KIRBY CORP
Form 10-K
February 23, 2017

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

(Mark One)
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2016

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file no. 1-7615

Kirby Corporation
(Exact name of registrant as specified in its charter)

Nevada	74-1884980
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
55 Waugh Drive, Suite 1000 Houston, Texas	77007
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code:
(713) 435-1000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock — $.10 Par Value Per Share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of common stock held by nonaffiliates of the registrant as of June 30, 2016, based on the closing sales price of such stock on the New York Stock Exchange on June 30, 2016, was $3,278,025,000. For purposes of this computation, all executive officers, directors and 10% beneficial owners of the registrant are deemed to be affiliates. Such determination should not be deemed an admission that such executive officers, directors and 10% beneficial owners are affiliates.

As of February 22, 2017, 53,957,000 shares of common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The Company’s definitive proxy statement in connection with the Annual Meeting of Stockholders to be held April 25, 2017, to be filed with the Commission pursuant to Regulation 14A, is incorporated by reference into Part III of this report.

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PART I

Item 1. Business

THE COMPANY

Kirby Corporation (the "Company") is the nation's largest domestic tank barge operator, transporting bulk liquid products throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts, and in Alaska and Hawaii. The Company transports petrochemicals, black oil, refined petroleum products and agricultural chemicals by tank barge. The Company also operates six offshore dry-bulk barges, six offshore tugboats and one docking tugboat transporting dry-bulk commodities in the United States coastal trade. Through its diesel engine services segment, the Company provides after-market services for medium-speed and high-speed diesel engines, reduction gears and ancillary products for marine and power generation applications, distributes and services high-speed diesel engines, transmissions and pumps, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for the land-based oilfield service and oil and gas operator and producer markets.

Unless the context otherwise requires, all references herein to the Company include the Company and its subsidiaries.

The Company's principal executive office is located at 55 Waugh Drive, Suite 1000, Houston, Texas 77007, and its telephone number is (713) 435-1000. The Company's mailing address is P.O. Box 1745, Houston, Texas 77251-1745.

Documents and Information Available on Web Site

The Internet address of the Company's web site is http://www.kirbycorp.com. The Company makes available free of charge through its web site, all of its filings with the Securities and Exchange Commission ("SEC"), including its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as soon as reasonably practicable after they are electronically filed with or furnished to the SEC.

The following documents are available on the Company's web site in the Investor Relations section under Corporate Governance:

Audit Committee Charter

Compensation Committee Charter

Governance Committee Charter

Business Ethics Guidelines

Corporate Governance Guidelines

The Company is required to make prompt disclosure of any amendment to or waiver of any provision of its Business Ethics Guidelines that applies to any director or executive officer or to its chief executive officer, chief financial officer, chief accounting officer or controller or persons performing similar functions. The Company will make any such disclosure that may be necessary by posting the disclosure on its web site in the Investor Relations section under Corporate Governance.

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BUSINESS AND PROPERTY

The Company, through its subsidiaries, conducts operations in two business segments: marine transportation and diesel engine services.

The Company, through its marine transportation segment, is a provider of marine transportation services, operating tank barges and towing vessels transporting bulk liquid products throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts, and in Alaska and Hawaii. The Company transports petrochemicals, black oil, refined petroleum products and agricultural chemicals by tank barge. The Company operates offshore dry-bulk barge and tugboat units engaged in the offshore transportation of dry-bulk cargoes in the United States coastal trade. The segment is a provider of transportation services for its customers and, in almost all cases, does not assume ownership of the products that it transports. All of the Company's vessels operate under the United States flag and are qualified for domestic trade under the Jones Act.

The Company, through its diesel engine services segment, sells genuine replacement parts, provides service mechanics to overhaul and repair medium-speed and high-speed diesel engines, transmissions, reduction gears and pumps, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and manufactures and remanufactures oilfield service equipment, including pressure pumping units. The Company primarily services the marine, power generation and the land-based oilfield service and oil and gas operator and producer markets.

The Company and its marine transportation and diesel engine services segments have approximately 4,000 employees, substantially all of whom are in the United States.

The following table sets forth by segment the revenues, operating profits and identifiable assets attributable to the principal activities of the Company for the years indicated (in thousands):

	2016	2015	2014
Revenues from unaffiliated customers:			
Marine transportation	$1,471,893	$1,663,090	$1,770,684
Diesel engine services	298,780	484,442	795,634
Consolidated revenues	$1,770,673	$2,147,532	$2,566,318
Operating profits:			
Marine transportation	$257,102	$374,842	$429,864
Diesel engine services	3,186	18,921	60,063
General corporate expenses	(14,966)	(14,773)	(14,896)
Gain (loss) on disposition of assets	(127)	1,672	781
	245,195	380,662	475,812
Equity in earnings of affiliates	532	451	384
Other expense	(291)	(663)	(345)
Interest expense	(17,690)	(18,738)	(21,461)
Earnings before taxes on income	$227,746	$361,712	$454,390
Identifiable assets:			
Marine transportation	$3,622,348	$3,451,553	$3,317,696
Diesel engine services	628,290	637,549	736,129
	4,250,638	4,089,102	4,053,825
Investment in affiliates	2,622	2,090	2,539
General corporate assets	50,239	61,089	81,250
Consolidated assets	$4,303,499	$4,152,281	$4,137,614

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MARINE TRANSPORTATION

The marine transportation segment is primarily a provider of transportation services by tank barge for the inland and coastal markets. As of February 22, 2017, the equipment owned or operated by the marine transportation segment consisted of 876 inland tank barges with 17.9 million barrels of capacity, 230 inland towboats, 69 coastal tank barges with 6.2 million barrels of capacity, 75 coastal tugboats, six offshore dry-bulk cargo barges, six offshore tugboats and one docking tugboat with the following specifications and capacities:

Class of equipment	Number in class	Average age (in years)	Barrel capacities
Inland tank barges (owned and leased):			
Regular double hull:			
20,000 barrels and under	362	13.4	4,128,000
Over 20,000 barrels	454	12.8	12,841,000
Specialty double hull	60	38.9	910,000
Total inland tank barges	876	14.9	17,879,000
Inland towboats (owned and chartered):			
800 to 1300 horsepower	71	39.1	
1400 to 1900 horsepower	72	34.0	
2000 to 2400 horsepower	56	12.1	
2500 to 3200 horsepower	18	34.3	
3300 to 4800 horsepower	10	36.8	
Greater than 5000 horsepower	1	36.0	
Spot charters (chartered trip to trip)	2		
Total inland towboats	230	30.5	
Coastal tank barges (owned and leased):			
Double hull:			
30,000 barrels and under	8	20.2	190,000
50,000 to 70,000 barrels	13	15.5	654,000
80,000 to 90,000 barrels	24	13.2	1,984,000
100,000 to 110,000 barrels	6	10.5	630,000
120,000 to 150,000 barrels	9	19.5	1,132,000
Over 150,000 barrels	9	17.7	1,566,000
Total coastal tank barges	69	15.6	6,156,000
Coastal tugboats (owned and chartered):			
1000 to 1900 horsepower	8	31.1	
2000 to 2900 horsepower	6	33.2	
3000 to 3900 horsepower	17	35.8	
4000 to 4900 horsepower	19	24.5	
5000 to 6900 horsepower	13	25.5	
Greater than 7000 horsepower	12	19.9	
Total coastal tugboats	75	27.9	

			Deadweight Tonnage
Offshore dry-bulk cargo barges (owned)	6	22.9	111,000

Offshore tugboats and docking tugboat (owned and chartered)	7	30.5

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The 230 inland towboats, 75 coastal tugboats, six offshore tugboats and one docking tugboat provide the power source and the 876 inland tank barges, 69 coastal tank barges and six offshore dry-bulk cargo barges provide the freight capacity for the marine transportation segment. When the power source and freight capacity are combined, the unit is called a tow. The Company's inland tows generally consist of one towboat and from one to 25 tank barges, depending upon the horsepower of the towboat, the river or canal capacity and conditions, and customer requirements. The Company's coastal and offshore tows primarily consist of one tugboat and one tank barge or dry-bulk cargo barge.

Marine Transportation Industry Fundamentals

The United States inland waterway system, composed of a network of interconnected rivers and canals that serve the nation as water highways, is one of the world's most efficient transportation systems. The nation's inland waterways are vital to the United States distribution system, with over 1.1 billion short tons of cargo moved annually on United States shallow draft waterways. The inland waterway system extends approximately 26,000 miles, 12,000 miles of which are generally considered significant for domestic commerce, through 38 states, with 635 shallow draft ports. These navigable inland waterways link the United States heartland to the world.

The United States coastal system consists of ports along the Atlantic, Gulf and Pacific coasts, as well as ports in Alaska, Hawaii and on the Great Lakes. Like the inland waterways, the coastal trade is vital to the United States distribution system, particularly the regional distribution of refined petroleum products from refineries and storage facilities to a variety of destinations, including other refineries, distribution terminals, power plants and ships. In addition to distribution directly from refineries and storage facilities, coastal tank barges are used frequently to distribute products from pipelines. Many coastal markets receive refined petroleum products principally from coastal tank barges. Smaller volumes of petrochemicals are distributed from Gulf Coast plants to end users and black oil, including crude oil and natural gas condensate, is distributed regionally from refineries and terminals along the United States coast to refineries, power plants and distribution terminals.

