Industries, Inc.	Nabors Industries, Ltd.	Houston	TX	Harris	$1,211.20	250
Nabors Offshore Corp.	Nabors Industries, Ltd.	Houston	TX	Harris	$64.80	40
Nabors Well Services Co.	Nabors Industries, Ltd.	Corpus Christi	TX	Nueces	$0.86	6
Nabors Well Services Co.	Nabors Industries, Ltd.	Liberty	TX	Liberty	$3.60	25
Nabors Well Services Co.	Nabors Industries, Ltd.	Mission	TX	Hidalgo	$8.64	60
Nabors Yemen Ltd.	Nabors Industries, Ltd.	Houston	TX	Harris	$0.18	3
Noble Corp.		Sugar Land	TX	Fort Bend	$0.13	2
Noble Drilling Corp.	Noble Corp	Gibson	LA	Terrebonne	$0.29	2
Noble Drilling Corp.	Noble Corp	New Orleans	LA	Orleans	$0.43	3
Noble Drilling Corp.	Noble Corp	Sugar Land	TX	Fort Bend	$36.00	300
Noble Drilling Inc.	Noble Corp	Sugar Land	TX	Fort Bend	$28.80	100
Noble Holding Corp.	Noble Corp	Sugar Land	TX	Fort Bend	$269.20	200
Offshore Drilling Co.	Transocean, Inc.	Houma	LA	Terrebonne	$93.50	1,300
Offshore Drilling Co.	Transocean, Inc.	Houston	TX	Harris	$30.30	420
Parker Drilling Co.	Parker Drilling Co.	Houston	TX	Harris	$4.32	30
Parker Drilling Co.		Houston	TX	Harris		110
Parker Drilling Co.	Parker Drilling Co.	New Iberia	LA	Iberia	$0.43	3
Pride International Inc.		Houston	TX	Harris		1,800
Pride International Ltd.	Pride International, Inc.	Houston	TX	Harris	$13.90	200
Pride Offshore, Inc.	Pride International, Inc.	Houma	LA	Terrebonne	$89.90	1,250
R&B Falcon Drilling International Deepwater Inc.	Hercules Offshore, Inc.	Houston	TX	Harris	$136.70	300
Rowan Co's Inc.	Rowan Co's, Inc.	Sabine Pass	TX	Jefferson	$4.32	30
Rowan Co's, Inc.		Houston	TX	Harris		120
Rowan Drilling Company, Inc.	Rowan Co's, Inc.	Golden Meadow	LA	Lafourche	$3.17	22

Table A-2. Locations Offering Drilling Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Rowan Drilling Company, Inc.	Rowan Co's, Inc.	Houston	TX	Harris	$1.90	10
Rowan Marine Drilling, Inc.	Rowan Co's, Inc.	Houston	TX	Harris	$7.00	120
Rowan North Sea Investments	Rowan Co's, Inc.	Houston	TX	Harris	$0.12	2
Rowan Petroleum Inc.	Rowan Co's, Inc.	Houston	TX	Harris	$10.00	120
Rowandrill Inc.	Rowan Co's, Inc.	Houston	TX	Harris	$65.90	915
Saipem America, Inc.	Saipem SpA	Houston	TX	Harris	$440.91	192
Spartan Offshore Drilling LLC		Metairie	LA	Jefferson	$0.46	8
Todco	Hercules Offshore, Inc.	Houston	TX	Harris		300
Transocean Inc.	Transocean, Inc.	Amelia	LA	Saint Mary	$4.32	30
Transocean Inc.		Houston	TX	Harris		150
Transocean Offshore Deepwater Drilling Inc.	Transocean, Inc.	Houston	TX	Harris	$28.80	200
Transocean Offshore Deepwater Drilling Inc.	Transocean, Inc.	Houston	TX	Harris	$0.59	
Trinidad Drilling L P	Trinidad Drilling Ltd.	Shreveport	LA	Caddo		
Trinidad Drilling L P	Trinidad Drilling Ltd.	Spring	TX	Harris	$0.72	35
Yemen Henley Drilling Co.	Nabors Industries, Ltd.	Houston	TX	Harris	$0.12	2

Blanks indicate that revenues and/or employment were not provided.

Table A-3

Locations Offering Drilling Fluids in the Gulf of Mexico

Company Name	Parent Company	City	State	County/Parish	2007 Revenues (Millions)	2007 Employees
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Lafayette	LA	Lafayette	$179.00	77
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Franklin	LA	St. Mary	$2.93	6
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Abbeville	LA	Vermilion	$0.69	6
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Cameron	LA	Cameron		
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Golden Meadow	LA	Lafourche		
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Houma	LA	Terrebonne		
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Galveston	TX	Galveston		11
Ambar Lone Star Fluid Services	Patterson-UTI Energy, Inc.	Aransas Pass	TX	Aransas		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Theodore	AL	Mobile	$0.64	3
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Cameron	LA	Cameron	$0.81	9
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Dulac	LA	Terrebonne		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Golden Meadow	LA	Lafourche	$9.53	45
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houma	LA	Terrebonne	$1.30	3
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Lafayette	LA	Lafayette	$11.98	100
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Lafayette	LA	Lafayette		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Metairie	LA	Jefferson		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Morgan City	LA	St. Mary	$5.30	25
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	New Orleans	LA	Orleans	$65.10	80
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Shreveport	LA	Caddo	$10.58	13
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Venice	LA	Plaquemines		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Pascagoula	MS	Jackson		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Aransas Pass	TX	Aransas		

Table A-3. Locations Offering Drilling Fluids in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/Parish	2007 Revenues (Millions)	2007 Employees
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Corpus Christi	TX	Nueces	$67.91	25
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Corpus Christi	TX	Nueces	$6.07	17
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Dayton	TX	Liberty	$1.48	7
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Edinburg	TX	Hidalgo	$5.41	10
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Freeport	TX	Brazoria		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Galveston	TX	Galveston	$0.22	2
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Galveston	TX	Galveston		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris	$0.23	2
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris	$1.73	15
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris	$1.96	17
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Irving	TX	Dallas		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Port O'Connor	TX	Calhoun		
Baker Hughes Drilling Fluids	Baker Hughes, Inc.	Van Vleck	TX	Matagorda		
Drilling Specialties Company LLC	Chevron Phillips Chemical Co LLC	Conroe	TX	Montgomery	$3.88	34
Grinding & Sizing Company, Inc.	Smith International, Inc.	Houston	TX	Harris	$0.16	3
Halliburton Co.		Bossier City	LA	Bossier	$40.69	50
Halliburton Co.		Abbeville	LA	Vermilion	$4.88	6
Halliburton Co.		Sulphur	LA	Calcasieu	$6.07	17
Halliburton Co.		Edinburg	TX	Hidalgo	$3.57	10
Halliburton Co.		Galveston	TX	Galveston	$2.44	3

Table A-3. Locations Offering Drilling Fluids in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/Parish	2007 Revenues (Millions)	2007 Employees
Integrity Industries, Inc.	Smith International, Inc.	Kingsville	TX	Kleberg	$65.36	23
Integrity Industries, Inc.	Smith International, Inc.	Conroe	TX	Montgomery	$7.32	9
Integrity Industries, Inc.	Smith International, Inc.	Victoria	TX	Victoria	$1.07	3
LCS International		Lafayette	LA	Lafayette	$0.32	6
Liquid Casing, Inc.		Houston	TX	Harris	$20.00	35
Liquid Casing, Inc.		Cypress	TX	Harris	$0.11	2
Lost Circulation Specialists		Lafayette	LA	Lafayette		
Lost Circulation Specialists		Magnolia	TX	Montgomery		1
M-I SWACO	Smith International, Inc.	Harvey	LA	Jefferson	$2.30	20
M-I SWACO	Smith International, Inc.	Lafayette	LA	Lafayette	$48.83	60
M-I SWACO	Smith International, Inc.	Maurice	LA	Vermilion		
M-I SWACO	Smith International, Inc.	New Orleans	LA	Orleans	$14.65	18
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Abbeville	LA	Vermilion	$0.18	2
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Berwick	LA	St. Mary	$1.63	2
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	New Iberia	LA	Iberia	$20.34	25
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	New Orleans	LA	Orleans	$3.26	4
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Lafayette	LA	Lafayette	$5.70	7
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Cameron	LA	Cameron	$0.40	8
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Venice	LA	Plaquemines	$0.46	9
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Golden Meadow	LA	Lafourche		
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Lafayette	LA	Lafayette		
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Houston	TX	Harris	$108.20	50
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Freeport	TX	Brazoria		
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Galveston	TX	Galveston		
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	San Leon	TX	Galveston		

Table A-3. Locations Offering Drilling Fluids in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/Parish	2007 Revenues (Millions)	2007 Employees
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Dallas	TX	Dallas	$4.07	5
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Aransas Pass	TX	Aransas		
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Houston	TX	Harris	$8.14	10
Newpark Drilling Fluids, LLC	Newpark Resources, Inc.	Houston	TX	Harris		
Setac Chemicals		Lafayette	LA	Lafayette	$0.65	3
Spirit Drilling & Completion Fluids, Ltd.		Lafayette	LA	Lafayette	$1.60	21
Spirit Drilling & Completion Fluids, Ltd.		Houston	TX	Harris	$37.63	78
Spirit Drilling & Completion Fluids, Ltd.		Corpus Christi	TX	Nueces		
Sun Drilling Products Corp.		Belle Chasse	LA	Plaquemines	$2.70	30
Sun Drilling Products Corp.		Belle Chasse	LA	Plaquemines		12
TETRA Technologies Inc.		Lake Charles	LA	Calcasieu	$15.83	49
TETRA Technologies Inc.		The Woodlands	TX	Montgomery		150
TETRA Technologies Inc.		Alice	TX	Jim Wells	$36.62	45
TETRA Technologies Inc.		Aransas Pass	TX	San Patricio	$3.23	10
Turbo-Chem International, Inc.		Scott	LA	Lafayette		
Turbo-Chem International, Inc.		Corpus Christi	TX	Nueces	$0.58	5
Turbo-Chem International, Inc.		Houston	TX	Harris	$0.58	5

Table A-4

Locations Offering Drilling Tools and Supplies in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
A Varco Shaffer Co.	National Oilwell Varco, Inc.	Broussard	LA	Lafayette	$10.82	20
A Varco Shaffer Co.	National Oilwell Varco, Inc.	Houston	TX	Harris	$9.60	51
A Varco Shaffer Co.	National Oilwell Varco, Inc.	Houston	TX	Harris	$8.67	20
Acadiana Instruments Inc.	L E Simmons & Associates, Inc.	Broussard	LA	St. Martin	$39.58	57
Access Oil Tools	L E Simmons & Associates, Inc.	New Iberia	LA	Iberia	$0.28	2
Access Oil Tools	L E Simmons & Associates, Inc.	Broussard	LA	Lafayette		
Advance Manufacturing Technology, Inc.	L E Simmons & Associates, Inc.	Lake Charles	LA	Calcasieu	$13.00	75
Aker Solutions US Inc.	Aker ASA	Houston	TX	Harris		500
Aker Solutions US Inc.	Aker ASA	Katy	TX	Waller		150
Aker Solutions US Inc.	Aker ASA	Houston	TX	Harris		125
Baker Hughes Drilling Fluids	Baker Hughes Incorporated	Abbeville	LA	Vermilion	$1.70	10
Baker Hughes Oilfield Operations, Inc.	Baker Hughes Incorporated	Victoria	TX	Victoria	$1.73	4
Baker Hughes Oilfield Operations, Inc.	Baker Hughes Incorporated	Beaumont	TX	Jefferson	$1.38	12
Baker Hughes Oilfield Operations, Inc.	Baker Hughes Incorporated	Edinburg	TX	Hidalgo	$5.41	10
Baker Oil Tools	Baker Hughes Incorporated	Houston	TX	Harris	$7.42	35
Bear Pump & Equipment, Inc.	National Oilwell Varco, Inc.	Houston	TX	Harris	$6.00	10
Bico Drilling Tools Inc.		Broussard	LA	Lafayette	$0.45	3
Bico Drilling Tools Inc.		Houston	TX	Harris		30
Bilco Tools, Inc.	T&T Investment Corp.	Houma	LA	Terrebonne	$13.45	25
Bilco Tools, Inc.	T&T Investment Corp.	Houma	LA	Terrebonne	$0.85	4
BJ Services Co.		Lafayette	LA	Lafayette	$17.27	150
BJ Services Co.		Lafayette	LA	Lafayette	$1.15	10
BJ Services Co.		Houston	TX	Harris	$4.50	300
BJ Services Co.		Houston	TX	Harris	$11.51	100
Boyd's Bit Service, Inc.	Smith International Inc.	Broussard	LA	Lafayette	$4.60	10
Boyd's Bit Service, Inc.	Smith International Inc.	Alice	TX	Jim Wells	$3.69	21
Boyd's Bit Service, Inc.	Smith International Inc.	Pearland	TX	Brazoria	$0.88	5

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Canrig Drilling Technology Ltd.	Nabors Industries Ltd.	Magnolia	TX	Montgomery	$9.30	100
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc	Houma	LA	Terrebonne	$5.10	20
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc	Broussard	LA	Lafayette	$1.06	6
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc	Broussard	LA	Lafayette	$1.23	12
Dyna-Drill Technologies, Inc.	Smith International Inc.	Houston	TX	Harris	$17.70	160
Fluid Systems, Inc		Harvey	LA	Jefferson	$7.42	25
Fluid Systems, Inc		Houston	TX	Harris	$2.17	5
Forum Oilfield Technologies	L E Simmons & Associates, Inc.	Houston	TX	Harris	$298.90	215
Frank's Casing Crew & Rental Tools, Inc.		Lafayette	LA	Lafayette	$15.53	440
Frank's Casing Crew & Rental Tools, Inc.		Lafayette	LA	Lafayette	$10.55	60
Frank's Casing Crew & Rental Tools, Inc.		New Iberia	LA	Iberia		
Frank's Casing Crew & Rental Tools, Inc.		Houma	LA	Terrebonne	$8.06	70
Frank's Casing Crew & Rental Tools, Inc.		New Orleans	LA	Orleans	$0.46	4
Frank's Casing Crew & Rental Tools, Inc.		Corpus Christi	TX	Nueces	$17.59	100
Gammaloy Holdings, LP	National Oilwell Varco, Inc.	Houston	TX	Harris	$9.80	55
General Marine Leasing LLC	Oil States International Inc.	Belle Chasse	LA	Plaquemines	$19.96	76
General Marine Leasing LLC	Oil States International Inc.	Belle Chasse	LA	Plaquemines	$2.59	16
H B Rentals LLC	Superior Energy Services, Inc.	Alice	TX	Jim Wells	$16.23	30
H B Rentals LLC	Superior Energy Services, Inc.	Liverpool	TX	Brazoria	$2.64	15
Halliburton Energy Services Inc.	Halliburton Co.	Dulac	LA	Terrebonne	$1.30	3
Halliburton Energy Services Inc.	Halliburton Co.	Golden Meadow	LA	Lafourche	$6.07	14
Halliburton Energy Services Inc.	Halliburton Co.	Grand Isle	LA	Jefferson	$1.30	3
Halliburton Energy Services Inc.	Halliburton Co.	Lafayette	LA	Lafayette	$10.84	25
Halliburton Energy Services Inc.	Halliburton Co.	New Orleans	LA	Orleans	$43.37	100

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Halliburton Energy Services Inc.	Halliburton Co.	Slidell	LA	Saint Tammany	$6.51	15
Halliburton Energy Services Inc.	Halliburton Co.	Westlake	LA	Calcasieu	$8.67	20
Halliburton Energy Services Inc.	Halliburton Co.	Corpus Christi	TX	Nueces	$0.87	2
H-B Rentals LC	Superior Energy Services, Inc.	Broussard	LA	Lafayette	$14.10	83
Helmerich & Payne, Inc.		Gibson	LA	Terrebonne	$2.64	15
International Snubbing Services, LLC	Superior Energy Services, Inc.	Arnaudville	LA	St. Landry	$5.40	65
Ken Jer, Inc.	Smith International Inc.	Humble	TX	Harris	$1.20	15
Knight Oil Tools, Inc.		Lafayette	LA	Lafayette		100
Knight Oil Tools, Inc.		Houma	LA	Terrebonne		2
Knight Oil Tools, Inc.		Alice	TX	Jim Wells	$2.11	12
Knight Oil Tools, Inc.		Houston	TX	Harris	$5.28	30
LeTourneau Technologies, Inc.	Rowan Co's, Inc.	Houston	TX	Harris	$9.30	100
Logan Oil Tools, Inc.		Houston	TX	Harris	$50.00	300
Martin-Decker Totco Co. Inc.	National Oilwell Varco, Inc.	Houma	LA	Terrebonne	$2.29	13
M-I LLC	Smith International Inc.	Dulac	LA	Terrebonne	$2.71	5
M-I LLC	Smith International Inc.	Minden	LA	Webster	$4.33	8
MSI Oilfield Products	Filtrona PLC	Houston	TX	Harris	$4.1	65
National Oilwell Varco, Inc.		Amelia	LA	Saint Mary	$4.20	45
National Oilwell Varco, Inc.		Broussard	LA	Iberia	$5.41	10
National Oilwell Varco, Inc.		Broussard	LA	Iberia	$0.89	8
National Oilwell Varco, Inc.		Cameron	LA	Cameron	$0.87	2
National Oilwell Varco, Inc.		Gibson	LA	Terrebonne	$6.51	15
National Oilwell Varco, Inc.		Harvey	LA	Jefferson	$3.47	8
National Oilwell Varco, Inc.		Lafayette	LA	Lafayette	$4.87	9
National Oilwell Varco, Inc.		Scott	LA	Lafayette	$4.24	20
National Oilwell Varco, Inc.		Lake Charles	LA	Calcasieu	$2.17	5
National Oilwell Varco, Inc.		Morgan City	LA	St. Mary	$3.47	8

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
National Oilwell Varco, Inc.		New Iberia	LA	Iberia	$4.57	26
National Oilwell Varco, Inc.		New Iberia	LA	Iberia	$10.84	25
National Oilwell Varco, Inc.		Houston	TX	Harris		15
National Oilwell Varco, Inc.		Conroe	TX	Montgomery	$74.16	350
National Oilwell Varco, Inc.		Corpus Christi	TX	Nueces	$3.47	8
National Oilwell Varco, Inc.		Corpus Christi	TX	Nueces	$2.64	15
National Oilwell Varco, Inc.		Galena Park	TX	Harris	$10.84	25
National Oilwell Varco, Inc.		Houston	TX	Harris	$8.67	20
National Oilwell Varco, Inc.		Houston	TX	Harris	$7.42	35
National Oilwell Varco, Inc.		Houston	TX	Harris	$4.45	21
National Oilwell Varco, Inc.		Houston	TX	Harris	$52.97	250
National Oilwell Varco, Inc.		Houston	TX	Harris	$6.36	30
National Oilwell Varco, Inc.		Houston	TX	Harris	$7.81	18
National Oilwell Varco, Inc.		Houston	TX	Harris	$43.37	100
National Oilwell Varco, Inc.		Houston	TX	Harris	$12.71	60
National Oilwell Varco, Inc.		Houston	TX	Harris	$8.67	20
National Oilwell Varco, Inc.		Houston	TX	Harris	$6.36	30
National Oilwell Varco, Inc.		Houston	TX	Harris	$6.51	15
National Oilwell Varco, Inc.		Rosenberg	TX	Fort Bend	$15.89	75
National Oilwell Varco, Inc.		Sugar Land	TX	Fort Bend	$14.83	70
National Oilwell Varco, Inc.		The Woodlands	TX	Montgomery	$16.45	120
National Oilwell Varco, Inc.		Victoria	TX	Victoria	$3.90	9

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Broussard	LA	Lafayette	$6.51	37
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Covington	LA	Saint Tammany	$13.01	30
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Houma	LA	Terrebonne	$4.77	11
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Lafayette	LA	Lafayette	$13.01	30
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Houston	TX	Harris	$70.50	310
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Houston	TX	Harris	$23.86	55
National-Oilwell Varco, LP	National Oilwell Varco, Inc.	Pearland	TX	Brazoria	$2.60	6
Oceanex Services Int'l, Inc.		Houston	TX	Harris	$16.03	15
Oil States Industries Inc.	Oil States International Inc.	Houston	TX	Harris	$13.71	100
Oil States Industries Inc.	Oil States International Inc.	Houston	TX	Harris	$1.19	10
Oil States International Inc.		Houston	TX	Harris		50
Oil Stop 1 LLC	Superior Energy Services, Inc.	Harvey	LA	Jefferson	$0.94	12
Patterson Services, Inc.	RPC Inc.	Houma	LA	Terrebonne	$24.10	40
Patterson Services, Inc.	RPC Inc.	Houma	LA	Terrebonne	$5.45	31
Patterson Services, Inc.	RPC Inc.	Lafayette	LA	Lafayette	$3.52	20
Patterson Services, Inc.	RPC Inc.	Houston	TX	Harris	$2.11	12
Patterson Services, Inc.	RPC Inc.	Houston	TX	Harris	$13.19	75
Rattler Tools, Inc.		Broussard	LA	Lafayette	$0.13	2
Ray Oil Tool Company, Inc.		Broussard	LA	Lafayette		
Reamco Inc.		Broussard	LA	Lafayette	$5.96	48
Reed Tool Co.	National Oilwell Varco, Inc.	Shreveport	LA	Caddo	$0.75	10
Reed Tool Co.	National Oilwell Varco, Inc.	Houston	TX	Harris	$42.38	200
Reedhycalog, LP	National Oilwell Varco, Inc.	Conroe	TX	Montgomery	$1.40	9
Reedhycalog, LP	National Oilwell Varco, Inc.	Haughton	TX	Bossier	$1.30	8
Reedhycalog, LP	National Oilwell Varco, Inc.	Pharr	TX	Hidalgo	$0.99	2
Reedhycalog, LP	National Oilwell Varco, Inc.	Nome	TX	Jefferson	$0.32	2
Ross Hill Controls Corp.	National Oilwell Varco, Inc.	Houston	TX	Harris	$35.70	230

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Schooner Petroleum Services Inc.	Oil States International Inc.	New Iberia	LA	Iberia	$1.06	6
Schooner Petroleum Services Inc.	Oil States International Inc.	Houston	TX	Harris	$10.90	55
Schooner Petroleum Services Inc.	Oil States International Inc.	Corpus Christi	TX	Nueces	$2.11	12
Smith International, Inc.		New Iberia	LA	Iberia	$4.34	10
Smith International, Inc.		New Orleans	LA	Orleans	$5.20	12
Smith International, Inc.		Houston	TX	Harris		550
Smith International, Inc.		Alice	TX	Jim Wells	$12.14	28
Smith International, Inc.		Corpus Christi	TX	Nueces	$1.73	4
Smith International, Inc.		Victoria	TX	Victoria	$0.87	2
Sooner Inc.	Oil States International Inc.	Houston	TX	Harris	$7.10	2
Stabil Drill Specialties LLC	Superior Energy Services, Inc	Youngsville	LA	Lafayette	$1.58	9
Stabil Drill Specialties LLC	Superior Energy Services, Inc	Corpus Christi	TX	Nueces	$1.76	10
Stabil Drill Specialties LLC	Superior Energy Services, Inc	Houston	TX	Harris	$1.58	9
Stewart & Stevenson Power Products LLC	Parman Capital Group LLC	Dallas	TX	Dallas	$37.35	200
Subsurface Tools, Inc.	Superior Energy Services, Inc.	Morgan City	LA	St. Mary	$7.60	45
Subsurface Tools, Inc.	Superior Energy Services, Inc.	New Iberia	LA	Iberia	$2.11	12
Superior Energy Services, Inc.		New Orleans	LA	Orleans		84
Superior Energy Services, Inc.		Belle Chasse	LA	Plaquemines	$35.18	200
Tai Holding Inc. (Maverick Tube)	Tenaris SA	Houston	TX	Harris	$26.70	360
Tenaris Coiled Tubes LLC	Tenaris SA	Houston	TX	Harris	$14.20	123
Tesco Corp.		Houston	TX	Harris	$61.80	100
Tesco Services Inc.	Tesco Corp.	Houston	TX	Harris	$26.70	276
Tesco Services Inc.	Tesco Corp.	El Campo	TX	Wharton	$2.64	15
Thomas Energy Services, Inc.	Smith International Inc.	New Iberia	LA	Iberia	$11.60	50
Thomas Energy Services, Inc.	Smith International Inc.	Corpus Christi	TX	Nueces	$3.52	20
Tripoint Energy Services, Inc.	L E Simmons & Associates, Inc.	Spring	TX	Harris	$9.11	44
Tripoint Energy Services, Inc.	L E Simmons & Associates, Inc.	Victoria	TX	Victoria	$7.39	42
TSC Offshore Group Limited		Houston	TX	Harris		