Based on cost and safety, barge transportation is often the most efficient and safest means of transporting bulk commodities when compared with railroads and trucks. The cargo capacity of a 27,500 barrel inland tank barge is the equivalent of 46 railroad tank cars or 144 tractor-trailer tank trucks. A typical Company lower Mississippi River linehaul tow of 15 barges has the carrying capacity of approximately 216 railroad tank cars plus six locomotives, or approximately 1,050 tractor-trailer tank trucks. The Company's inland tank barge fleet capacity of 17.9 million barrels equates to approximately 30,000 railroad tank cars or approximately 93,600 tractor-trailer tank trucks. Furthermore, barging is much more energy efficient. One ton of bulk product can be carried 616 miles by inland barge on one gallon of fuel, compared with 478 miles by railcar or 150 miles by truck. In the coastal trade, the carrying capacity of a 100,000 barrel tank barge is the equivalent of approximately 165 railroad tank cars or approximately 525 tractor-trailer tank trucks. The Company's coastal tank barge fleet capacity of 6.2 million barrels equates to approximately 10,200 railroad tank cars or approximately 32,300 tractor-trailer tank trucks.

Tank barge transportation is safer than most modes of transportation in the United States. Marine transportation generally involves less urban exposure than railroad or truck transportation and operates on a system with few crossing junctures and in areas relatively remote from population centers. These factors generally reduce both the number and impact of waterway incidents.

Inland Tank Barge Industry

The Company operates within the United States inland tank barge industry, a diverse and independent mixture of large integrated transportation companies and small operators, as well as captive fleets owned by United States refining and petrochemical companies. The inland tank barge industry provides marine transportation of bulk liquid cargoes for customers and, in the case of captives, for their own account, throughout the Mississippi River and its tributaries and on the Gulf Intracoastal Waterway. The most significant markets in this industry include the transportation of

petrochemicals, black oil, refined petroleum products and agricultural chemicals. The Company operates in each of these markets. The use of marine transportation by the petroleum and petrochemical industry is a major reason for the location of United States refineries and petrochemical facilities on navigable inland waterways. Texas and Louisiana currently account for approximately 80% of the United States production of petrochemicals. Much of the United States farm belt is likewise situated with access to the inland waterway system, relying on marine transportation of farm products, including agricultural chemicals. The Company's principal distribution system encompasses the Gulf Intracoastal Waterway from Brownsville, Texas, to Port St. Joe, Florida, the Mississippi River System and the Houston Ship Channel. The Mississippi River System includes the Arkansas, Illinois, Missouri, Ohio, Red, Tennessee, Yazoo, Ouachita and Black Warrior Rivers and the Tennessee-Tombigbee Waterway.

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The number of tank barges that operate on the inland waterways of the United States declined from an estimated 4,200 in 1982 to 2,900 in 1993, remained relatively constant at 2,900 until 2002, decreased to 2,750 from 2002 through 2006, and then increased over the years to approximately 3,850 by the end of 2016. The Company believes the decrease from 4,200 in 1982 to 2,750 in 2006 primarily resulted from: the increasing age of the domestic tank barge fleet, resulting in scrapping; rates inadequate to justify new construction; a reduction in tax incentives, which previously encouraged speculative construction of new equipment; stringent operating standards to adequately cope with safety and environmental risk; the elimination of government regulations and programs supporting the many new small refineries and a proliferation of oil traders which created a strong demand for tank barge services; an increase in the average capacity per barge; and an increase in environmental regulations that mandate expensive equipment modification, which some owners were unwilling or unable to undertake given capital constraints and the age of their fleets. The cost of tank barge hull work for required periodic United States Coast Guard ("USCG") certifications, as well as general safety and environmental concerns, force operators to periodically reassess their ability to recover maintenance costs. The increase from 2,750 in 2006 to approximately 3,850 by the end of 2016 primarily resulted from increased barge construction and deferred retirements due to strong demand and resulting capacity shortages. The Company's 876 inland tank barges represent approximately 23% of the industry's 3,850 inland tank barges.

For 2014, the Company estimated that industry-wide 300 tank barges were placed in service and 100 tank barges were retired. For 2015, the Company estimated that industry-wide 260 tank barges were placed in service and 60 tank barges were retired. For 2016, the Company estimated that industry-wide 100 tank barges were placed in service and 100 tank barges were retired. During 2015 and 2016, the decline in industry-wide demand for the movement of crude oil and natural gas condensate, and the subsequent transfer of inland crude oil barges to other tank barge markets, created some excess industry-wide tank barge capacity. As a result, the Company estimates that approximately 40 tank barges were ordered during 2016 for delivery throughout 2017 and many older tank barges will be retired, dependent on 2017 market conditions. The risk of an oversupply of tank barges may be mitigated by continued increased petrochemical, black oil and refined petroleum products volumes and the fact that the inland tank barge industry has a mature fleet, with approximately 600 tank barges over 30 years old and approximately 270 of those over 40 years old, which may lead to retirement of older tank barges.

The average age of the nation's inland tank barge fleet is approximately 15 years. Neither the Company, nor the industry, operates any single hull inland tank barges. Single hull tank barges were required by current federal law to either be retrofitted with double hulls or phased out of domestic service by December 31, 2014.

The Company's inland marine transportation segment also owns a shifting operation and fleeting facility for dry cargo barges and tank barges on the Houston Ship Channel and owns a two-thirds interest in Osprey Line, L.L.C. ("Osprey"), a transporter of project cargoes and cargo containers by barge on the United States inland waterway system.

Coastal Tank Barge Industry

The Company also operates in the United States coastal tank barge industry, operating tank barges in the 195,000 barrel or less category. This market is composed of approximately 15 large integrated transportation companies and small operators. The 195,000 barrel or less category coastal tank barge industry primarily provides regional marine transportation distribution of bulk liquid cargoes along the United States' Atlantic, Gulf and Pacific coasts, in Alaska and Hawaii and, to a lesser extent, on the Great Lakes. Products transported are primarily refined petroleum products and black oil from refineries and storage facilities to a variety of destinations, including other refineries, distribution terminals, power plants and ships, the regional movement of crude oil and natural gas condensate to Gulf Coast, Northeast and West Coast refineries, and the movement of petrochemicals primarily from Gulf Coast petrochemical facilities to end users.

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The number of coastal tank barges that operate in the 195,000 barrel or less category is approximately 295, of which the Company operates 69 or approximately 23%. The average age of the nation's coastal tank barge fleet is approximately 14 years. The coastal tank barge fleet is also mature, with approximately 35 tank barges over 30 years old and approximately 30 of those over 35 years old, which may lead to the retirement of older tank barges.

Competition in the Tank Barge Industry

The tank barge industry remains very competitive. Competition in this business has historically been based primarily on price; however, most of the industry's customers, through an increased emphasis on safety, the environment, quality and a trend toward a "single source" supply of services, are more frequently requiring that their supplier of tank barge services have the capability to handle a variety of tank barge requirements. These requirements include distribution capability throughout the inland waterway system and coastal markets, with high levels of flexibility, safety, environmental responsibility and financial responsibility, as well as adequate insurance and high quality of service consistent with the customer's own operational standards.

In the inland markets, the Company's direct competitors are primarily noncaptive inland tank barge operators. "Captive" fleets are owned by major oil and petrochemical companies which occasionally compete in the inland tank barge market, but primarily transport cargoes for their own account. The Company is the largest inland tank barge carrier, both in terms of number of barges and total fleet barrel capacity. The Company's inland tank barge fleet has grown from 71 tank barges in 1988 to 876 tank barges as of February 22, 2017, or approximately 23% of the estimated total number of domestic inland tank barges.

In the coastal markets, the Company's direct competitors are the operators of United States tank barges in the 195,000 barrels or less category. Coastal tank barges in the 195,000 barrels or less category have the ability to enter the large majority of coastal ports. Ocean-going tank barges and United States product tankers in the 300,000 barrels plus category, excluding the fleet of large tankers dedicated to Alaska crude oil transportation, primarily move large volumes of refined petroleum products within the Gulf of Mexico with occasional movements from the Gulf Coast to the East Coast, along the West Coast and from Texas and Louisiana to Florida. There are approximately 60 such vessels and, because of their size, their access to ports is limited by terminal size and draft restrictions.

While the Company competes primarily with other tank barge companies, it also competes with companies who operate refined product and petrochemical pipelines, railroad tank cars and tractor-trailer tank trucks. As noted above, the Company believes that both inland and coastal marine transportation of bulk liquid products enjoy a substantial cost advantage over railroad and truck transportation. The Company believes that refined product and crude oil pipelines, although often a less expensive form of transportation than inland and coastal tank barges, are not as adaptable to diverse products and are generally limited to fixed point-to-point distribution of commodities in high volumes over extended periods of time.

Products Transported

The Company transports petrochemicals, black oil, refined petroleum products and agricultural chemicals by tank barge throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts and in Alaska and Hawaii. During 2016, the Company's inland marine transportation operation moved over 45 million tons of liquid cargo on the United States inland waterway system.

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Petrochemicals. Bulk liquid petrochemicals transported include such products as benzene, styrene, methanol, acrylonitrile, xylene, naphtha and caustic soda, all consumed in the production of paper, fiber and plastics. Pressurized products, including butadiene, isobutane, propylene, butane and propane, all requiring pressurized conditions to remain in stable liquid form, are transported in pressure barges. The transportation of petrochemical products represented 49% of the segment's 2016 revenues. Customers shipping these products are petrochemical and refining companies.

Black Oil. Black oil transported includes such products as residual fuel oil, No. 6 fuel oil, coker feedstock, vacuum gas oil, asphalt, carbon black feedstock, crude oil, natural gas condensate and ship bunkers (engine fuel). Such products represented 25% of the segment's 2016 revenues. Black oil customers are refining companies, marketers and end users that require the transportation of black oil between refineries and storage terminals, to refineries and to power plants. Ship bunker customers are oil companies and oil traders in the bunkering business.

Refined Petroleum Products. Refined petroleum products transported include the various blends of finished gasoline, gasoline blendstocks, jet fuel, No. 2 oil, heating oil and diesel fuel, and represented 23% of the segment's 2016 revenues. The Company also classifies ethanol in the refined petroleum products category. Customers are oil and refining companies, marketers and ethanol producers.