Table A-4. Locations Offering Drilling Tools and Supplies in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
TSC Offshore Group Limited		Houston	TX	Harris		
Patriot Mechanical Handling, Inc.	TSC Offshore Group Limited	Houston	TX	Harris	$5.00	50
TSC Manufacturing and Supply, LLC	TSC Offshore Group Limited	Houston	TX	Harris	$0.77	13
V&M Tube-Alloy, LP	National Oilwell Varco, Inc.	Houma	LA	Terrebonne		115
V&M Tube-Alloy, LP	National Oilwell Varco, Inc.	Houston	TX	Harris	$26.90	140
Vanoil Completions LLC		Broussard	LA	Lafayette	$1.20	15
Varco Shaffer Inc.	National Oilwell Varco, Inc.	Houston	TX	Harris	$63.40	475
Varco Shaffer Inc.	National Oilwell Varco, Inc.	Alice	TX	Jim Wells	$1.48	7
Varel International Ind, LP	Arcapita Inc.	Brownsville	TX	Cameron	$0.87	2
Wagner Instrumentation 2000 Inc.	National Oilwell Varco, Inc.	Houston	TX	Harris	$0.69	9
Wilson Industries, LP	Smith International Inc.	Tampa	FL	Hillsborough	$3.18	15
Wilson Industries, LP	Smith International Inc.	Houma	LA	Terrebonne	$2.04	17
Wilson Industries, LP	Smith International Inc.	Lafayette	LA	Lafayette	$4.33	8
Wilson Industries, LP	Smith International Inc.	Shreveport	LA	Caddo	$2.33	11
Wilson Industries, LP	Smith International Inc.	Venice	LA	Plaquemines	$3.91	8
Wilson Industries, LP	Smith International Inc.	Westlake	LA	Calcasieu	$1.48	7
Wilson Industries, LP	Smith International Inc.	Houston	TX	Harris	$330.40	400
Wilson Industries, LP	Smith International Inc.	Channelview	TX	Harris	$1.30	3
Wilson Industries, LP	Smith International Inc.	Edinburg	TX	Hidalgo	$4.34	10
Wilson Industries, LP	Smith International Inc.	Freeport	TX	Brazoria	$4.77	11
Wilson Industries, LP	Smith International Inc.	Houston	TX	Harris	$8.67	20
Wilson Industries, LP	Smith International Inc.	Pharr	TX	Hidalgo	$2.93	6
Workstrings LLC	Superior Energy Services, Inc	Broussard	LA	Saint Martin	$2.90	30
Totals					$2,242.85	10,660

Table A-5

Locations Offering Mud Logging Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Continental Laboratories, Inc.		Houston	TX	Harris	$9.00	50
Continental Laboratories, Inc.		Alice	TX	Jim Wells		
Diversified Well Logging, Inc.		Reserve	LA	St. John the Baptist	$7.80	125
Diversified Well Logging, Inc.		Corpus Christi	TX	Nueces	$0.27	5
Geo-Lab, Inc.		Hockley	TX	Harris	$2.70	50
International Logging, Inc.	Weatherford International, Ltd.	Houston	TX	Harris	$2.50	10
Petroleum Center Inc.		Thibodaux	LA	Lafourche	$1.30	25
Petro-Log International, Inc.	Petro-Log, Inc.	Sugar Land	TX	Fort Bend	$1.84	16
Petro-Log, Inc.		Lafayette	LA	Lafayette	$0.56	45
PRECISION Well Logging, Inc.		Houston	TX	Harris	$6.66	47
Pro-Log, Inc.		New Iberia	LA	Iberia	$3.10	19
Stratagraph, Inc.		Scott	LA	Lafayette	$8.90	115
The Mudlogging Company USA, L.P.		Houston	TX	Harris	$16.74	145
Weatherford International, Ltd.		Houston	TX	Harris	$7.83	
Totals					$69.20	652

Table A-6

Locations Offering MWD Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Advantage R&D, Inc.	Weatherford International, Ltd.	Houston	TX	Harris	$9.30	100
Advantage R&D, Inc.	Weatherford International, Ltd.	Houston	TX	Harris		
Allis Chalmers Energy, Inc.		Houston	TX	Harris		15
Cudd Pressure Control Inc.	RPC, Inc.	Lafayette	LA	Lafayette	$4.03	35
Cudd Pressure Control Inc.	RPC, Inc.	Houma	LA	Terrebonne	$7.14	62
Cudd Pressure Control Inc.	RPC, Inc.	Houma	LA	Terrebonne	$6.91	60
Cudd Pressure Control Inc.	RPC, Inc.	Houston	TX	Harris	$230.00	2
Cudd Pressure Control Inc.	RPC, Inc.	Corpus Christi	TX	Nueces	$6.91	60
Gyrodata, Inc.		Houston	TX	Harris		100
Gyrodata, Inc.		Lafayette	LA	Lafayette	$5.76	50
INTEQ	Baker Hughes	Broussard	LA	Lafayette	$37.41	325
INTEQ	Baker Hughes	Broussard	LA	Lafayette		
INTEQ	Baker Hughes	New Orleans	LA	Orleans	$65.10	80
INTEQ	Baker Hughes	New Orleans	LA	Orleans		
INTEQ	Baker Hughes	Irving	TX	Dallas		
INTEQ	Baker Hughes	Houston	TX	Harris	$33.35	232
INTEQ	Baker Hughes	Houston	TX	Harris		
International Logging	Weatherford International, Ltd.	Houston	TX	Harris	$2.50	10
K&M Technology Group	Schlumberger Ltd./NV	The Woodlands	TX	Montgomery	$1.50	15
Measurement While Drilling (MWD) Services		Youngsville	LA	Lafayette		
MS Energy Services		Conroe	TX	Montgomery		
Pajak USA Ltd.	Pajak Engineering Ltd.	Houston	TX	Harris	$0.52	1
Pathfinder Energy Services, Inc.	Smith International, Inc.	Lafayette	LA	Lafayette	$24.17	210
Pathfinder Energy Services, Inc.	Smith International, Inc.	New Orleans	LA	Orleans	$0.92	8
Pathfinder Energy Services, Inc.	Smith International, Inc.	Houston	TX	Harris	$48.80	175
Pathfinder Energy Services, Inc.	Smith International, Inc.	Houston	TX	Harris		

Table A-6. Locations Offering MWD Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Pathfinder Energy Services, Inc.	Smith International, Inc.	Houston	TX	Harris		
Pathfinder Energy Services, Inc.	Smith International, Inc.	Corpus Christi	TX	Nueces	$0.42	12
Prime Directional Systems LLC		Broussard	LA	Lafayette	$1.27	25
Prime Directional Systems LLC		Houston	TX	Harris	$0.43	3
Ryan Energy Technologies USA	Nabors Industries Ltd.	Lafayette	LA	Lafayette	$0.29	2
Ryan Energy Technologies USA	Nabors Industries Ltd.	Houston	TX	Harris	$7.70	12
Schlumberger Technology Corporation	Schlumberger NV	Youngsville	LA	Lafayette	$11.51	100
Scientific Drilling International		Lafayette	LA	Lafayette	$6.91	60
Scientific Drilling International		Houston	TX	Harris		55
Scientific Drilling International		Houston	TX	Harris		
Slider LLC		Houston	TX	Harris	$1.00	4
Sperry Drilling Services	Halliburton Co.	Houston	TX	Harris	$0.11	2
Sperry Drilling Services	Halliburton Co.	The Woodlands	TX	Montgomery		
Weatherford U.S., L.P.	Weatherford International, Ltd.	New Orleans	LA	Orleans	$4.11	30
Weatherford U.S., L.P.	Weatherford International, Ltd.	Covington	LA	St. Tammany		
Weatherford U.S., L.P.	Weatherford International, Ltd.	Houston	TX	Harris	$156.00	300
Weatherford U.S., L.P.	Weatherford International, Ltd.	Houston	TX	Harris		
Weatherford U.S., L.P.	Weatherford International, Ltd.	Houston	TX	Harris		
Weatherford U.S., L.P.	Weatherford International, Ltd.	Houston	TX	Harris		
Wellbore Navigation, Inc.		Houston	TX	Harris	$0.75	5
Totals					$674.82	2,150

Table A-7

Locations Offering Cementing Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
BJ Services		Berwick	LA	St. Mary		
BJ Services		Cameron	LA	Cameron	$11.51	100
BJ Services		Crowley	LA	Acadia	$11.86	103
BJ Services		Dulac	LA	Terrebonne		
BJ Services		Fourchon	LA	Lafourche	$0.58	5
BJ Services		Houma	LA	Terrebonne	$23.02	200
BJ Services		Houma	LA	Terrebonne	$1.38	12
BJ Services		Lafayette	LA	Lafayette	$17.23	150
BJ Services		Lafayette	LA	Lafayette		
BJ Services		New Orleans	LA	Orleans	$0.92	8
BJ Services		Venice	LA	Plaquemines	$0.23	2
BJ Services		Aransas Pass	TX	Jefferson	$11.51	100
BJ Services		Freeport	TX	Brazoria	$11.51	100
BJ Services		Galveston	TX	Galveston	$11.51	100
BJ Services		Liberty	TX	Liberty	$3.45	30
BJ Services		Port O'Connor	TX	Calhoun		
BJ Services		Sabine Pass	TX	Jefferson		
BJ Services		Victoria	TX	Victoria	$6.68	58
CSI Technologies	Superior Energy Services, Inc.	Houston	TX	Harris		
Hub City Industries, Inc.		Lafayette	LA	Lafayette	$2.70	50
Liner Tools LC		Pearland	TX	Brazoria		
Totals					$114.09	1,018

Table A-8

Locations Offering Formation Evaluation Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Baker Atlas	Baker Hughes, Inc.	Broussard	LA	Lafayette	$12.66	110
Baker Atlas	Baker Hughes, Inc.	Houma	LA	Terrebonne	$1.38	12
Baker Atlas	Baker Hughes, Inc.	New Orleans	LA	Orleans	$0.05	2
Baker Atlas	Baker Hughes, Inc.	Shreveport	LA	Caddo	$10.58	13
Baker Atlas	Baker Hughes, Inc.	Houston	TX	Harris	$9.70	5
Baker Atlas	Baker Hughes, Inc.	Alice	TX	Jim Wells	$8.06	70
Baker Atlas	Baker Hughes, Inc.	Alvin	TX	Brazoria		
Baker Atlas	Baker Hughes, Inc.	Corpus Christi	TX	Nueces	$0.46	4
Baker Atlas	Baker Hughes, Inc.	Houston	TX	Harris	$1.96	17
Baker Atlas	Baker Hughes, Inc.	Houston	TX	Harris		
Baker Atlas	Baker Hughes, Inc.	Irving	TX	Dallas		
Baker Atlas	Baker Hughes, Inc.	Pearland	TX	Brazoria	$9.21	80
Baker Atlas	Baker Hughes, Inc.	Victoria	TX	Victoria	$3.22	28
Bronco Oilfield Services	RPC, Inc.	Broussard	LA	Lafayette	$0.27	5
Bronco Oilfield Services	RPC, Inc.	Lafayette	LA	Lafayette		
Bronco Oilfield Services	RPC, Inc.	Corpus Christi	TX	Nueces		
CETCO Oilfield Services Co.	AMCOL International Corporation	New Orleans	LA	Orleans	$20.80	159
CETCO Oilfield Services Co.	AMCOL International Corporation	Broussard	LA	Lafayette	$4.35	60
CETCO Oilfield Services Co.	AMCOL International Corporation	Houston	TX	Harris	$0.49	5
Computalog USA, Inc.	Weatherford International Ltd.	Alice	TX	Jim Wells		
Computalog USA, Inc.	Weatherford International Ltd.	Rosenberg	TX	Fort Bend		
Core Laboratories LP	Core Laboratories NV	Sulphur	LA	Calcasieu	$1.04	9
Core Laboratories LP	Core Laboratories NV	Houston	TX	Harris		450
Core Laboratories LP	Core Laboratories NV	Corpus Christi	TX	Nueces	$0.23	2
Core Laboratories LP	Core Laboratories NV	Dallas	TX	Dallas	$1.50	13
Core Laboratories LP	Core Laboratories NV	Houston	TX	Harris	$2.30	20
Core Petrophysics, Inc.	Core Laboratories NV	Broussard	LA	Lafayette	$0.81	7

Table A-8. Locations Offering Formation Evaluation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Core Petrophysics, Inc.	Core Laboratories NV	New Orleans	LA	Orleans	$0.23	2
Core Petrophysics, Inc.	Core Laboratories NV	Houston	TX	Harris	$2.00	16
Cudd Pressure Control, Inc.	RPC, Inc.	Houma	LA	Terrebonne	$7.14	62
Cudd Pressure Control, Inc.	RPC, Inc.	Houma	LA	Terrebonne	$6.91	60
Cudd Pressure Control, Inc.	RPC, Inc.	Lafayette	LA	Lafayette	$4.03	35
Cudd Pressure Control, Inc.	RPC, Inc.	Houston	TX	Harris	$97.49	2
Cudd Pressure Control, Inc.	RPC, Inc.	Corpus Christi	TX	Nueces	$6.91	60
eProduction Solutions, Inc.	Weatherford International Ltd.	Kingwood	TX	Harris	$28.30	90
Expro Americas, Inc.	Expro International Group PLC	Broussard	LA	Lafayette	$5.99	52
Expro Americas, Inc.	Expro International Group PLC	Alice	TX	Jim Wells		1
Expro Americas, Inc.	Expro International Group PLC	Dallas	TX	Dallas		
Expro Americas, Inc.	Expro International Group PLC	Houston	TX	Harris	$4.40	50
Expro Americas, Inc.	Expro International Group PLC	Mont Belvieu	TX	Chambers		
Expro Americas, LLC	Expro International Group PLC	Houston	TX	Harris		
Geoservices Inc.	The Geoservices Group	Houston	TX	Harris	$12.00	10
Geoservices Inc.	The Geoservices Group	Houston	TX	Harris		
Gray Wireline Service, Inc.	Gray Energy Services LLC	Youngsville	LA	Lafayette	$2.07	18
Integrated Production Services	Complete Production Services	New Orleans	LA	Orleans		
Integrated Production Services	Complete Production Services	Broussard	LA	Lafayette	$17.59	100
Integrated Production Services	Complete Production Services	Houston	TX	Harris		20
MGM Well Services, Inc.	Complete Production Services	Corpus Christi	TX	Nueces	$1.30	27
Pacific Process Systems, Inc.		Houston	TX	Harris	$1.04	9
Parchman Oilfield Services, Inc.	Complete Production Services	Edinburg	TX	Hidalgo	$2.70	50

Table A-8. Locations Offering Formation Evaluation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Parchman Operating Co. LP	Complete Production Services	Victoria	TX	Victoria	$30.30	500
Pencor Reservoir Fluid Specialists, Inc.	Core Laboratories NV	Broussard	LA	Lafayette	$2.80	52
PowerWell Services	Expro International Group PLC	Cypress	TX	Harris	$23.15	100
PowerWell Services	Expro International Group PLC	Houston	TX	Harris	$0.37	6
Pro Technics International, Inc.	Core Laboratories NV	Houston	TX	Harris	$6.60	30
Production Wireline & Cased Hole Services Group LLC	The Geoservices Group	Broussard	LA	Lafayette	$1.50	31
Reservoir Data Systems, Inc.		Sugar Land	TX	Fort Bend	$0.26	4
Schlumberger Com1 D077	Schlumberger NV	Houma	LA	Terrebonne	$0.25	5
Schlumberger Technology Corp	Schlumberger NV	Belle Chasse	LA	Plaquemines	$0.69	15
Schlumberger Technology Corp	Schlumberger NV	Houma	LA	Terrebonne	$34.53	300
Schlumberger Technology Corp	Schlumberger NV	Houma	LA	Terrebonne	$10.94	95
Schlumberger Technology Corp	Schlumberger NV	Lafayette	LA	Lafayette	$5.76	50
Schlumberger Technology Corp	Schlumberger NV	Larose	LA	Lafourche	$9.21	80
Schlumberger Technology Corp	Schlumberger NV	New Orleans	LA	Orleans	$7.25	63
Schlumberger Technology Corp	Schlumberger NV	Houston	TX	Harris		
Schlumberger Technology Corp	Schlumberger NV	Webster	TX	Harris	$8.63	75
Scientific Microsystems, Inc.	Complete Production Services	Waller	TX	Waller	$2.00	10
Southern Wireline Service, Inc.	Gray Energy Services LLC	Youngsville	LA	Lafayette	$2.07	18
Stric-Lan Co's Corp.		Duson	LA	Lafayette		60
Stric-Lan Co's Corp.		Houston	TX	Harris	$0.35	3
Superior Energy Services		Broussard	LA	Lafayette		
Superior Energy Services		Harvey	LA	Jefferson		
Superior Energy Services		Alvin	TX	Brazoria		

Table A-8. Locations Offering Formation Evaluation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Superior Energy Services		Broussard	LA	Lafayette		
Superior Energy Services		Harvey	LA	Jefferson		
Superior Energy Services		Alvin	TX	Brazoria		
T&P Well Testers of Lafayette, Inc.		Broussard	LA	Lafayette	$0.84	17
Tetra Applied Technologies, Inc.	TETRA Technologies, Inc.	Broussard	LA	Lafayette	$3.45	30
Tetra Applied Technologies, Inc.	TETRA Technologies, Inc.	Houston	TX	Harris	$14.00	6
Tetra Applied Technologies, Inc.	TETRA Technologies, Inc.	Edinburg	TX	Hidalgo	$4.83	42
Tetra Applied Technologies, Inc.	TETRA Technologies, Inc.	Victoria	TX	Victoria	$6.33	55
TETRA Technologies, Inc.		Cameron	LA	Cameron	$8.40	73
TETRA Technologies, Inc.		Golden Meadow	LA	Lafourche	$0.92	8
TETRA Technologies, Inc.		Houma	LA	Terrebonne	$8.06	70
TETRA Technologies, Inc.		Lafayette	LA	Lafayette	$2.53	22
TETRA Technologies, Inc.		Alice	TX	Jim Wells	$0.46	4
TETRA Technologies, Inc.		Victoria	TX	Victoria	$1.38	12
Triton Wireline Services, Inc.	Complete Production Services	Alice	TX	Jim Wells	$5.70	41
Warrior Energy Services	Superior Energy Services, Inc.	Broussard	LA	Lafayette		
Warrior Energy Services	Superior Energy Services, Inc.	Sibley	LA	Webster	$1.44	12
Warrior Energy Services	Superior Energy Services, Inc.	Gray	LA	Terrebonne	$4.60	40
Warrior Energy Services	Superior Energy Services, Inc.	New Iberia	LA	Iberia		
Warrior Energy Services	Superior Energy Services, Inc.	Houma	LA	Terrebonne		
Warrior Energy Services	Superior Energy Services, Inc.	Shreveport	LA	Caddo		
Warrior Energy Services	Superior Energy Services, Inc.	Rosharon	TX	Brazoria	$2.30	20
Weatherford U.S., LP	Weatherford International Ltd.	Broussard	LA	Lafayette		
Weatherford U.S., LP	Weatherford International Ltd.	Broussard	LA	Lafayette	$1.73	15

Table A-8. Locations Offering Formation Evaluation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Weatherford U.S., LP	Weatherford International Ltd.	Broussard	LA	Lafayette		
Weatherford U.S., LP	Weatherford International Ltd.	Houma	LA	Terrebonne		
Weatherford U.S., LP	Weatherford International Ltd.	Shreveport	LA	Caddo		
Weatherford U.S., LP	Weatherford International Ltd.	Pearland	TX	Brazoria	$5.28	30
Weatherford U.S., LP	Weatherford International Ltd.	Robstown	TX	Nueces	$4.80	35
Welltec, Inc.	Welltec A/S	Houma	LA	Terrebonne		
Welltec, Inc.	Welltec A/S	Houston	TX	Harris	$1.30	19
Wood Group Logging Services	John Wood Group PLC	Metairie	LA	Jefferson		
Wood Group Logging Services	John Wood Group PLC	Broussard	LA	Lafayette		
Wood Group Logging Services	John Wood Group PLC	Shreveport	LA	Caddo		
Wood Group Logging Services	John Wood Group PLC	Houma	LA	Terrebonne		
Wood Group Logging Services	John Wood Group PLC	Houston	TX	Harris		
Wood Group Logging Services	John Wood Group PLC	Victoria	TX	Victoria		
Wood Group Logging Services	John Wood Group PLC	Pearland	TX	Brazoria		
Wood Group Logging Services	John Wood Group PLC	Houston	TX	Harris		
Wood Group Logging Services	John Wood Group PLC	Corpus Christi	TX	Nueces		
Wood Group Production Testing	John Wood Group PLC	El Campo	TX	Wharton		
Wood Group Wireline Services	John Wood Group PLC	Broussard	LA	Lafayette		
Wood Group Wireline Services	John Wood Group PLC	Broussard	LA	Lafayette		
Wood Group Wireline Services	John Wood Group PLC	Alice	TX	Jim Wells		
Wood Group Wireline Services	John Wood Group PLC	Edinburg	TX	Hidalgo	$0.27	5
Wood Group Wireline Services	John Wood Group PLC	El Campo	TX	Wharton		
Wood Group Wireline Services	John Wood Group PLC	Houston	TX	Harris	$30.30	20
Totals					$544.75	3,808

Table A-9

Locations Offering Completion Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Baker Oil Tools	Baker Hughes, Inc.	Lafayette	LA	Lafayette	$1.73	15
Baker Oil Tools	Baker Hughes, Inc.	Lake Charles	LA	Calcasieu	$1.27	11
Baker Oil Tools	Baker Hughes, Inc.	New Iberia	LA	Iberia	$3.45	30
BJ Services Co.		Houston	TX	Harris	$2.88	25
BJ Services Co.		Houston	TX	Harris	$11.51	100
Bronco Oilfield Services	RPC, Inc.	Broussard	LA	Lafayette	$0.27	5
Bronco Oilfield Services	RPC, Inc.	Lafayette	LA	Lafayette		
Bronco Oilfield Services	RPC, Inc.	Corpus Christi	TX	Nueces		
Chet Morrison Well Services	Chet Morrison Contractors, Inc.	Houma	LA	Terrebonne		
Chet Morrison Well Services	Chet Morrison Contractors, Inc.	Houston	TX	Harris		
Combined Technical Services		Harvey	LA	Jefferson	$1.50	32
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc.	Houma	LA	Terrebonne	$5.10	20
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc.	New Iberia	LA	Iberia	$1.06	6
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc.	Harvey	LA	Jefferson	$0.87	7
Concentric Pipe & Tool Rentals	Superior Energy Services, Inc.	Houston	TX	Harris		
Hydraulic Well Control, Inc.	Boots & Coots International Well Control, Inc.	Houma	LA	Terrebonne	$2.00	
Key Energy Services		Lafayette	LA	Lafayette	$14.40	100
Key Energy Services		Alice	TX	Jim Wells	$2.88	20
Key Energy Services		Victoria	TX	Victoria	$9.44	82
Key Energy Services		Liberty	TX	Liberty	$6.33	55
Key Energy Services		Sour Lake	TX	Hardin		
M-I SWACO	Smith International, Inc.	Harvey	LA	Jefferson	$2.30	20
M-I SWACO	Smith International, Inc.	Lafayette	LA	Lafayette	$48.83	60

Table A-9. Locations Offering Completion Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
M-I SWACO	Smith International, Inc.	Maurice	LA	Vermilion	$1.10	5
M-I SWACO	Smith International, Inc.	New Orleans	LA	Orleans	$14.65	18
M-I SWACO	Smith International, Inc.	Corpus Christi	TX	Nueces		
M-I SWACO	Smith International, Inc.	Corpus Christi	TX	Nueces	$8.63	75
M-I SWACO	Smith International, Inc.	Dallas	TX	Dallas		
M-I SWACO	Smith International, Inc.	Houston	TX	Harris	$1.38	12
M-I SWACO	Smith International, Inc.	Houston	TX	Harris	$674.90	1,700
M-I SWACO	Smith International, Inc.	Liberty	TX	Liberty	$4.03	35
National Oilwell Varco Inc.		Houston	TX	Harris		
National Oilwell Varco Inc.		Houston	TX	Harris		
Pajak USA, Ltd.	Pajak Engineering Ltd.	Houston	TX	Harris	$0.52	1
Red Spider Technology AS		Houston	TX	Harris		
Smith Services	Smith International, Inc.	Minden	LA	Webster		5
Smith Services	Smith International, Inc.	Corpus Christi	TX	Nueces		
Smith Services	Smith International, Inc.	El Campo	TX	Wharton		
Smith Services	Smith International, Inc.	Silsbee	TX	Hardin		
Spartan Offshore Drilling LLC		Metairie	LA	Jefferson	$0.46	8
Spartan Offshore Drilling LLC		Broussard	LA	Lafayette	$0.25	3
Totals					$821.74	2,450