Agricultural Chemicals. Agricultural chemicals transported represented 3% of the segment's 2016 revenues. Agricultural chemicals include anhydrous ammonia and nitrogen-based liquid fertilizer, as well as industrial ammonia. Agricultural chemical customers consist mainly of domestic and foreign producers of such products.

Demand Drivers in the Tank Barge Industry

Demand for tank barge transportation services is driven by the production volumes of the bulk liquid commodities transported by barge. Marine transportation demand for the segment's four primary commodity groups, petrochemicals, black oil, refined petroleum products and agricultural chemicals, is based on differing circumstances. While the demand drivers of each commodity are different, the Company has the flexibility in certain cases of re-allocating inland equipment and coastal equipment between the petrochemical, refined petroleum products and crude oil markets as needed.

Bulk petrochemical volumes have historically tracked the general domestic economy and correlate to the United States Gross Domestic Product. The United States petrochemical industry continues to see strong production levels for both domestic consumption and exports. Low priced domestic natural gas, a basic feedstock for the United States petrochemical industry, has provided the industry with a competitive advantage against foreign petrochemical producers. As a result, United States petrochemical production has remained stable during 2016, 2015 and 2014, thereby producing increased marine transportation volumes of basic petrochemicals to both domestic consumers and terminals for export destinations. Petrochemical products are used primarily in consumer non-durable and durable goods. From late 2010 through 2015, inland petrochemical tank barge utilization remained relatively stable in the 90% to 95% range. During 2016, utilization declined slightly to the high 80% range on average with periods of utilization in the low 80% range. Coastal tank barge utilization for the transportation of petrochemicals during 2016 was in the low 90% range.

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The demand for black oil, including ship bunkers, varies by type of product transported. Demand for transportation of residual oil, a heavy by-product of refining operations, varies with refinery utilization and usage of feedstocks. During the majority of 2015 and all of 2014, inland black oil tank barge utilization remained strong, in the 90% to 95% range, due to strong demand driven by steady refinery production levels from major customers, and the export of diesel fuel and heavy fuel oil. With the decline in the price of crude oil in late 2014 and the low price throughout 2015 and 2016, movements by tank barge of crude oil and natural gas condensate were at reduced levels industry-wide. During 2015 and 2016, the Company and the industry were generally successful in moving barges from that trade to other markets. During 2016, the Company continued to transport crude oil and natural gas condensate produced from the Eagle Ford and Permian Basin shale formations in Texas both along the Gulf Intracoastal Waterway with inland vessels and in the Gulf of Mexico with coastal equipment, and continued to transport Utica crude oil and natural gas condensate downriver from the Mid-Atlantic to the Gulf Coast, however, at reduced levels. The decline in demand for crude oil and natural gas condensate movements resulted in a decline in inland black oil tank barge utilization in 2016 to the low-to-mid 80% range. Coastal black oil tank barge utilization declined from the 90% to 95% range for the majority of 2015 and all of 2014 to the low 80% range by the end of 2016, partly attributable to the decrease in the movements of crude oil and natural gas condensate along the Gulf Coast. Inland and coastal asphalt shipments are generally seasonal, with higher volumes shipped during April through November, months when weather allows for efficient road construction. The seasonally normal cessation of most operations in Alaska in the 2016 fourth quarter reduced coastal tank barge utilization, but the decline was partially offset by seasonal improvement in winter heating oil demand in the Northeast.

Refined petroleum product volumes are driven by United States gasoline and diesel fuel consumption, principally vehicle usage, air travel and weather conditions. Volumes can also relate to gasoline inventory imbalances within the United States. Generally, gasoline and No. 2 oil are exported from the Gulf Coast where refining capacity exceeds demand. The Midwest is a net importer of such products. Volumes were also driven by diesel fuel transported to terminals along the Gulf Coast for export to South America. Ethanol, produced in the Midwest, is moved from the Midwest to Gulf Coast customers. In the coastal trade, tank barges are frequently used regionally to transport refined petroleum products from a coastal refinery or terminals served by pipelines to the end markets. Many coastal areas have access to refined petroleum products only by using marine transportation as the last link in the distribution chain. Coastal refined petroleum products tank barge utilization declined from the 90% to 95% range for the majority of 2015 to the low-to-mid 80% range for the majority of 2016.

Demand for marine transportation of domestic and imported agricultural fertilizer is seasonal and directly related to domestic nitrogen-based liquid fertilizer consumption, driven by the production of corn, cotton and wheat. During periods of high natural gas prices, the manufacturing of nitrogen-based liquid fertilizer in the United States is curtailed. During these periods, imported products, which normally involve longer barge trips, replace the domestic products to meet Midwest and south Texas demands. Such products are delivered to the numerous small terminals and distributors throughout the United States farm belt.

Marine Transportation Operations

The marine transportation segment operates a fleet of 876 inland tank barges and 230 inland towboats, as well as 69 coastal tank barges and 75 coastal tugboats. The segment also operates six offshore dry-bulk cargo barges, six offshore tugboats and one docking tugboat transporting dry-bulk commodities in United States coastal trade.

Inland Operations. The segment’s inland operations are conducted through a wholly owned subsidiary, Kirby Inland Marine, LP (“Kirby Inland Marine”). Kirby Inland Marine’s operations consist of the Canal, Linehaul and River fleets, as well as barge fleeting services.

The Canal fleet transports petrochemical feedstocks, processed chemicals, pressurized products, black oil, and refined petroleum products along the Gulf Intracoastal Waterway, the Mississippi River below Baton Rouge, Louisiana, and

the Houston Ship Channel. Petrochemical feedstocks and certain pressurized products are transported from one plant to another plant for further processing. Processed chemicals and certain pressurized products are moved to waterfront terminals and chemical plants. Black oil is transported to waterfront terminals and products such as No. 6 fuel oil are transported directly to the end users. Refined petroleum products are transported to waterfront terminals along the Gulf Intracoastal Waterway for distribution.

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The Linehaul fleet transports petrochemical feedstocks, chemicals, agricultural chemicals and lube oils along the Gulf Intracoastal Waterway, Mississippi River and the Illinois and Ohio Rivers. Loaded tank barges are staged in the Baton Rouge area from Gulf Coast refineries and petrochemical plants, and are transported from Baton Rouge to waterfront terminals and plants on the Mississippi, Illinois and Ohio Rivers, and along the Gulf Intracoastal Waterway, on regularly scheduled linehaul tows. Barges are dropped off and picked up going up and down river.

The River fleet transports petrochemical feedstocks, chemicals, refined petroleum products, agricultural chemicals and black oil along the Mississippi River System above Baton Rouge. The River fleet operates unit tows, where a towboat and generally a dedicated group of barges operate on consecutive voyages between loading and discharge points. Petrochemical feedstocks and processed chemicals are transported to waterfront petrochemical and chemical plants, while black oil, refined petroleum products and agricultural chemicals are transported to waterfront terminals.

The inland transportation of petrochemical feedstocks, chemicals and pressurized products is generally consistent throughout the year. Transportation of refined petroleum products, certain black oil and agricultural chemicals is generally more seasonal. Movements of black oil, such as asphalt, generally increase in the spring through fall months. Movements of refined petroleum products, such as gasoline blends, generally increase during the summer driving season, while heating oil movements generally increase during the winter months. Movements of agricultural chemicals generally increase during the spring and fall planting seasons.

The marine transportation inland operation moves and handles a broad range of sophisticated cargoes. To meet the specific requirements of the cargoes transported, the inland tank barges may be equipped with self-contained heating systems, high-capacity pumps, pressurized tanks, refrigeration units, stainless steel tanks, aluminum tanks or specialty coated tanks. Of the 876 inland tank barges currently operated, 687 are petrochemical and refined petroleum products barges, 120 are black oil barges, 54 are pressure barges, 10 are refrigerated anhydrous ammonia barges and five are specialty barges. Of the 876 inland tank barges, 842 are owned by the Company and 34 are leased.

The fleet of 230 inland towboats ranges from 800 to 5200 horsepower. Of the 230 inland towboats, 161 are owned by the Company and 69 are chartered. Towboats in the 800 to 2100 horsepower classes provide power for barges used by the Canal and Linehaul fleets on the Gulf Intracoastal Waterway and the Houston Ship Channel. Towboats in the 1400 to 3200 horsepower classes provide power for both the River and Linehaul fleets on the Gulf Intracoastal Waterway and the Mississippi River System. Towboats above 3600 horsepower are typically used on the Mississippi River System to move River fleet unit tows and provide Linehaul fleet towing. Based on the capabilities of the individual towboats used in the Mississippi River System, the tows range in size from 10,000 to 30,000 tons.

Marine transportation services for inland movements are conducted under long-term contracts, typically ranging from one to five years, some of which have renewal options, with customers with whom the Company has traditionally had long-standing relationships, as well as under spot contracts. During the first nine months of 2016 and all of 2015 and 2014, approximately 80% of the inland marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2016 fourth quarter, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues.

All of the Company’s inland tank barges used in the transportation of bulk liquid products are of double hull construction and, where applicable, are capable of controlling vapor emissions during loading and discharging operations in compliance with occupational health and safety regulations and air quality regulations.

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The Company is one of the few inland tank barge operators with the ability to offer to its customers' distribution capabilities throughout the Mississippi River System and the Gulf Intracoastal Waterway. Such distribution capabilities offer economies of scale resulting from the ability to match tank barges, towboats, products and destinations more efficiently.

Through the Company's proprietary vessel management computer system, the fleet of barges and towboats is dispatched from a centralized dispatch at the corporate office. The towboats are equipped with satellite positioning and communication systems that automatically transmit the location of the towboat to the Company's customer service department located in its corporate office. Electronic orders are communicated to the vessel personnel with reports of towing activities communicated electronically back to the customer service department. The electronic interface between the customer service department and the vessel personnel enables more effective matching of customer needs to barge capabilities, thereby maximizing utilization of the tank barge and towboat fleet. The Company's customers are able to access information concerning the movement of their cargoes, including barge locations, through the Company's web site.

Kirby Inland Marine operates the largest commercial tank barge fleeting service (temporary barge storage facilities) in numerous ports, including Houston, Corpus Christi and Freeport, Texas, Baton Rouge and New Orleans, Louisiana and other locations on the Mississippi River. Included in the fleeting service is a shifting operation and fleeting service for dry cargo barges and tank barges on the Houston Ship Channel. Kirby Inland Marine provides service for its own barges, as well as outside customers, transferring barges within the areas noted, as well as fleeting barges.

Kirby Inland Marine also provides shore-based barge tankerman to the Company and third parties. Services to the Company and third parties cover the Gulf Coast, mid-Mississippi Valley, and the Ohio River Valley.

The Company owns a two-thirds interest in Osprey, which transports project cargoes and cargo containers by barge on the United States inland waterway system.

Coastal Operations. The segment's coastal operations are conducted through wholly owned subsidiaries, Kirby Offshore Marine, LLC ("Kirby Offshore Marine") and Kirby Ocean Transport Company ("Kirby Ocean Transport").

Kirby Offshore Marine provides marine transportation of refined petroleum products, petrochemicals and black oil in coastal regions of the United States. The coastal operations consist of the Atlantic and Pacific Divisions.

The Atlantic Division primarily operates along the eastern seaboard of the United States and along the Gulf Coast. The Atlantic Division vessels call on coastal states from Maine to Texas, servicing refineries, storage terminals and power plants. The Atlantic Division also operates equipment, to a lesser extent, in the Eastern Canadian provinces. The tank barges and tugboats operating in the Atlantic Division are among the largest, with tank barges in the 10,000 to 194,000 barrel capacity range and coastal tugboats in the 1800 to 10000 horsepower range, transporting primarily refined petroleum products, petrochemicals and black oil.

The Pacific Division primarily operates along the Pacific Coast of the United States, servicing refineries and storage terminals from Southern California to Washington State, throughout Alaska, including Dutch Harbor, Cook Inlet and the Alaska River Systems, and from California to Hawaii. The Pacific Division's fleet consists of tank barges in the 26,000 to 194,000 barrel capacity range and tugboats in the 2000 to 11000 horsepower range, transporting primarily refined petroleum products.

The Pacific Division also services local petroleum retailers and oil companies distributing refined petroleum products and black oil between the Hawaiian Islands and provides other services to the local maritime community. The Hawaii fleet consists of tank barges in the 53,000 to 86,000 barrel capacity range and tugboats in the 1000 to 5000 horsepower range, transporting refined petroleum products for local and regional customers, black oil to power

generation customers and delivering bunker fuel to ships. The Hawaii fleet also provides service docking, standby tug assistance and line handling to vessels using the Single Point Mooring installation at Barbers Point, Oahu, a facility for large tankers to safely load and discharge their cargos through an offshore buoy and submerged pipeline without entering the port.

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The coastal transportation of refined petroleum products and black oil is impacted by seasonality, partially dependent on the area of operations. Operations along the West Coast and in Alaska have been subject to more seasonal variations in demand than the operations along the East Coast and Gulf Coast regions. Seasonality generally does not impact the Hawaiian market. Movements of refined petroleum products such as various blends of gasoline are strongest during the summer driving season while heating oil generally increases during the winter months.

The coastal fleet consists of 69 tank barges with 6.2 million barrels of capacity, primarily transporting refined petroleum products, black oil and petrochemicals. Of the 69 coastal tank barges currently operating, 48 are refined petroleum products and petrochemical barges and 21 are black oil barges. The Company owns 62 of the coastal tank barges and seven are leased. The Company operates 75 coastal tugboats ranging from 1000 to 11000 horsepower, of which 67 are owned by the Company and eight are chartered.

Coastal marine transportation services are conducted under long-term contracts, primarily one year or longer, some of which have renewal options, for customers with which the Company has traditionally had long-standing relationships, as well as under spot contracts. During 2016 and the 2015 third and fourth quarters, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were spot contract revenues compared with approximately 85% under term contracts and 15% under spot contract during 2014 and the 2015 first and second quarters.

Kirby Offshore Marine also operates a fleet of three offshore dry-bulk barge and tugboat units involved in the transportation of sugar and other dry products between Florida and East Coast ports. These vessels primarily operate under contracts of affreightment that are typically one year or less in length.

Kirby Ocean Transport owns and operates a fleet of three offshore dry-bulk barges, three offshore tugboats and one docking tugboat. Kirby Ocean Transport operates primarily under term contracts of affreightment, including a contract that expires in 2020 with Duke Energy Florida (“DEF”) to transport coal across the Gulf of Mexico to DEF’s power generation facility at Crystal River, Florida.

Kirby Ocean Transport is also engaged in the transportation of coal, fertilizer, sugar and other bulk cargoes on a short-term basis between domestic ports and occasionally the transportation of grain from domestic ports to ports primarily in the Caribbean Basin.

Contracts and Customers

Marine transportation inland and coastal services are conducted under term contracts, typically ranging from one to five years, some of which have renewal options, for customers with whom the Company has traditionally had long-standing relationships, as well as under spot contracts. The majority of the marine transportation contracts with its customers are for terms of one year. Most have been customers of the Company’s marine transportation segment for many years and management anticipates continued relationships; however, there is no assurance that any individual contract will be renewed.

A term contract is an agreement with a specific customer to transport cargo from a designated origin to a designated destination at a set rate (affreightment) or at a daily rate (time charter). The rate may or may not escalate during the term of the contract; however, the base rate generally remains constant and contracts often include escalation provisions to recover changes in specific costs such as fuel. Time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented approximately 52% of the marine transportation’s inland revenues under term contracts during 2016, 55% of revenue under term contracts during 2015 and 56% of the revenue under term contracts during 2014. A spot contract is an agreement with a customer to move cargo from a specific origin to a designated destination for a rate negotiated at the time the cargo movement takes place. Spot contract rates are at the current “market” rate and are subject to market volatility. The

Company typically maintains a higher mix of term contracts to spot contracts to provide the Company with a more predictable revenue stream while maintaining spot market exposure to take advantage of new business opportunities and existing customers' peak demands. During the first nine months of 2016 and all of 2015 and 2014, approximately 80% of the inland marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2016 fourth quarter, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues. Coastal time charters represented approximately 85% of the marine transportation coastal revenues under term contracts in 2016 as compared to 90% in 2015 and 2014.

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No single customer of the marine transportation segment accounted for 10% of the Company's revenues in 2016, 2015 and 2014.

Employees

The Company's marine transportation segment has approximately 3,100 employees, of which approximately 2,400 are vessel crew members. None of the segment's inland operations are subject to collective bargaining agreements. The segment's coastal operation includes approximately 925 vessel employees some of which are subject to collective bargaining agreements in certain geographic areas. Approximately 370 Kirby Offshore Marine vessel crew members employed in the Atlantic Division are subject to a collective bargaining agreement with the Richmond Terrace Bargaining Unit that expired on December 31, 2016. This collective bargaining agreement was extended to January 31, 2017 and is currently subject to ongoing negotiations. In addition, approximately 175 Penn Maritime, Inc. vessel crew members are represented by the Seafarers International Union under a collective bargaining agreement in effect through April 2018.

Properties

The principal office of Kirby Inland Marine, Kirby Offshore Marine, Kirby Ocean Transport and Osprey is located in Houston, Texas, in the Company's facilities under a lease that expires in December 2025. Kirby Inland Marine's operating locations are on the Mississippi River at Baton Rouge and New Orleans, Louisiana, and Greenville, Mississippi, two locations in Houston, Texas, on and near the Houston Ship Channel, one in Miami, Florida, and one in Corpus Christi, Texas. The New Orleans and Houston facilities are owned by the Company, and the Baton Rouge, Greenville, Miami and Corpus Christi facilities are leased. Kirby Offshore Marine's operating facilities are located in Staten Island, New York, Seattle, Washington and Honolulu, Hawaii. All of Kirby Offshore Marine's operating facilities are leased, including pier and wharf facilities and office and warehouse space.

Governmental Regulations

General. The Company's marine transportation operations are subject to regulation by the USCG, federal laws, state laws and certain international conventions.

Most of the Company's tank barges are inspected by the USCG and carry certificates of inspection. The Company's inland and coastal towing vessels and coastal dry-bulk barges are not currently subject to USCG inspection requirements; however, federal regulations have been finalized that lay out new compliance options as well as new equipment, construction and operational requirements for towing vessels subjecting inland and coastal towing vessels to USCG inspection requirements. These regulations became effective July 20, 2016 and provide for the phase-in of certain requirements over time. Existing towing vessels have until July 20, 2018 to meet most of the requirements of the regulations, with additional timing for other portions of the regulations.

Most of the Company's coastal tugboats and coastal tank and dry-bulk barges are built to American Bureau of Shipping ("ABS") classification standards and are inspected periodically by ABS to maintain the vessels in class. The crews employed by the Company aboard vessels, including captains, pilots, engineers, tankermen and ordinary seamen, are licensed by the USCG.

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The Company is required by various governmental agencies to obtain licenses, certificates and permits for its vessels depending upon such factors as the cargo transported, the waters in which the vessels operate and other factors. The Company is of the opinion that the Company's vessels have obtained and can maintain all required licenses, certificates and permits required by such governmental agencies for the foreseeable future.

The Company believes that additional security and environmental related regulations could be imposed on the marine industry in the form of contingency planning requirements. Generally, the Company endorses the anticipated additional regulations and believes it is currently operating to standards at least equal to anticipated additional regulations.