Table A-10

Locations Offering Fishing Tools and Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Combined Technical Services		Harvey	LA	Jefferson	$1.50	32
Dishman & Bennett Specialty Co, Inc.		Houma	LA	Terrebonne	$0.33	9
Dishman & Bennett Specialty Co, Inc.		Lafayette	LA	Lafayette	$1.06	6
Dishman & Bennett Specialty Co, Inc.		Sibley	LA	Webster	$0.51	5
Knight Fishing Services	Knight Oil Tools, Inc.	Lafayette	LA	Lafayette	$1.04	9
Knight Fishing Services	Knight Oil Tools, Inc.	Alice	TX	Jim Wells	$0.09	2
Knight Fishing Services	Knight Oil Tools, Inc.	Houston	TX	Harris	$5.28	30
Logan Oil Tools, Inc.		Broussard	LA	Lafayette	$0.48	3
Logan Oil Tools, Inc.		Houma	LA	Terrebonne	$0.10	2
Logan Oil Tools, Inc.		Houston	TX	Harris	$50.00	300
Logan Oil Tools, Inc.		Alice	TX	Jim Wells	$0.55	4
Totals					$60.94	402

Table A-11

Locations Offering Wellhead Equipment Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Bill Poole Products, Inc.		New Iberia	LA	Iberia		6
Bill Poole Products, Inc.		Houma	LA	Terrebonne	$0.30	2
Bronco Oilfield Services	RPC, Inc.	Broussard	LA	Lafayette		
Bronco Oilfield Services	RPC, Inc.	Lafayette	LA	Lafayette		
Bronco Oilfield Services	RPC, Inc.	Corpus Christi	TX	Nueces		
Cameron International Corp.		Broussard	LA	Lafayette	$43.29	80
Cameron International Corp.		New Orleans	LA	Orleans	$0.64	3
Cameron International Corp.		Patterson	LA	St. Mary		
Cameron International Corp.		Waller	TX	Waller	$5.30	25
Cameron International Corp.		Corpus Christi	TX	Nueces	$0.56	5
Cherokee Services of Louisiana	Greene's Energy Group LLC	Duson	LA	Lafayette		21
Cherokee Services of Louisiana	Greene's Energy Group LLC	Houma	LA	Terrebonne	$1.93	11
Cherokee Services of Louisiana	Greene's Energy Group LLC	Bossier City	LA	Bossier		
Control Products of Louisiana	T-3 Energy Services	Lafayette	LA	Lafayette	$1.70	27
Corporate Machine & Equipment	Greene's Energy Group LLC	Lafayette	LA	Lafayette	$1.12	12
Cor-Val Services Inc.	T-3 Energy Services	Houma	LA	Terrebonne	$12.10	130
Devin International Inc.	Greene's Energy Group LLC	Lafayette	LA	Lafayette		25
Devin International Inc.	Greene's Energy Group LLC	Houma	LA	Terrebonne	$0.70	4
Devin International Inc.	Greene's Energy Group LLC	Bossier City	LA	Bossier	$0.08	2
Devin International Inc.	Greene's Energy Group LLC	Victoria	TX	Victoria	$0.09	2
Devin International Inc.	Greene's Energy Group LLC	Alice	TX	Jim Wells		
Flow-Tech Industries		Houston	TX	Harris	$1.00	4
Forum Oilfield Technologies, Inc.	LE Simmons & Associates, Inc.	Houston	TX	Harris	$3.45	30
Forum Oilfield Technologies, Inc.	LE Simmons & Associates, Inc.	Houston	TX	Harris		
Gravco LLC	Robbins & Myers, Inc	Prairieville	LA	Ascension	$0.25	3

Table A-11. Locations Offering Wellhead Equipment Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Greene's Energy Group LLC		Lafayette	LA	Lafayette		25
Greene's Energy Group LLC		Lafayette	LA	Lafayette	$6.33	55
Greene's Energy Group LLC		Houma	LA	Terrebonne	$0.53	3
Greene's Energy Group LLC		Bossier City	LA	Bossier		
Greene's Energy Group LLC		Houston	TX	Harris		333
Greene's Energy Group LLC		Houston	TX	Harris	$3.45	30
Greene's Energy Group LLC		Alice	TX	Jim Wells	$1.84	16
Greene's Energy Group LLC		Ingleside	TX	San Patricio	$2.53	22
Houma Valve Service Inc		Houma	LA	Terrebonne	$1.00	25
HP&T Products, Inc.	T-3 Energy Services	Sugar Land	TX	Fort Bend	$0.20	3
Hydril Company, Inc.	Tenaris SA	Westwego	LA	Jefferson	$23.31	110
Hydril Company, Inc.	Tenaris SA	Houston	TX	Harris		444
Land & Sea Equipment International Corp.		Tampa	FL	Hillsborough		
NATCO Belle Chasse	NATCO Group, Inc.	Belle Chasse	LA	Plaquemines	$1.04	9
NATCO Bossier City	NATCO Group, Inc.	Bossier City	LA	Bossier	$3.47	8
NATCO Corpus Christi	NATCO Group, Inc.	Corpus Christi	TX	Nueces	$7.58	14
NATCO Group, Inc		Houston	TX	Harris		6
NATCO Houston Branch	NATCO Group, Inc.	Magnolia	TX	Montgomery		
NATCO New Iberia Branch	NATCO Group, Inc.	New Iberia	LA	Iberia	$21.19	100
NATCO New Iberia Education Center	NATCO Group, Inc.	New Iberia	LA	Iberia	$0.61	5
NATCO New Iberia Mfg/Eng	NATCO Group, Inc.	New Iberia	LA	Iberia	$56.82	105
National Oilwell Varco		Broussard	LA	Lafayette	$6.51	37
National Oilwell Varco		Houma	LA	Terrebonne	$0.45	3
National Oilwell Varco		Youngsville	LA	Lafayette		
National Oilwell Varco		Bossier City	LA	Bossier	$0.70	4
National Oilwell Varco		Broussard	LA	Lafayette	$2.11	12
National Oilwell Varco		Youngsville	LA	Lafayette		
National Oilwell Varco		Amelia	LA	St. Mary		
National Oilwell Varco		Boothville	LA	Plaquemines		
National Oilwell Varco		Gibson	LA	Terrebonne	$6.51	15
National Oilwell Varco		Golden Meadow	LA	Lafourche	$5.64	13

Table A-11. Locations Offering Wellhead Equipment Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
National Oilwell Varco		Harvey	LA	Jefferson		
National Oilwell Varco		Houma	LA	Terrebonne	$4.77	11
National Oilwell Varco		Lafayette	LA	Lafayette	$0.35	3
National Oilwell Varco		Lafayette	LA	Lafayette	$13.01	30
National Oilwell Varco		Lake Charles	LA	Calcasieu	$2.17	5
National Oilwell Varco		Morgan City	LA	St. Mary	$3.47	8
National Oilwell Varco		New Iberia	LA	Iberia	$8.67	20
National Oilwell Varco		New Iberia	LA	Iberia	$10.84	25
National Oilwell Varco		Shreveport	LA	Caddo	$8.67	20
National Oilwell Varco		Alice	TX	Jim Wells	$2.30	20
National Oilwell Varco		Corpus Christi	TX	Nueces	$0.11	3
National Oilwell Varco		Houston	TX	Harris		15
National Oilwell Varco		Houston	TX	Harris		250
National Oilwell Varco		Houston	TX	Harris	$4.03	19
National Oilwell Varco		Houston	TX	Harris	$0.66	2
National Oilwell Varco		Houston	TX	Harris		
National Oilwell Varco		Rosenberg	TX	Fort Bend		
National Oilwell Varco		Stafford	TX	Fort Bend	$7.10	2
National Oilwell Varco		Willis	TX	Montgomery		
National Oilwell Varco		Victoria	TX	Victoria	$3.90	9
National Oilwell Varco		Houston	TX	Harris	$43.37	100
National Oilwell Varco		Houston	TX	Harris		
National Oilwell Varco		Alice	TX	Jim Wells	$4.85	9
National Oilwell Varco		Mission	TX	Hidalgo	$5.20	12
National Oilwell Varco		Corpus Christi	TX	Nueces	$3.47	8
National Oilwell Varco		Houston	TX	Harris	$7.81	18
National Oilwell Varco		Houston	TX	Harris		100
Oteco, Inc.	National Flame & Forge	Houston	TX	Harris	$35.00	160
Preferred Industries Inc.	T-3 Energy Services	Houma	LA	Terrebonne	$5.09	24
R&M Energy Systems	Robbins & Myers, Inc	Willis	TX	Montgomery	$62.75	160
R&M Energy Systems	Robbins & Myers, Inc	Tomball	TX	Harris	$26.02	60
T-3 Energy Services		Broussard	LA	Lafayette	$86.75	200
T-3 Energy Services		Houston	TX	Harris		14
United Wellhead Services, Inc.	T-3 Energy Services	Shreveport	LA	Caddo	$3.18	15
United Wellhead Services, Inc.	T-3 Energy Services	Robstown	TX	Nueces	$7.50	14
United Wellhead Services, Inc.	T-3 Energy Services	Houston	TX	Harris	$4.24	20
Vanoil-AMT	LE Simmons & Associates, Inc.	Lake Charles	LA	Calcasieu	$13.00	75
VetcoGray	General Electric Co.	Broussard	LA	Lafayette	$16.95	80
VetcoGray	General Electric Co.	Harvey	LA	Jefferson	$12.71	60

Table A-11. Locations Offering Wellhead Equipment Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
VetcoGray	General Electric Co.	Houston	TX	Harris	$148.32	700
VetcoGray	General Electric Co.	Houston	TX	Harris	$8.48	40
VetcoGray	General Electric Co.	Houston	TX	Harris	$486.60	30
VetcoGray Controls Inc.	General Electric Co.	Houston	TX	Harris	$16.10	140
Wellhead and Valve Services	Greene's Energy Group LLC	Lafayette	LA	Lafayette		10
Wood Group Pressure Control	John Wood Group PLC	Broussard	LA	Lafayette	$21.19	100
Wood Group Pressure Control	John Wood Group PLC	Houma	LA	Terrebonne		
Wood Group Pressure Control	John Wood Group PLC	New Orleans	LA	Orleans		
Wood Group Pressure Control	John Wood Group PLC	Shreveport	LA	Caddo		
Wood Group Pressure Control	John Wood Group PLC	Corpus Christi	TX	Nueces	$8.48	40
Wood Group Pressure Control	John Wood Group PLC	Corpus Christi	TX	Nueces	$0.48	3
Wood Group Pressure Control	John Wood Group PLC	Dallas	TX	Dallas		
Wood Group Pressure Control	John Wood Group PLC	Houston	TX	Harris		
Wood Group Pressure Control	John Wood Group PLC	Sugar Land	TX	Fort Bend		
Wood Group Production Valve	John Wood Group PLC	Broussard	LA	Lafayette	$12.54	100
Totals					$1,334.46	4,523

Table A-12

Locations Offering Accommodations in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Duffy & McGovern Accommodations Services	Superior Energy Services, Inc.	Broussard	LA	Lafayette	$0.65	4
General Marine Leasing	Oil States International, Inc.	Belle Chasse	LA	Plaquemines	$19.96	76
General Marine Leasing	Oil States International, Inc.	Broussard	LA	Lafayette	$2.59	16
General Marine Leasing	Oil States International, Inc.	Houston	TX	Harris		
Global Maritime Solutions LLC		Abbeville	LA	Vermilion	$0.25	5
Global Maritime Solutions LLC		Houston	TX	Harris		
GulfLand Structures		Lafayette	LA	Lafayette		
HB Rentals	Superior Energy Services, Inc.	Broussard	LA	Lafayette		83
HB Rentals	Superior Energy Services, Inc.	Alice	TX	Jim Wells	$16.23	30
HB Rentals	Superior Energy Services, Inc.	Liverpool	TX	Brazoria	$2.64	15
HB Rentals	Superior Energy Services, Inc.	Houston	TX	Harris		
Leirvik Beacon Offshore		Orange	TX	Orange		
Marine & Offshore Supplies, Inc		Tampa	FL	Hillsborough		
Prosafe Production SE	Prosafe SE	Houston	TX	Harris		
QCI Marine Offshore LLC		Pascagoula	MS	Jackson	$1.38	12
QCI Marine Offshore LLC		Houston	TX	Harris	$22.62	30
Southport, LLC	Gulf Island Fabrication, Inc.	Houma	LA	Terrebonne	$33.02	200
Stallion Offshore Services	Stallion Oilfield Services, Ltd.	Abbeville	LA	Vermilion		165
Stallion Offshore Services	Stallion Oilfield Services, Ltd.	Abbeville	LA	Vermilion		
Stallion Offshore Services	Stallion Oilfield Services, Ltd.	Houma	LA	Terrebonne	$0.10	2
Taylors International Services, Inc.		Lafayette	LA	Lafayette	$69.00	700
Totals					168.44	1,338

Table A-13

Locations Offering Air Transportation Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Air Logistics LLC	Bristow Group, Inc.	Lake Charles	LA	Calcasieu		
Air Logistics LLC	Bristow Group, Inc.	Creole	LA	Cameron	$3.95	30
Air Logistics LLC	Bristow Group, Inc.	New Iberia	LA	Iberia	$39.51	319
Air Logistics LLC	Bristow Group, Inc.	Galliano	LA	Lafourche	$0.09	2
Air Logistics LLC	Bristow Group, Inc.	New Orleans	LA	Orleans		
Air Logistics LLC	Bristow Group, Inc.	Venice	LA	Plaquemines		
Air Logistics LLC	Bristow Group, Inc.	Patterson	LA	Saint Mary		
Air Logistics LLC	Bristow Group, Inc.	Houma	LA	Terrebonne	$0.26	2
Air Logistics LLC	Bristow Group, Inc.	Abbeville	LA	Vermilion	$13.17	100
Air Logistics LLC	Bristow Group, Inc.	Rockport	TX	Aransas		
Air Logistics LLC	Bristow Group, Inc.	Angleton	TX	Brazoria		
Air Logistics LLC	Bristow Group, Inc.	Galveston	TX	Galveston	$0.25	4
Air Logistics LLC	Bristow Group, Inc.	Sabine Pass	TX	Jefferson		
Bristow Group Inc.		Houston	TX	Harris		23
Central Helicopter Service Inc.		Houston	TX	Harris	$1.30	15
Era Helicopters LLC	Seacor Holdings Inc.	Coden	AL	Mobile		
Era Helicopters LLC	Seacor Holdings Inc.	Theodore	AL	Mobile		
Era Helicopters LLC	Seacor Holdings Inc.	Lake Charles	LA	Calcasieu	$74.30	150
Era Helicopters LLC	Seacor Holdings Inc.	Cameron	LA	Cameron		
Era Helicopters LLC	Seacor Holdings Inc.	Johnson Bayou	LA	Cameron		
Era Helicopters LLC	Seacor Holdings Inc.	Kenner	LA	Jefferson		
Era Helicopters LLC	Seacor Holdings Inc.	Golden Meadow	LA	Lafourche		
Era Helicopters LLC	Seacor Holdings Inc.	Venice	LA	Plaquemines		
Era Helicopters LLC	Seacor Holdings Inc.	Patterson	LA	Saint Mary		
Era Helicopters LLC	Seacor Holdings Inc.	Dulac	LA	Terrebonne		
Era Helicopters LLC	Seacor Holdings Inc.	Houma	LA	Terrebonne		
Era Helicopters LLC	Seacor Holdings Inc.	Schriever	LA	Terrebonne		
Era Helicopters LLC	Seacor Holdings Inc.	Abbeville	LA	Vermilion		
Era Helicopters LLC	Seacor Holdings Inc.	Rockport	TX	Aransas		
Era Helicopters LLC	Seacor Holdings Inc.	Brazoria	TX	Brazoria		
Era Helicopters LLC	Seacor Holdings Inc.	Galveston	TX	Galveston	$0.19	3
Era Helicopters LLC	Seacor Holdings Inc.	Markham	TX	Matagorda		
Era Helicopters LLC	Seacor Holdings Inc.	Corpus Christi	TX	Nueces		
Evergreen Helicopters International Inc.	Evergreen Holdings Inc.	Galveston	TX	Galveston	$15.12	50
Go Helitrans Co Inc.		Manvel	TX	Brazoria		34
Go Helitrans Co Inc.		Port O Connor	TX	Calhoun		
Houston Helicopters, Inc.		Pearland	TX	Brazoria	$4.00	25
Industrial Helicopters Inc.		Scott	LA	Lafayette		10
Pelican Aviation Corp		New Iberia	LA	Iberia	$1.10	17
Petroleum Helicopters Inc. (PHI)		Theodore	AL	Mobile		

Table A-13. Locations Offering Air Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Petroleum Helicopters Inc. (PHI)		Lake Charles	LA	Calcasieu		
Petroleum Helicopters Inc. (PHI)		Lafayette	LA	Lafayette		
Petroleum Helicopters Inc. (PHI)		Golden Meadow	LA	Lafourche		
Petroleum Helicopters Inc. (PHI)		New Orleans	LA	Orleans		
Petroleum Helicopters Inc. (PHI)		Boothville	LA	Plaquemines		
Petroleum Helicopters Inc. (PHI)		Morgan City	LA	Saint Mary		
Petroleum Helicopters Inc. (PHI)		Houma	LA	Terrebonne		
Petroleum Helicopters Inc. (PHI)		Intracoastal City	LA	Vermilion		
Petroleum Helicopters Inc. (PHI)		Port O Connor	TX	Calhoun		
Petroleum Helicopters Inc. (PHI)		Galveston	TX	Galveston		
Petroleum Helicopters Inc. (PHI)		Sabine Pass	TX	Jefferson		
Rotocraft Leasing		Mobile	AL	Mobile	$0.10	2
Rotocraft Leasing		Miami	FL	Miami-Dade	$0.90	4
Rotocraft Leasing		Cameron	LA	Cameron		
Rotocraft Leasing		Broussard	LA	Lafayette		100
Rotocraft Leasing		Galliano	LA	Lafourche		2
Rotocraft Leasing		Venice	LA	Plaquemines		
Rotocraft Leasing		Patterson	LA	Saint Mary	$0.09	2
Rotocraft Leasing		Abbeville	LA	Vermilion		
Rotocraft Leasing		Abbeville	LA	Vermilion	$0.11	2
Rotocraft Leasing		Rockport	TX	Aransas		
Rotocraft Leasing		Galveston	TX	Galveston		
Rotocraft Leasing		Palacios	TX	Matagorda	$0.09	2
Southern Helicopters		Sunshine	LA	Iberville	$3.70	15
Totals					$158.23	913

Table A-14

Locations Offering Water Transportation Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
ABC Marine Towing LLC		Belle Chasse	LA	Plaquemines	$0.12	1
Abdon Callais Offshore LLC		Golden Meadow	LA	Lafourche	$87.99	300
Adams Towing Corp		Morgan City	LA	Saint Mary	$0.72	10
AMC Liftboats Inc.		Golden Meadow	LA	Lafourche	$2.20	20
Apex Towing	Apex Oil Company Inc.	Mount Airy	LA	Saint John the Baptist	$1.55	12
Apex Towing	Apex Oil Company Inc.	Port Allen	LA	West Baton Rouge	$23.77	13
Argosy Shipping (USA) LP		Bellaire	TX	Harris	$1.90	20
B&J Martin Inc.		Galliano	LA	Lafourche	$8.05	30
Basin Marine, Inc.		Berwick	LA	Saint Mary		
Bay Houston Towing Co.		Freeport	TX	Brazoria		
Bay Houston Towing Co.		Galveston	TX	Galveston	$0.26	2
Bay Houston Towing Co.		Houston	TX	Harris		40
Bay Houston Towing Co.		Corpus Christi	TX	Nueces		
BBC Chartering		Bellaire	TX	Harris	$2.20	20
Belle Pass Towing Corp		Golden Meadow	LA	Lafourche	$2.80	35
Big E Marine Corp		New Orleans	LA	Orleans		
Big R Towing Inc		Jeanerette	LA	Iberia	$0.09	2
Bordelon Marine Inc.		Lockport	LA	Lafourche	$19.48	85
Broussard Brothers Inc.		Abbeville	LA	Vermilion	$9.90	150
Brown Water Marine Service Inc.		Rockport	TX	Aransas		15
BSI Marine Contractors Inc.		Cut Off	LA	Lafourche	$0.08	2
Bud's Boat Rental Inc.		Venice	LA	Plaquemines		
Buffalo Marine Service		Houston	TX	Harris	$25.40	90
C & G Boats Inc.		Golden Meadow	LA	Lafourche	$1.40	20
Caillou Island Towing Co Inc.		Houma	LA	Terrebonne		30
Cameron Offshore Boats Inc.		Cameron	LA	Lake Charles	$5.03	45
Candy Fleet Corp		Morgan City	LA	Saint Mary	$0.33	5
Cashman Equipment Corp.		Baton Rouge	LA	East Baton Rouge	$1.16	7
Cashman Equipment Corp.		Saint Rose	LA	Saint Charles		
Celtic Marine Corp.		Baton Rouge	LA	East Baton Rouge		13
Celtic Marine Corp.		Metairie	LA	Jefferson		

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Celtic Marine Corp.		Houston	TX	Harris		
Cenac Towing Co Inc.		Houma	LA	Terrebonne		458
Cenac Towing Co Inc.		League City	TX	Galveston		
Central Boat Rentals, Inc.		Berwick	LA	Saint Mary	$13.00	150
Central Gulf Towing Inc.		Cut Off	LA	Lafourche	$20.00	47
COMAR Marine Corp		Amelia	LA	Saint Mary	$0.45	10
Crewboats Inc.		Chalmette	LA	Saint Bernard	$7.20	132
Crowley Marine Services Inc.		Lake Charles	LA	Calcasieu	$200.80	200
Crowley Marine Services Inc.		Houston	TX	Harris	$6.86	30
D & B Boat Rentals Inc.		New Iberia	LA	Iberia	$1.10	15
Dawn Services Inc.		Gretna	LA	Jefferson	$5.90	80
Dean Maritime Ltd. Co.		Houston	TX	Harris	$1.00	3
Delta Towing	Hercules Offshore	Houma	LA	Terrebonne	$17.70	400
Denet Towing Service Inc.		Boothville	LA	Plaquemines	$3.50	30
Diamond Services Corp.		Amelia	LA	Saint Mary	$6.70	100
Dockwise USA Inc.		Houston	TX	Harris	$0.48	6
Doerle's Quarterboats Inc.		New Iberia	LA	Iberia	$0.14	2
Double Eagle Marine LLC		New Iberia	LA	Iberia	$31.87	70
Ed Broussard Marine Service Inc.		Loreauville	LA	Iberia	$0.98	13
Energy Logistics, Inc.	Seacor Holdings Inc. and Michael Baker Corp.	Cameron	LA	Cameron		
Energy Logistics, Inc.	Seacor Holdings Inc. and Michael Baker Corp.	Venice	LA	Plaquemines	$0.09	2
Energy Logistics, Inc.	Seacor Holdings Inc. and Michael Baker Corp.	Morgan City	LA	Saint Mary	$0.79	16
Energy Logistics, Inc.	Seacor Holdings Inc. and Michael Baker Corp.	Houston	TX	Harris		
Freedom Marine Services, Inc.		Houma	LA	Terrebonne	$0.95	8
G & H Towing Co		Galveston	TX	Galveston		30
Galiano Tugs Inc.		Cut Off	LA	Lafourche	$2.00	40

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Garber Brothers	Garber Industries, Inc.	Berwick	LA	Saint Mary	$2.88	25
Global Marine Transport, Inc.		Houston	TX	Harris	$0.50	6
GulfMark Americas Inc.	GulfMark Offshore Inc.	Youngsville	LA	Lafayette		
GulfMark Americas Inc.	GulfMark Offshore Inc.	Saint Rose	LA	Saint Charles		
GulfMark Offshore Inc.		Houston	TX	Harris		
Harbor Towing & Fleeting Inc.		Metairie	LA	Jefferson		
Harvey Gulf International Marine Inc.		Harvey	LA	Jefferson	$2.60	15
Hercules Liftboats	Hercules Offshore	Lafayette	LA	Lafayette	$11.20	160
Hornbeck Offshore Services, Inc.		Golden Meadow	LA	Lafourche		
Hornbeck Offshore Services, Inc.		Covington	LA	Saint Tammany		33
Hustler Marine Services Inc.		Port O Connor	TX	Calhoun	$0.33	7
Iberia Marine Service LLC		New Iberia	LA	Iberia	$4.00	28
Inland Marine Management Corp./Huey L Cheramie Inc.		Galliano	LA	Lafourche	$2.50	70
International Construction Group LLC/International Marine LLC	International Offshore Services	Larose	LA	Lafourche	$50.00	85
International Marine LLC	International Offshore Services	Irvington	AL	Mobile		
JW Banta Towing Inc.		Sunshine	LA	Iberville		4
Kevin Gros Consulting & Marine Services Inc.		Larose	LA	Lafourche	$6.70	115
Kilgore Offshore Inc.		Scott	LA	Lafayette		
KMJ Services Inc.		Cut Off	LA	Lafourche	$0.31	2
L & M BoTruc Rental Inc.		Galliano	LA	Lafourche	$5.40	150
Louisiana International Marine, Inc.		Gretna	LA	Jefferson	$1.00	20
Mammoet USA Inc.		Rosharon	TX	Brazoria	$0.09	75
Marine Centre, Inc.		Hahnville	LA	Saint Charles	$0.50	6
Marine Transportation Consultants		Houston	TX	Harris		