Jones Act. The Jones Act is a federal cabotage law that restricts domestic marine transportation in the United States to vessels built and registered in the United States, manned by United States citizens, and owned and operated by United States citizens. For a corporation to qualify as United States citizens for the purpose of domestic trade, it is to be 75% owned and controlled by United States citizens. The Company monitors citizenship and meets the requirements of the Jones Act for its vessels.

Compliance with United States ownership requirements of the Jones Act is important to the operations of the Company, and the loss of Jones Act status could have a material negative effect on the Company. The Company monitors the citizenship of its employees and stockholders.

User Taxes. Federal legislation requires that inland marine transportation companies pay a user tax based on propulsion fuel used by vessels engaged in trade along the inland waterways that are maintained by the United States Army Corps of Engineers. Such user taxes are designed to help defray the costs associated with replacing major components of the inland waterway system, such as locks and dams. A significant portion of the inland waterways on which the Company's vessels operate is maintained by the Army Corps of Engineers.

The Company presently pays a federal fuel user tax of 29.1 cents per gallon consisting of a .1 cent per gallon leaking underground storage tank tax and 29 cents per gallon waterways user tax. The waterways user tax rate increased from 20 to 29 cents per gallon of fuel effective April 1, 2015.

Security Requirements. The Maritime Transportation Security Act of 2002 requires, among other things, submission to and approval by the USCG of vessel and waterfront facility security plans ("VSP" and "FSP", respectively). The Company's VSP and FSP have been approved and the Company is operating in compliance with the plans for all of its vessels and facilities that are subject to the requirements.

Environmental Regulations

The Company's operations are affected by various regulations and legislation enacted for protection of the environment by the United States government, as well as many coastal and inland waterway states and international jurisdictions to the extent that the Company's vessels transit in international waters. Government regulations require the Company to obtain permits, licenses and certificates for the operation of its vessels. Failure to maintain necessary permits or approvals could require the Company to incur costs or temporarily suspend operation of one or more of its vessels.

Water Pollution Regulations. The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977 ("Clean Water Act"), the Comprehensive Environmental Response, Compensation and Liability Act of 1981 ("CERCLA") and the Oil Pollution Act of 1990 ("OPA") impose strict prohibitions against the discharge of oil and its derivatives or hazardous substances into the navigable waters of the United States. These acts impose civil and criminal penalties for any prohibited discharges and impose substantial strict liability for cleanup of these discharges and any associated damages. Certain states also have water pollution laws that prohibit discharges into waters that

traverse the state or adjoin the state, and impose civil and criminal penalties and liabilities similar in nature to those imposed under federal laws.

The OPA and various state laws of similar intent substantially increased over historic levels the statutory liability of owners and operators of vessels for oil spills, both in terms of limit of liability and scope of damages.

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One of the most important requirements under the OPA was that all newly constructed tank barges engaged in the transportation of oil and petroleum in the United States be double hulled, and all existing single hull tank barges be either retrofitted with double hulls or phased out of domestic service by December 31, 2014.

The Company manages its exposure to losses from potential discharges of pollutants through the use of well-maintained and equipped vessels, through safety, training and environmental programs, and through the Company's insurance program. There can be no assurance, however, that any new regulations or requirements or any discharge of pollutants by the Company will not have an adverse effect on the Company.

Clean Water Act. The United States Environmental Protection Agency ("EPA") regulates the discharge of ballast water and other substances in United States waters under the Clean Water Act. Effective February 6, 2009, EPA regulations required vessels 79 feet in length or longer to comply with a Vessel General Permit authorizing ballast water discharges and other discharges incidental to the operation of the vessels. The EPA regulations also imposed technology and water quality based effluent limits for certain types of discharges and established specific inspection, monitoring, recordkeeping and reporting requirements for vessels to ensure effluent limitations are met. The Vessel General Permit is effective from December 19, 2013 to December 18, 2018. The Company maintains Vessel General Permits and has established recordkeeping and reporting procedures in compliance with these obligations.

The USCG adopted regulations on ballast water management treatment systems establishing a standard for the allowable concentration of living organisms in certain vessel ballast water discharged in waters of the United States under the National Invasive Species Act. The regulations include requirements for the installation of engineering equipment to treat ballast water by establishing an approval process for ballast water management systems ("BWMS"). The BWMS implementation was suspended until December 2016 at which time the USCG approved manufacturer's systems that met the regulatory discharge standard equivalent to the International Maritime Organization's D-2 standard. The phase-in schedule for existing vessels to install ballast water treatment management systems is dependent on vessel build date, ballast water capacity, and drydock schedule. Compliance with the ballast water treatment regulations requires the installation of equipment on the Company's vessels to treat ballast water before it is discharged. The installation of BWMS equipment will require capital expenditures at the next scheduled drydocking for statutory purposes of existing vessels in order to complete the installation of the approved system.

Financial Responsibility Requirement. Commencing with the Federal Water Pollution Control Act of 1972, as amended, vessels over 300 gross tons operating in the Exclusive Economic Zone of the United States have been required to maintain evidence of financial ability to satisfy statutory liabilities for oil and hazardous substance water pollution. This evidence is in the form of a Certificate of Financial Responsibility ("COFR") issued by the USCG. The majority of the Company's tank barges are subject to this COFR requirement, and the Company has fully complied with this requirement since its inception. The Company does not foresee any current or future difficulty in maintaining the COFR certificates under current rules.

Clean Air Regulations. The Federal Clean Air Act of 1979 requires states to draft State Implementation Plans ("SIPs") designed to reduce atmospheric pollution to levels mandated by this act. Several SIPs provide for the regulation of barge loading and discharging emissions. The implementation of these regulations requires a reduction of hydrocarbon emissions released into the atmosphere during the loading of most petroleum products and the degassing and cleaning of barges for maintenance or change of cargo. These regulations require operators who operate in these states to install vapor control equipment on their barges. The Company expects that future emission regulations will be developed and will apply this same technology to many chemicals that are handled by barge. Most of the Company's barges engaged in the transportation of petrochemicals, chemicals and refined petroleum products are already equipped with vapor control systems. Although a risk exists that new regulations could require significant capital expenditures by the Company and otherwise increase the Company's costs, the Company believes that, based upon the regulations that have been proposed thus far, no material capital expenditures beyond those currently contemplated by the Company and no material increase in costs are likely to be required.

Contingency Plan Requirement. The OPA and several state statutes of similar intent require the majority of the vessels and terminals operated by the Company to maintain approved oil spill contingency plans as a condition of operation. The Company has approved plans that comply with these requirements. The OPA also requires development of regulations for hazardous substance spill contingency plans. The USCG has not yet promulgated these regulations; however, the Company anticipates that they will not be more difficult to comply with than the oil spill plans.

Occupational Health Regulations. The Company's inspected vessel operations are primarily regulated by the USCG for occupational health standards. Uninspected vessel operations and the Company's shore personnel are subject to the United States Occupational Safety and Health Administration regulations. The Company believes that it is in compliance with the provisions of the regulations that have been adopted and does not believe that the adoption of any further regulations will impose additional material requirements on the Company. There can be no assurance, however, that claims will not be made against the Company for work related illness or injury, or that the further adoption of health regulations will not adversely affect the Company.

Insurance. The Company's marine transportation operations are subject to the hazards associated with operating vessels carrying large volumes of bulk cargo in a marine environment. These hazards include the risk of loss of or damage to the Company's vessels, damage to third parties as a result of collision, fire or explosion, loss or contamination of cargo, personal injury of employees and third parties, and pollution and other environmental damages. The Company maintains insurance coverage against these hazards. Risk of loss of or damage to the Company's vessels is insured through hull insurance currently insuring approximately $3.5 billion in hull values. Liabilities such as collision, cargo, environmental, personal injury and general liability are insured up to $1.3 billion per occurrence. The Company also maintains insurance coverage to address commercial liabilities arising in connection with its diesel engine services segment.

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Environmental Protection. The Company has a number of programs that were implemented to further its commitment to environmental responsibility in its operations. In addition to internal environmental audits, one such program is environmental audits of barge cleaning vendors principally directed at management of cargo residues and barge cleaning wastes. Another is the participation by the Company in the American Waterways Operators Responsible Carrier program which is oriented towards continuously reducing the barge industry's impact on the environment, including the distribution services area.

Safety. The Company manages its exposure to the hazards associated with its business through safety, training and preventive maintenance efforts. The Company places considerable emphasis on safety through a program oriented toward extensive monitoring of safety performance for the purpose of identifying trends and initiating corrective action, and for the purpose of rewarding personnel achieving superior safety performance.

Training. The Company believes that among the major elements of a successful and productive work force are effective training programs. The Company also believes that training in the proper performance of a job enhances both the safety and quality of the service provided. New technology, regulatory compliance, personnel safety, quality and environmental concerns create additional demands for training. The Company has developed and instituted effective training programs.

Centralized training is provided through the Operations Personnel and Training Department, which is charged with developing, conducting and maintaining training programs for the benefit of all of the Company's operating entities. It is also responsible for ensuring that training programs are both consistent and effective. The Company's training facility includes state-of-the-art equipment and instruction aids, including a full bridge wheelhouse simulator, a working towboat, two tank barges and a tank barge simulator for tankermen training. During 2016, approximately 1,350 certificates were issued for the completion of courses at the training facility, of which 800 were USCG approved classes and the balance were employee development and Company required classes, including Leadership and Defensive Driving.

Quality. Kirby Inland Marine has made a substantial commitment to the implementation, maintenance and improvement of Quality Assurance Systems in compliance with the International Quality Standard, ISO 9001. Kirby Offshore Marine is certified under ABS ISM standards. These Quality Assurance Systems and certification have enabled both shore and vessel personnel to effectively manage the changes which occur in the working environment, as well as enhancing the Company's safety and environmental performance.

DIESEL ENGINE SERVICES

The Company, through its wholly owned subsidiary Kirby Engine Systems, Inc. ("Kirby Engine Systems"), and its wholly owned subsidiaries Marine Systems, Inc. ("Marine Systems"), Engine Systems, Inc. ("Engine Systems") and United Holdings LLC ("United"), sells genuine replacement parts, provides service mechanics to overhaul and repair medium-speed and high-speed diesel engines, transmissions, reduction gears and pumps, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and manufactures and remanufactures oilfield service equipment, including pressure pumping units. The Company primarily services the marine, power generation and the land-based oilfield service and oil and gas operator and producer markets.

For the marine market, the Company sells Original Equipment Manufacturers (OEM) replacement parts, provides service mechanics to overhaul and repair engines and reduction gears, and maintains facilities to rebuild component parts or entire engines and reduction gears. For the power generation market, the Company provides engineering and field services, OEM replacement parts, and safety-related products to power generation operators and to the nuclear industry, and manufactures engine generator and pump packages for the power generation operators and municipalities.

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For the land-based market, the Company sells OEM replacement parts, sells and services high-speed diesel engines, pumps and transmissions and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for oilfield service companies and oil and gas operators and producers.

No single customer of the diesel engine services segment accounted for 10% of the Company's revenues in 2016, 2015 or 2014. The diesel engine services segment also provides service to the Company's marine transportation segment, which accounted for approximately 8% of the diesel engine services segment's 2016 revenues, 5% of 2015 revenues and 3% of 2014 revenues. Such revenues are eliminated in consolidation and not included in the table below.

The following table sets forth the revenues for the diesel engine services segment for the three years ended December 31, 2016 (dollars in thousands):

	2016		2015		2014	
	Amounts	%	Amounts	%	Amounts	%
Manufacturing	$3,177	1 %	$94,812	20 %	$261,553	33 %
Overhauls and service	181,035	61	251,447	52	366,477	46
Direct parts sales	114,568	38	138,183	28	167,604	21
	$298,780	100%	$484,442	100%	$795,634	100%

Marine Operations

The Company is engaged in the overhaul and repair of medium-speed and high-speed diesel engines and reduction gears, line boring, block welding services and related parts sales for customers in the marine industry, which represented 36% of the segment's 2016 revenues. Medium-speed diesel engines have an engine speed of 400 to 1000 revolutions per minute ("RPM") with a horsepower range of 800 to 32000. High-speed diesel engines have an engine speed of over 1000 RPM and a horsepower range of 50 to 8375. The Company services medium-speed and high-speed diesel engines utilized in the inland and offshore barge industries. It also services marine equipment and offshore drilling equipment used in the offshore petroleum exploration and oil service industry, marine equipment used in the offshore commercial fishing industry and vessels owned by the United States government.

The Company has marine operations throughout the United States providing in-house and in-field repair capabilities and related parts sales. The Company's emphasis is on service to its customers, and it sends its crews from any of its locations to service customers' equipment anywhere in the world. The medium-speed operations are located in Houma, Louisiana, Chesapeake, Virginia, Paducah, Kentucky, Seattle, Washington and Tampa, Florida. The operations based in Chesapeake, Virginia and Tampa, Florida are authorized distributors for 17 eastern states for EMD Power Products ("EMD"). In October 2016, the Company acquired the EMD business of Valley Power Systems, Inc. and Valley Power Systems Northwest, Inc. (collectively "VPS") with the operations based in Seattle, Washington serving as the authorized EMD distributor for nine western states. The marine operations based in Houma, Louisiana and Paducah, Kentucky are nonexclusive contracted service centers for EMD providing service and related parts sales. The Company is also a distributor and representative for certain Alfa Laval products in the Midwest and on the East Coast, Gulf Coast, and West Coast. All of the marine locations are authorized distributors for Falk Corporation reduction gears and Oil States Industries, Inc. clutches. The Chesapeake, Virginia operation concentrates on East Coast inland and offshore dry-bulk, tank barge and harbor docking operators, and the United States government. The Houma, Louisiana operation concentrates on the inland and offshore barge and oil services industries. The Tampa, Florida operation concentrates on Gulf of Mexico offshore dry-bulk, tank barge and harbor docking operators. The Paducah, Kentucky operation concentrates on the inland river towboat and barge operators and the Great Lakes carriers. The Seattle, Washington operation concentrates on the offshore commercial fishing industry, the offshore barge industry, the United States government, and other customers in Alaska, Hawaii and the Pacific Rim.

The high-speed operations are located in Houma, Baton Rouge, Belle Chasse and New Iberia, Louisiana, Paducah, Kentucky, Mobile, Alabama, Houston, Texas and Thorofare, New Jersey. The Company serves as a factory-authorized marine dealer for Caterpillar diesel engines in Alabama, Kentucky, Louisiana, New Jersey and Texas. The Company also operates factory-authorized full service marine dealerships for Cummins, Detroit Diesel and John Deere diesel engines, as well as Twin Disc marine gears. High-speed diesel engines provide the main propulsion for a significant amount of the United States flag commercial vessels and other marine applications, including engines for power generators and barge pumps.

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Marine Customers

The Company's major marine customers include inland and offshore barge operators, oil service companies, offshore fishing companies, other marine transportation entities, and the United States government.

Since the marine business is linked to the relative health of the diesel power tugboat and towboat industry, the offshore supply boat industry, the oil and gas drilling industry, the military and the offshore commercial fishing industry, there is no assurance that its present gross revenues can be maintained in the future. The results of the diesel engine services industry are largely tied to the industries it serves and, therefore, are influenced by the cycles of such industries.

Marine Competitive Conditions

The Company's primary competitors are independent diesel engine services companies and other factory-authorized distributors, authorized service centers and authorized marine dealers. Certain operators of diesel powered marine equipment also elect to maintain in-house service capabilities. While price is a major determinant in the competitive process, reputation, consistent quality, expeditious service, experienced personnel, access to parts inventories and market presence are also significant factors. A substantial portion of the Company's business is obtained by competitive bids. However, the Company has entered into service agreements with certain operators of diesel powered marine equipment, providing such operators with one source of support and service for all of their requirements at pre-negotiated prices.

The Company is one of a limited number of authorized resellers of EMD, Caterpillar, Cummins, Detroit Diesel and John Deere parts. The Company is also the only marine distributor for Falk reduction gears throughout the United States.

Power Generation Operations

The Company is engaged in the overhaul and repair of diesel engines and generators, and related parts sales for power generation customers, which represented 16% of the segment's 2016 revenues. The Company is also engaged in the sale and distribution of diesel engine parts, engine modifications, generator modifications, controls, governors and diesel generator packages to the nuclear industry. The Company services users of diesel engines that provide emergency standby, peak and base load power generation.

The Company provides in-house and in-field repair capabilities and products to power generation operators from the Rocky Mount, North Carolina location. The operation based in Rocky Mount, North Carolina is an EMD authorized distributor for 17 eastern states for power generation applications, and provides in-house and in-field service. The Rocky Mount operation is also the exclusive worldwide distributor of EMD products to the nuclear industry, the worldwide distributor for Woodward, Inc. products to the nuclear industry, the worldwide distributor of GE Oil & Gas Compression Systems, LLC products to the nuclear industry, and owns the assets and technology necessary to support the Nordberg medium-speed diesel engines used in nuclear applications. In addition, the Rocky Mount operation is an exclusive distributor for Norlake Manufacturing Company transformer products to the nuclear industry, an exclusive distributor of Hannon Company generator and motor products to the nuclear industry, and a non-exclusive distributor of analog Weschler Instruments metering products and an exclusive distributor of digital Weschler metering products to the nuclear industry. The Company is a non-exclusive distributor of Ingersoll Rand air start equipment to the nuclear industry worldwide.

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Power Generation Customers

The Company's power generation customers are primarily domestic utilities and the worldwide nuclear power industry.

Power Generation Competitive Conditions

The Company's primary competitors are other independent diesel service companies and manufacturers. While price is a major determinant in the competitive process, reputation, consistent quality, expeditious service, experienced personnel, access to parts inventories and market presence are also significant factors. A substantial portion of the Company's business is obtained by competitive bids.

As noted under Power Generation Operations above, the Company is the exclusive worldwide distributor of EMD, GE Oil & Gas, Woodward, Nordberg, Norlake and Hannon parts for the nuclear industry, and non-exclusive distributor of Weschler parts and Ingersoll Rand air start equipment for the nuclear industry. Specific regulations relating to equipment used in nuclear power generation require extensive testing and certification of replacement parts. OEM parts need to be properly tested and certified for nuclear applications.

Land-Based Operations

The Company is engaged in the distribution and service of high-speed diesel engines, pumps and transmissions, and the manufacture and remanufacture of oilfield service equipment. The land-based operations represented 48% of the segment's 2016 revenues. The Company offers a full line of custom fabricated oilfield service equipment, fully tested and field ready. The Company manufactures products or components that are purchased by a company and marketed under the purchasing company's brand name. The Company distributes, sells parts for and services diesel engines and transmissions for on-and off-highway use and provides in-house and in-field service capabilities. The Company is the largest off-highway distributor for Allison, a major distributor for MTU in North America, and a distributor for Isuzu diesel engines. The Company is also the distributor for parts, service and warranty on Daimler engines and related equipment in Oklahoma, Arkansas and Louisiana. The Company manufactures and remanufactures oilfield service equipment, including pressure pumping units, nitrogen pumping units, cementers, hydration equipment, mud pumps and blenders. Lastly, the Company is a dealer for Thermo King refrigeration systems for trucks, railroad cars and other land transportation markets in south and central Texas.

The Company's land-based operation is based in Oklahoma City, Oklahoma with 13 locations across four states in key oil and gas producing regions and major transportation corridors. The distribution and service facilities are located in Oklahoma City and Tulsa, Oklahoma, Little Rock, Arkansas, Shreveport, Louisiana, and Cotulla and Odessa, Texas. The Company's manufacturing facility is located in Oklahoma City, Oklahoma. The Company's refrigeration facilities are located in Houston, Pharr, Laredo, San Antonio, Corpus Christi and Austin, Texas.