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Martin Midstream Partners L.P.		Mobile	AL	Mobile		
Martin Midstream Partners L.P.		Houston	TX	Harris	$9.17	40
Martin Midstream Partners L.P.		LaPorte	TX	Harris	$22.58	16
McDonough Marine Service		Metairie	LA	Jefferson		
McDonough Marine Service		Belle Chasse	LA	Plaquemines	$0.06	1
McDonough Marine Service		Channelview	TX	Harris		
MegaFleet Towing Co Inc.		Pasadena	TX	Harris	$5.80	75
Moran Miami	Moran Transportation Co	Miami	FL	Miami-Dade	$1.93	13
Moran Towing of Texas Inc.	Moran Transportation Co	Port Arthur	TX	Jefferson	$11.00	56
Moss Maritime Inc.	Saipem SpA	Houston	TX	Harris	$0.06	1
Movable Offshore Boats Inc.		Larose	LA	Lafourche	$0.01	3
Muchowich Offshore Oil Services Inc.		Freeport	TX	Brazoria	$12.72	55
NMA Maritime & Offshore Contractors Inc.		Houston	TX	Harris	$2.00	5
Oceanic Fleet Inc.		Lockport	LA	Lafourche		30
Odyssea Marine		Cut Off	LA	Lafourche		
Odyssea Marine		Berwick	LA	Saint Mary		
Odyssea Marine		Morgan City	LA	Saint Mary		
Odyssea Marine		Houston	TX	Harris		
Offshore Express Inc.		Houma	LA	Terrebonne		75
Offshore Marine Contractors Inc.		Cut Off	LA	Lafourche	$2.10	44
Offshore Towing Inc.		Larose	LA	Lafourche		
Oilfield Barges	Barnett Marine Inc.	Belle Chasse	LA	Plaquemines	$4.90	45
Otto Candies LLC		Des Allemands	LA	Saint Charles	$21.70	250
Phil Guilbeau Offshore Service Inc.		Galliano	LA	Lafourche	$0.94	23
Port Technical Services Inc.		Bellaire	TX	Harris	$0.30	6
Rene J Cheramie & Sons Inc.		Lafayette	LA	Lafayette		
Rentrop Tugs		Morgan City	LA	Saint Mary	$0.35	4
Ryan Marine Services		Galveston	TX	Galveston	$1.10	36

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Martin Midstream Partners L.P.		Mobile	AL	Mobile		
Martin Midstream Partners L.P.		Houston	TX	Harris	$9.17	40
Martin Midstream Partners L.P.		LaPorte	TX	Harris	$22.58	16
McDonough Marine Service		Metairie	LA	Jefferson		
McDonough Marine Service		Belle Chasse	LA	Plaquemines	$0.06	1
McDonough Marine Service		Channelview	TX	Harris		
MegaFleet Towing Co Inc.		Pasadena	TX	Harris	$5.80	75
Moran Miami	Moran Transportation Co	Miami	FL	Miami-Dade	$1.93	13
Moran Towing of Texas Inc.	Moran Transportation Co	Port Arthur	TX	Jefferson	$11.00	56
Moss Maritime Inc.	Saipem SpA	Houston	TX	Harris	$0.06	1
Movable Offshore Boats Inc.		Larose	LA	Lafourche	$0.01	3
Muchowich Offshore Oil Services Inc.		Freeport	TX	Brazoria	$12.72	55
NMA Maritime & Offshore Contractors Inc.		Houston	TX	Harris	$2.00	5
Oceanic Fleet Inc.		Lockport	LA	Lafourche		30
Odyssea Marine		Cut Off	LA	Lafourche		
Odyssea Marine		Berwick	LA	Saint Mary		
Odyssea Marine		Morgan City	LA	Saint Mary		
Odyssea Marine		Houston	TX	Harris		
Offshore Express Inc.		Houma	LA	Terrebonne		75
Offshore Marine Contractors Inc.		Cut Off	LA	Lafourche	$2.10	44
Offshore Towing Inc.		Larose	LA	Lafourche		
Oilfield Barges	Barnett Marine Inc.	Belle Chasse	LA	Plaquemines	$4.90	45
Otto Candies LLC		Des Allemands	LA	Saint Charles	$21.70	250
Phil Guilbeau Offshore Service Inc.		Galliano	LA	Lafourche	$0.94	23
Port Technical Services Inc.		Bellaire	TX	Harris	$0.30	6
Rene J Cheramie & Sons Inc.		Lafayette	LA	Lafayette		

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Rentrop Tugs		Morgan City	LA	Saint Mary	$0.35	4
Ryan Marine Services		Galveston	TX	Galveston	$1.10	36
Sea Boat Rentals Inc.		Galliano	LA	Lafourche	$3.30	35
Sea Horse Marine Inc.		Lockport	LA	Lafourche	$20.00	40
Seabulk Towing, Inc.	Seacor Holdings Inc.	Mobile	AL	Mobile	$3.71	25
Seabulk Towing, Inc.	Seacor Holdings Inc.	Tampa	FL	Hillsborough	$1.00	70
Seabulk Towing, Inc.	Seacor Holdings Inc.	Lake Charles	LA	Calcasieu	$0.46	2
Seabulk Towing, Inc.	Seacor Holdings Inc.	Port Arthur	TX	Jefferson	$4.80	58
SEACOR Marine	Seacor Holdings Inc.	Irvington	AL	Mobile	$0.20	2
SEACOR Marine	Seacor Holdings Inc.	Lake Charles	LA	Calcasieu		
SEACOR Marine	Seacor Holdings Inc.	Patterson	LA	Saint Mary	$1.54	12
SEACOR Marine	Seacor Holdings Inc.	Houma	LA	Terrebonne	$14.50	100
SEACOR Marine	Seacor Holdings Inc.	Freeport	TX	Brazoria		30
SEACOR Marine	Seacor Holdings Inc.	Houston	TX	Harris	$2.38	16
Signet Maritime Corp		Pensacola	FL	Escambia		
Signet Maritime Corp		Brownsville	TX	Cameron	$1.46	15
Signet Maritime Corp		Houston	TX	Harris		5
Signet Maritime Corp		Ingleside	TX	San Patricio		
Smit Salvage Americas Inc.	Smit Internationale NV	Houston	TX	Harris	$18.00	12
Southern States Offshore Inc.		Houston	TX	Harris	$3.00	65
Stagg Marine Inc.		Morgan City	LA	Saint Mary	$2.30	24
Superior Energy Services, Inc. Marine Services Division	Superior Energy Services, Inc.	New Iberia	LA	Iberia		
Supreme Offshore Service Inc.		Houma	LA	Terrebonne	$3.20	20
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Lake Charles	LA	Calcasieu		6
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Cameron	LA	Cameron		12
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Lake Arthur	LA	Jefferson Davis		
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Morgan City	LA	Saint Mary		

Table A-14. Locations Offering Water Transportation Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County/ Parish	2007 Revenues (Millions)	2007 Employees
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Cameron	LA	Cameron		12
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Lake Arthur	LA	Jefferson Davis		
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Morgan City	LA	Saint Mary		
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Houma	LA	Terrebonne	$5.43	2
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Freshwater City	LA	Vermilion		
Talen's Marine & Fuel Inc.	Allegro Biodiesel Corp.	Port Arthur	TX	Jefferson		15
Teekay Corp		Houston	TX	Harris	$7.20	30
Tidewater Inc.		New Orleans	LA	Orleans		
Tiger Towing		Morgan City	LA	Saint Mary	$0.36	6
Trico Marine Services, Inc.		Houma	LA	Terrebonne		
Trico Marine Services, Inc.		Houston	TX	Harris		
United Tugs Inc.		Harvey	LA	Jefferson		50
Waterways Towing & Offshore Services, Inc.		Mobile	AL	Mobile	$0.90	15
Totals					$794.41	5,055

Table A-15

Locations Offering Catering Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Affiliated Marine Supply Inc		Houma	LA	Terrebonne	$0.30	8
Aramark US Offshore Services, LLC	Aramark Holdings Corp.	Houston	TX	Harris	$8.88	200
ART Catering Inc		Belle Chasse	LA	Plaquemines	$22.00	380
Cardinal Culinary Services, LLC		Seabrook	TX	Harris	$0.57	26
Coastal Catering LLC		Houma	LA	Terrebonne	$0.50	9
Coastal Food Service Inc	Compass Group PLC	Carencro	LA	Lafayette	$2.00	80
Craig International Supplies Inc, CIS	Craig Group Ltd.	Humble	TX	Harris	$0.50	9
Delta Catering Management LLC	Sodexo Alliance SA	Harahan	LA	Jefferson	$8.70	400
Doerle Food Service LLC		Broussard	LA	Lafayette	$35.49	170
Doerle Food Service LLC		Shreveport	LA	Caddo	$24.98	29
Doerle Food Service LLC		Golden Meadow	LA	Lafourche	$6.03	7
Energy Catering Service LLC	Sodexo Alliance SA	Houma	LA	Terrebonne	$5.00	15
ESS Support Services Worldwide	Compass Group PLC	Lafayette	LA	Lafayette	$42.50	1,200
G & J Land & Marine Food Distributors Inc.		Morgan City	LA	Saint Mary	$15.70	75
General Marine Leasing	Oil States International, Inc.	Belle Chasse	LA	Plaquemines	$19.96	76
General Marine Leasing	Oil States International, Inc.	Broussard	LA	Lafayette	$2.59	16
Jakes Finer Foods Inc.		Houston	TX	Harris	$25.60	120
Universal Sodexo Remote Sites	Sodexo Alliance SA	Harahan	LA	Jefferson	$130.00	250
Sonoco Wholesale Grocers	Sonoco	Houma	LA	Terrebonne	$6.50	300
Taylors International Services Inc.		Lafayette	LA	Lafayette	$69.00	700
Trinity Catering Inc.		Houma	LA	Terrebonne	$12.00	200
Totals					$438.80	4,270

Table A-16

Locations Offering Workover Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Aircomp LLC	Allis-Chalmers Energy	Fort Stockton	TX	Pecos	$6.81	30
Allis-Chalmers Energy Inc.	Allis-Chalmers Energy Inc.	Broussard	LA	Lafayette		
Allis-Chalmers Energy Inc.	Allis-Chalmers Energy Inc.	Houston	TX	Harris		15
Allis-Chalmers Energy Inc.	Allis-Chalmers Energy Inc.	Houston	TX	Harris	$1.75	7
Allis-Chalmers Energy Inc.	Allis-Chalmers Energy Inc.	Edinburg	TX	Hidalgo		80
Allis-Chalmers Energy Inc.	Allis-Chalmers Energy Inc.	Conroe	TX	Montgomery		
Allis-Chalmers Tubular Services Inc	Allis-Chalmers Energy Inc.	Youngsville	LA	Lafayette	$11.43	65
Allis-Chalmers Tubular Services Inc	Allis-Chalmers Energy Inc.	Corpus Christi	TX	Nueces	$8.63	75
Allis-Chalmers Tubular Services Inc	Allis-Chalmers Energy Inc.	Corpus Christi	TX	Nueces	$2.30	20
Baroid Drilling Inc	Halliburton Co.	La Grange	TX	Fayette	$0.56	10
BJ Services Co.	BJ Services Co	Crowley	LA	Acadia	$11.86	103
BJ Services Co.	BJ Services Co	Cameron	LA	Cameron	$0.12	1
BJ Services Co.	BJ Services Co	Cameron	LA	Cameron	$11.50	100
BJ Services Co.	BJ Services Co	Lafayette	LA	Lafayette	$17.27	150
BJ Services Co.	BJ Services Co	Lafayette	LA	Lafayette	$2.30	20
BJ Services Co.	BJ Services Co	Lafayette	LA	Lafayette	$1.15	10
BJ Services Co.	BJ Services Co	Fourchon	LA	Lafourche		
BJ Services Co.	BJ Services Co	New Orleans	LA	Orleans	$0.92	8
BJ Services Co.	BJ Services Co	Venice	LA	Plaquemines	$0.23	2
BJ Services Co.	BJ Services Co	Berwick	LA	St. Mary		
BJ Services Co.	BJ Services Co	Dulac	LA	Terrebonne		
BJ Services Co.	BJ Services Co	Houma	LA	Terrebonne	$1.38	12
BJ Services Co.	BJ Services Co	Houma	LA	Terrebonne	$23.02	200
BJ Services Co.	BJ Services Co	Freeport	TX	Brazoria		100
BJ Services Co.	BJ Services Co	Port O'Connor	TX	Calhoun		
BJ Services Co.	BJ Services Co	Galveston	TX	Galveston	$0.36	3
BJ Services Co.	BJ Services Co	Sabine Pass	TX	Jefferson		
BJ Services Co.	BJ Services Co	Liberty	TX	Liberty	$3.45	30
BJ Services Co.	BJ Services Co	Harbor Island	TX	Nueces		
BJ Services Co.	BJ Services Co	Victoria	TX	Victoria	$11.51	100
Coil Tubing Services LLC	W-H Energy Services	Broussard	LA	Lafayette		150
Coil Tubing Services LLC	W-H Energy Services	Angleton	TX	Brazoria	$5.76	50
Coil Tubing Services LLC	W-H Energy Services	Dallas	TX	Dallas	$1.75	15
Coil Tubing Services LLC	W-H Energy Services	Alice	TX	Jim Wells	$7.48	65