Land-Based Customers

The Company's major land-based customers include large and mid-cap oilfield service providers, oil and gas operators and producers, construction companies, domestic and international utilities, on-highway transportation companies and companies associated with the agricultural markets. The Company has long standing relationships with most of its customers.

Since the land-based business is linked to the oilfield services industry and oil and gas operators and producers, there is no assurance that its present gross revenues can be maintained in the future. The results of the land-based diesel engine services industry are largely tied to the industries it serves and, therefore, are influenced by the cycles of such industries.

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Land-Based Competitive Conditions

The Company's primary competitors are other oilfield equipment manufacturers and service companies. While price is a major determinant in the competitive process, equipment availability, reputation, consistent quality, expeditious service, experienced personnel, access to parts inventories and market presence are also significant factors. A substantial portion of the Company's business is obtained by competitive bids.

Employees

The Company's diesel engine services segment has approximately 850 employees. None of the segment's operations are subject to collective bargaining agreements.

Properties

The principal offices of the diesel engine services segment are located in Houma, Louisiana and Oklahoma City, Oklahoma.

The marine and power generation businesses operate 12 parts and service facilities, with facilities located in Houma, Baton Rouge, Belle Chasse and New Iberia, Louisiana, Mobile, Alabama, Houston, Texas, Chesapeake, Virginia, Rocky Mount, North Carolina, Paducah, Kentucky, Tampa, Florida, Seattle, Washington and Thorofare, New Jersey. All of these facilities are leased except the Houma, Belle Chasse and New Iberia, Louisiana, Houston, Texas and Mobile, Alabama facilities, which are owned by the Company.

The land-based business operates 13 distribution and service and manufacturing facilities across four states in key oil and gas producing regions and major transportation corridors. The distribution and service facilities are located in Oklahoma City and Tulsa, Oklahoma, Little Rock, Arkansas, Shreveport, Louisiana, and Cotulla and Odessa, Texas. The Oklahoma City, Oklahoma, Shreveport, Louisiana and the Little Rock, Arkansas facilities are owned by the Company and the Tulsa, Oklahoma and Cotulla and Odessa, Texas facilities are leased. The Company's manufacturing facility is located in Oklahoma City, Oklahoma and is owned by the Company. The Company's refrigeration facilities are located in Houston, Pharr, Laredo, San Antonio, Corpus Christi and Austin, Texas. All of these facilities are leased except for the San Antonio facility which is owned by the Company.

Executive Officers of the Registrant

The executive officers of the Company are as follows:

Name	Age	Positions and Offices
Joseph H. Pyne	69	Chairman of the Board
David W. Grzebinski	55	President and Chief Executive Officer
C. Andrew Smith	46	Executive Vice President and Chief Financial Officer
Joseph H. Reniers	42	Executive Vice President– Diesel Engine Services and Supply Chain
William G. Ivey	73	President – Marine Transportation Group, Kirby Inland Marine and Kirby Offshore Marine
Dorman L. Strahan	60	President – Kirby Engine Systems
Christian G. O'Neil	44	Executive Vice President and Chief Operating Officer–Kirby Inland Marine and Kirby Offshore Marine
Kim B. Clarke	61	Vice President – Human Resources
Ronald A. Dragg	53	Vice President, Controller and Assistant Secretary
James F. Farley	65	Vice President – Industry Relations
Amy D. Husted	48	Vice President and General Counsel

David R. Mosley	52	Vice President and Chief Information Officer
Renato A. Castro	45	Treasurer

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No family relationship exists among the executive officers or among the executive officers and the directors. Officers are elected to hold office until the annual meeting of directors, which immediately follows the annual meeting of stockholders, or until their respective successors are elected and have qualified.

Joseph H. Pyne holds a degree in liberal arts from the University of North Carolina and has served the Company as Chairman of the Board since April 2014. He served the Company as Chairman of the Board and Chief Executive Officer from January 2014 to April 2014, as Chairman of the Board, President and Chief Executive Officer from April 2013 to January 2014 and from April 2010 to April 2011, and as President and Chief Executive Officer from 1995 to April 2010, Executive Vice President from 1992 to 1995 and as President of Kirby Inland Marine from 1984 to November 1999. He has served the Company as a Director since 1988. He also served in various operating and administrative capacities with Kirby Inland Marine from 1978 to 1984, including Executive Vice President from January to June 1984. Prior to joining the Company, he was employed by Northrop Services, Inc. and served as an officer in the Navy.

David W. Grzebinski is a Chartered Financial Analyst and holds a Master of Business Administration degree from Tulane University and a degree in chemical engineering from the University of South Florida. He has served as President and Chief Executive Officer since April 2014. He served as President and Chief Operating Officer from January 2014 to April 2014 and as Chief Financial Officer from March 2010 to April 2014. He served as Chairman of Kirby Offshore Marine from February 2012 to April 2013 and served as Executive Vice President from March 2010 to January 2014. Prior to joining the Company in February 2010, he served in various administrative positions since 1988 with FMC Technologies Inc. (“FMC”), including Controller, Energy Services, Treasurer, and Director of Global SAP and Industry Relations. Prior to joining FMC, he was employed by Dow Chemical Company.

C. Andrew Smith is a Certified Public Accountant and holds a degree in business administration from the University of Houston. He has served as Executive Vice President and Chief Financial Officer since April 2014. He served as Executive Vice President – Finance from January 2014 to April 2014. Prior to joining the Company in January 2014, he served as Senior Vice President and Chief Financial Officer of Benthic Geotech and was previously Chief Financial Officer for both Global Industries, LTD and NATCO Group.

Joseph H. Reniers holds a degree in mechanical engineering from the United States Naval Academy and a Master of Business Administration degree from the University of Chicago Booth School of Business. He has served the Company as Executive Vice President – Diesel Engine Services and Supply Chain since May 2016. He served as Senior Vice President – Diesel Engine Services and Marine Facility Operations from February 2015 to May 2016, Vice President – Strategy and Operational Service from April 2014 to February 2015, Vice President – Supply Chain from April 2012 to April 2014 and Vice President – Human Resources from March 2010 to April 2012. Prior to joining the Company, he was a management consultant with McKinsey & Company serving a wide variety of industrial clients. Prior to joining McKinsey, he served as a nuclear power officer in the Navy.

William G. Ivey attended the University of Houston and has served the Company as President – Marine Transportation Group since February 2014, President of Kirby Offshore Marine since January 2016, President of Kirby Inland Marine since April 2011 and served as Executive Vice President, Sales and Marketing from 1989 to April 2011. He joined the Company in 1989 with the acquisition of Alamo Inland Marine. Prior to joining the Company he served in various sales and marketing positions with inland marine companies dating back to 1970.

Dorman L. Strahan attended Nicholls State University and has served the Company as President of Kirby Engine Systems since May 1999, President of Marine Systems since 1986 and President of Engine Systems since 1996. After joining the Company in 1982 in connection with the acquisition of Marine Systems, he served as Vice President of Marine Systems until 1985.

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Christian G. O'Neil holds a Master of Business Administration degree from Rice University, a doctorate of jurisprudence from Tulane University and a bachelor of arts degree from Southern Methodist University. He has served as Executive Vice President and Chief Operating Officer of Kirby Inland Marine and Kirby Offshore Marine since May 2016. He served as Executive Vice President – Commercial Operations of Kirby Inland Marine and Kirby Offshore Marine from April 2014 to May 2016, Vice President – Human Resources of the Company from May 2012 to April 2014, Vice President – Sales for Kirby Inland Marine from 2009 to 2012 and President of Osprey from 2006 through 2008. He has also served in various sales and business development roles at the Company and Osprey. Prior to joining the Company, he served as Sales Manager and Fleet Manager at Hollywood Marine, Inc. ("Hollywood Marine") after joining Hollywood Marine in 1997.

Kim B. Clarke holds a Bachelor of Science degree from the University of Houston. She has served as Vice President – Human Resources since December 2016. Prior to joining the Company, she served in senior leadership roles in human resources, safety, information technology and business development as Senior Vice President and Chief Administration Officer for Key Energy Services, Inc. from 2004 to March 2016.

Ronald A. Dragg is a Certified Public Accountant and holds a Master of Science in Accountancy degree from the University of Houston and a degree in finance from Texas A&M University. He has served the Company as Vice President and Controller since January 2007. He also served as Controller from November 2002 to January 2007, Controller – Financial Reporting from January 1999 to October 2002, and Assistant Controller – Financial Reporting from October 1996 to December 1998. Prior to joining the Company, he was employed by Baker Hughes Incorporated.

James F. Farley holds a Master of Science degree from Thunderbird School of Global Management and a bachelor of arts degree from Texas Tech University. He has served the Company as Vice President – Industry Relations since January 2016. He served as President of Kirby Offshore Marine from February 2012 to January 2016 and served as Executive Vice President – Operations of Kirby Inland Marine from 2003 to February 2012. Prior to joining the Company in 2003, he held senior level marketing, logistics and operations positions in the marine transportation industry.

Amy D. Husted holds a doctorate of jurisprudence from South Texas College of Law and a degree in political science from the University of Houston. She has served the Company has Vice President and General Counsel since January 2017. She served as Vice President – Legal from January 2008 to January 2017 and served as Corporate Counsel from November 1999 through December 2007. Prior to joining the Company, she served as Corporate Counsel of Hollywood Marine from 1996 to 1999 after joining Hollywood Marine in 1994.

David R. Mosley holds a degree in computer science from Texas A&M University and has served the Company as Vice President and Chief Information Officer since May 2007. Prior to joining the Company in 2007, he served as Vice President and Chief Information Officer for Prudential Real Estate Services Company from 2005 to May 2007, Vice President – Service Delivery for Iconixx Corporation from 1999 to 2005, Vice President – Product Development and Services for ADP Dealer Services from 1995 to 1999 and in various information technology development and management positions from 1987 to 1995.