Table A-16. Locations Offering Workover Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Complete Production Services	Complete Production Services	Houston	TX	Harris		60
Cudd Energy Services	RPC Incorporated	Houma	LA	Terrebonne		
Cudd Energy Services	RPC Incorporated	Corpus Christi	TX	Nueces	$15.00	40
Estis Well Service LLC	Estis Well Service LLC	New Iberia	LA	Iberia	$3.90	40
Expro Americas Inc	Expro International Group Ltd.	Houston	TX	Harris	$10.59	50
Expro Americas LLC	Expro International Group Ltd.	Broussard	LA	Lafayette	$5.99	52
Expro Americas LLC	Expro International Group Ltd.	Mont Belvieu	TX	Chambers		
Expro Americas LLC	Expro International Group Ltd.	Alice	TX	Jim Wells	$0.12	1
Expro Americas LLC	Expro International Group Ltd.	Corpus Christi	TX	Nueces		
Halliburton Energy Services	Halliburton Co.	Lafayette	LA	Lafayette	$10.84	25
Halliburton Energy Services	Halliburton Co.	Freeport	TX	Brazoria		
Halliburton Energy Services	Halliburton Co.	Port O'Connor	TX	Calhoun	$0.69	6
Halliburton Energy Services	Halliburton Co.	Galveston	TX	Galveston		
Halliburton Energy Services	Halliburton Co.	Kilgore	TX	Gregg		
Halliburton Energy Services	Halliburton Co.	Houston	TX	Harris	$4.60	40
Halliburton Energy Services	Halliburton Co.	Midland	TX	Midland	$57.00	500
Halliburton Energy Services	Halliburton Co.	Tyler	TX	Smith	$2.30	20
Halliburton Energy Services	Halliburton Co.	Laredo	TX	Webb	$11.50	100
Hydraulic Well Control	Boots & Coots	Houma	LA	Terrebonne		2
International Snubbing Services, Inc.	Superior Energy Services Inc.	Arnaudville	LA	St. Landry	$11.43	65
Major Equipment & Remediation Services Inc.	Major Equipment & Remediation Services Inc.	Morgan City	LA	St. Martin	$10.28	50
Nabors Offshore Corp	Nabors Industries Ltd	Harvey	LA	Jefferson		
Nabors Offshore Corp	Nabors Industries Ltd	Houston	TX	Harris		40
Petro-Rentals Inc	Allis-Chalmers Energy Inc	Broussard	LA	Lafayette		15
Petro-Rentals Inc	Allis-Chalmers Energy Inc	Houma	LA	Terrebonne	$2.11	12
Pride International Inc.	Pride International, Inc.	Houston	TX	Harris		350

Table A-16. Locations Offering Workover Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Schlumberger Oilfield Services	Schlumberger NV	Larose	LA	Lafourche		
Schlumberger Oilfield Services	Schlumberger NV	Maurice	LA	Vermilion	$25.32	220
Schlumberger Oilfield Services	Schlumberger NV	Houston	TX	Harris	$4.60	40
Schlumberger Technology Corp	Schlumberger NV	Lafayette	LA	Lafayette	$5.76	50
Schlumberger Technology Corp	Schlumberger NV	Youngsville	LA	Lafayette	$11.51	100
Schlumberger Technology Corp	Schlumberger NV	New Orleans	LA	Orleans	$7.25	63
Schlumberger Technology Corp	Schlumberger NV	Belle Chasse	LA	Plaquemines	$2.88	25
Schlumberger Technology Corp	Schlumberger NV	Houma	LA	Terrebonne	$34.53	300
Seahawk Drilling	Pride International, Inc.	Houma	LA	Terrebonne	$180.00	1,250
Spartan Offshore Drilling	Spartan Offshore Drilling LLC	Metairie	LA	Jefferson	$0.73	8
Spartan Offshore Drilling	Spartan Offshore Drilling LLC	Broussard	LA	Lafayette		
Spartan Offshore Drilling	Spartan Offshore Drilling LLC	New Orleans	LA	Orleans		
Spartan Offshore Drilling	Spartan Offshore Drilling LLC	Houston	TX	Harris		
TETRA Technologies Inc.	TETRA Technologies Inc	The Woodlands	TX	Montgomery		150
Thru-Tubing Systems Inc.	Thru-Tubing Systems Inc.	New Iberia	LA	Iberia	$0.51	10
Warrior Energy Services	Superior Energy Services Inc.	New Iberia	LA	Iberia		
Warrior Energy Services	Superior Energy Services Inc.	Lafayette	LA	Lafayette		
Warrior Energy Services	Superior Energy Services Inc.	Broussard	LA	Lafayette		
Warrior Energy Services	Superior Energy Services Inc.	Sibley	LA	South Webster	$1.44	12
Warrior Energy Services	Superior Energy Services Inc.	Houma	LA	Terrebonne		
Warrior Energy Services	Superior Energy Services Inc.	Gray	LA	Terrebonne	$4.60	40
Warrior Energy Services	Superior Energy Services Inc.	Columbus	MS	Lowndes		10
Warrior Energy Services	Superior Energy Services Inc.	Houston	TX	Harris		
Warrior Energy Services	Superior Energy Services Inc.	Corpus Christi	TX	Nueces		
Warrior Energy Services	Superior Energy Services Inc.	Victoria	TX	Victoria		

Table A-16. Locations Offering Workover Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Well Ops Inc.	Helix Energy Solutions Group	Houston	TX	Harris		
Totals					$557.01	5,367

Table A-17

Locations Offering Diving Services in the Gulf of Mexico

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Acergy S.A.		Houston	TX	Harris	$283.00	150
Allseas USA, Inc.	Allseas Group, S.A.	Houston	TX	Harris	$4.10	35
American Inshore Divers		Boca Raton	FL	Palm Beach	$0.10	10
Anders Construction, Inc		Harvey	LA	Jefferson	$0.25	3
Aqueos Corporation		Broussard	LA			
Bisso Marine Co.		New Orleans	LA	Orleans		
Bisso Marine Co.		Houston	TX	Harris		390
CA Richards & Associates, Inc.		Houston	TX	Harris	$0.50	5
Cal Dive International	Helix Energy Solutions Group, Inc.	Port of Iberia	LA	Iberia	$0.07	2
Cal Dive International	Helix Energy Solutions Group, Inc.	Fourchon	LA	Lafourche	$0.05	1
Cal Dive International	Helix Energy Solutions Group, Inc.	New Orleans	LA	Orleans		
Cal Dive International	Helix Energy Solutions Group, Inc.	Houston	TX	Harris	$856.90	100
Cal Dive International	Helix Energy Solutions Group, Inc.	Port Arthur	TX	Jefferson	$2.40	18
Chet Morrison Contractors		Harvey	LA	Jefferson	$0.50	50
Chet Morrison Contractors		Houma	LA	Terrebonne	$5.50	500
Commercial Diving Services Inc.		Mobile	AL	Mobile	$1.00	9
Deep Marine Technology, Inc.		Houston	TX	Harris	$20.00	200
DivCon LLC		Harvey	LA	Jefferson	$0.05	1
DivCon LLC		Morgan City	LA	St. Mary	$1.50	45
Diver Dan Diving Services, Inc.		Groves	TX	Jefferson	$0.08	1
Diver Dan Diving Services, Inc.		Nederland	TX	Jefferson	$0.06	2
Epic Divers & Marine LLC	Tetra Technologies, Inc.	Harvey	LA	Jefferson	$1.53	20
Global Industries Offshore, LLC		Houston	TX	Harris	$23.34	203
Independent Divers, Inc.		New Orleans	LA	Orleans	$1.44	12

Table A-17. Locations Offering Diving Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
In-Depth Offshore Technologies		Baton Rouge	LA	East Baton Rouge	$0.13	2
J&J Diving Corporation		Belle Chasse	LA	Plaquemines	$1.20	40
Legacy Offshore, LLC		Broussard	LA	Lafayette		
Lone Star Diving, Inc		Santa Fe	TX	Galveston	$1.10	24
Lone Star Diving, Inc		Texas City	TX	Galveston	$0.05	1
Louisiana Oilfield Divers, LLC		Belle Chasse	LA	Plaquemines	$10.00	50
MADCON		Pearl River	LA	St. Tammany	$3.90	57
Oceaneering Int'l, Inc.		Panama City	FL	Bay		
Oceaneering Int'l, Inc.		New Iberia	LA	Iberia	$1.73	15
Oceaneering Int'l, Inc.		Lafayette	LA	Lafayette	$0.69	6
Oceaneering Int'l, Inc.		Morgan City	LA	St. Mary	$115.20	800
Oceaneering Int'l, Inc.		Houma	LA	Terrebonne	$7.30	61
Oceaneering Int'l, Inc.		Houston	TX	Harris		
Oceaneering Int'l, Inc.		Humble	TX	Harris	$1.15	10
Phoenix International Holdings, Inc.		Morgan City	LA	St. Mary	$1.91	25
Phoenix International Holdings, Inc.		Houston	TX	Harris	$0.15	2
RVE Inc.		Corpus Christi	TX	Nueces	$3.00	14
S&J Diving, Inc.		Houston	TX	Harris	$14.63	65
S&J Diving, Inc.		Aransas Pass	TX	San Patricio	$14.63	15
Saipem America	Saipem S.p.A.	Houston	TX	Harris	$440.90	192
Saltwater Salvage		Freeport	TX	Brazoria		
Seamar Divers, Inc.		Medley	FL	Miami-Dade	$0.10	2
Seamar Divers, Inc.		Miami	FL	Miami-Dade	$1.53	20
Seamar Divers, Inc.		Robert	LA	Tangipahoa	$0.06	1
Seamar Divers, Inc.		Stafford	TX	Fort Bend	$23.40	65
Seaquest Diving, LLC		Houston	TX	Harris	$0.10	2
Submersible Systems, Inc.		Patterson	LA	St. Mary	$1.30	14
Superior Offshore International LLC		Lafayette	LA	Lafayette	$8.39	70
Superior Offshore International LLC		Broussard	LA	St. Martin	$3.76	50
Superior Offshore International LLC		Houston	TX	Harris		40
T & T Marine Salvage, Inc.		Galveston	TX	Galveston	$1.84	22
Tiburon Divers, Inc.		New Iberia	LA	Iberia		
Tiburon Divers, Inc.		The Woodlands	TX	Montgomery		

Table A-17. Locations Offering Diving Services in the Gulf of Mexico (continued).

Company Name	Parent Company	City	State	County	2007 Revenues (Millions)	2007 Employees
Titan Salvage	Crowley Maritime Corporation	Pompano Beach	FL	Broward	$193.00	30
Triton Diving Services, LLC		Metairie	LA	Jefferson	$8.00	65
U.S. Underwater Services	Neptune Marine Services	Burleson	TX	Johnson	$11.00	50
Totals					$2,072.50	3,567