Renato A. Castro is a Certified Public Accountant and holds a Master of Business Administration degree from Tulane University and a degree in civil engineering from the National Autonomous University of Honduras. He has served the Company as Treasurer since April 2010 and served as Manager of Financial Analysis from 2007 to April 2010. He also served as Financial Analyst from 2005 through 2006 and Assistant Controller of Kirby Inland Marine from 2001 through 2004. Prior to joining the Company, he was employed by a subsidiary of Astaldi S.p.A. in their transport infrastructure division.

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Item 1A. Risk Factors

The following risk factors should be considered carefully when evaluating the Company, as its businesses, results of operations, or financial condition could be materially adversely affected by any of these risks. The following discussion does not attempt to cover factors, such as trends in the United States and global economies or the level of interest rates, among others, that are likely to affect most businesses.

The Inland Waterway infrastructure is aging and may result in increased costs and disruptions to the Company's marine transportation segment. Maintenance of the United States inland waterway system is vital to the Company's operations. The system is composed of over 12,000 miles of commercially navigable waterway, supported by over 240 locks and dams designed to provide flood control, maintain pool levels of water in certain areas of the country and facilitate navigation on the inland river system. The United States inland waterway infrastructure is aging, with more than half of the locks over 50 years old. As a result, due to the age of the locks, scheduled and unscheduled maintenance outages may be more frequent in nature, resulting in delays and additional operating expenses. One-half of the cost of new construction and major rehabilitation of locks and dams is paid by marine transportation companies through a 29 cent per gallon diesel fuel tax and the remaining 50% is paid from general federal tax revenues. Failure of the federal government to adequately fund infrastructure maintenance and improvements in the future would have a negative impact on the Company's ability to deliver products for its customers on a timely basis. In addition, any additional user taxes that may be imposed in the future to fund infrastructure improvements would increase the Company's operating expenses.

The Company is subject to adverse weather conditions in its marine transportation and diesel engine services segments. The Company's marine transportation segment is subject to weather conditions on a daily basis. Adverse weather conditions such as high or low water on the inland waterway systems, fog and ice, tropical storms, hurricanes and tsunamis on both the inland waterway systems and throughout the United States coastal waters can impair the operating efficiencies of the marine fleet. Such adverse weather conditions can cause a delay, diversion or postponement of shipments of products and are totally beyond the control of the Company. In addition, adverse water and weather conditions can negatively affect a towing vessel's performance, tow size, loading drafts, fleet efficiency, place limitations on night passages and dictate horsepower requirements. The Company's diesel engine services segment is subject to tropical storms and hurricanes impacting its coastal locations and tornadoes impacting its Oklahoma facilities.

The Company could be adversely impacted by a marine accident or spill event. A marine accident or spill event could close a portion of the inland waterway system or a coastal area of the United States for a period of time. Although statistically marine transportation is the safest means of transporting bulk commodities, accidents do occur, both involving Company equipment and equipment owned by other marine carriers.

The Company transports a wide variety of petrochemicals, black oil, refined petroleum products and agricultural chemicals throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts and in Alaska and Hawaii. The Company manages its exposure to losses from potential discharges of pollutants through the use of well-maintained and equipped tank barges and towing vessels, through safety, training and environmental programs, and through the Company's insurance program, but a discharge of pollutants by the Company could have an adverse effect on the Company.

The Company's marine transportation segment is dependent on its ability to adequately crew its towing vessels. The Company's towing vessels are crewed with employees who are licensed or certified by the USCG, including its captains, pilots, engineers and tankermen. The success of the Company's marine transportation segment is dependent on the Company's ability to adequately crew its towing vessels. As a result, the Company invests significant resources in training its crews and providing crew members an opportunity to advance from a deckhand to the captain of a Company towboat or tugboat. Lifestyle issues are a deterrent for employment for inland and coastal crew members.

Inland crew members generally work a 20 days on, 10 days off rotation, or a 30 days on, 15 days off rotation. For the coastal fleet, crew members are generally required to work a 14 days on, 14 days off, 21 days on, 21 days off or 30 days on, 30 days off rotation, dependent upon the location. With ongoing retirements and competitive labor pressure in the marine transportation segment, the Company continues to monitor and implement market competitive pay practices. The Company also utilizes an internal development program to train Maritime Academy graduates for vessel leadership positions.

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The Company's marine transportation segment has approximately 3,100 employees, of which approximately 2,400 are vessel crew members. None of the segment's inland operations are subject to collective bargaining agreements. The segment's coastal operation includes approximately 925 vessel employees, of whom approximately 545 are subject to collective bargaining agreements in certain geographic areas. Any work stoppages or labor disputes could adversely affect coastal operations in those areas.

Reduction in the number of acquisitions made by the Company may curtail future growth. Since 1986, the Company has been successful in the integration of 32 acquisitions in its marine transportation segment and 18 acquisitions in its diesel engine services segment. Acquisitions have played a significant part in the growth of the Company. The Company's marine transportation revenue in 1987 was $40.2 million compared with $1.47 billion in 2016. Diesel engine services revenue in 1987 was $7.1 million compared with $298.8 million in 2016. While the Company is of the opinion that future acquisition opportunities exist in both its marine transportation and diesel engine services segments, the Company may not be able to continue to grow through acquisitions to the extent that it has in the past.

The Company's failure to comply with the Foreign Corrupt Practices Act ("FCPA") could have a negative impact on its ongoing operations. The Company's operations outside the United States require the Company to comply with a number of United States and international regulations. For example, its operations in countries outside the United States are subject to the FCPA, which prohibits United States companies or their agents and employees from providing anything of value to a foreign official for the purposes of influencing any act or decision of these individuals in their official capacity to help obtain or retain business, direct business to any person or corporate entity, or obtain any unfair advantage. The Company has internal control policies and procedures and has implemented training and compliance programs for its employees and agents with respect to the FCPA. However, the Company's policies, procedures and programs may not always protect it from reckless or criminal acts committed by its employees or agents, and severe criminal or civil sanctions could be the result of violations of the FCPA. The Company is also subject to the risks that its employees, joint venture partners, and agents outside of the United States may fail to comply with other applicable laws.

The Company's marine transportation segment is subject to the Jones Act. The Company's marine transportation segment competes principally in markets subject to the Jones Act, a federal cabotage law that restricts domestic marine transportation in the United States to vessels built and registered in the United States, and manned and owned by United States citizens. The Company presently meets all of the requirements of the Jones Act for its vessels. The loss of Jones Act status could have a significant negative effect on the Company. The requirements that the Company's vessels be United States built and manned by United States citizens, the crewing requirements and material requirements of the USCG, and the application of United States labor and tax laws increases the cost of United States flag vessels when compared with comparable foreign flag vessels. The Company's business could be adversely affected if the Jones Act or international trade agreements or laws were to be modified as to permit foreign competition that is not subject to the same United States government imposed burdens. Since the events of September 11, 2001, the United States government has taken steps to increase security of United States ports, coastal waters and inland waterways. The Company believes that it is unlikely that the current cabotage provisions of the Jones Act would be modified or eliminated in the foreseeable future.

The Secretary of Homeland Security is vested with the authority and discretion to waive the Jones Act to such extent and upon such terms as the Secretary may prescribe whenever the Secretary deems that such action is necessary in the interest of national defense. In response to the effects of Hurricanes Katrina and Rita, the Secretary waived the Jones Act generally for the transportation of petroleum products from September 1 to September 19, 2005 and from September 26, 2005 to October 24, 2005. In June 2011, the Secretary waived the Jones Act for the transportation of petroleum released from the Strategic Petroleum Reserve and in November 2012 waived the Jones Act for the transportation of refined petroleum products in the Northeast following Hurricane Sandy. Waivers of the Jones Act, whether in response to natural disasters or otherwise, could result in increased competition from foreign tank vessel operators, which could negatively impact the marine transportation segment.

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The Company's marine transportation segment is subject to regulation by the USCG, federal laws, state laws and certain international conventions, as well as numerous environmental regulations. The majority of the Company's vessels are subject to inspection by the USCG and carry certificates of inspection. The crews employed by the Company aboard vessels are licensed or certified by the USCG. The Company is required by various governmental agencies to obtain licenses, certificates and permits for its vessels. The Company's operations are also affected by various United States and state regulations and legislation enacted for protection of the environment. The Company incurs significant expenses and capital expenditures to comply with applicable laws and regulations and any significant new regulation or legislation, including climate change laws or regulations, could have an adverse effect on the Company.

The Company is subject to risks associated with possible climate change legislation, regulation and international accords. Greenhouse gas emissions have increasingly become the subject of a large amount of international, national, regional, state and local attention. On December 7, 2009, the EPA furthered its focus on greenhouse gas emissions when it issued its endangerment finding in response to a decision of the Supreme Court of the United States. The EPA found that the emission of six greenhouse gases, including carbon dioxide (which is emitted from the combustion of fossil fuels), may reasonably be anticipated to endanger public health and welfare. Based on this finding, the EPA defined the mix of these six greenhouse gases to be "air pollution" subject to regulation under the Clean Air Act. Although the EPA has stated a preference that greenhouse gas regulation be based on new federal legislation rather than the existing Clean Air Act, many sources of greenhouse gas emissions may be regulated without the need for further legislation.

The United States Congress has considered in the past legislation that would create an economy-wide "cap-and-trade" system that would establish a limit (or cap) on overall greenhouse gas emissions and create a market for the purchase and sale of emissions permits or "allowances." Any proposed cap-and-trade legislation would likely affect the chemical industry due to anticipated increases in energy costs as fuel providers pass on the cost of the emissions allowances, which they would be required to obtain under cap-and-trade to cover the emissions from fuel production and the eventual use of fuel by the Company or its energy suppliers. In addition, cap-and-trade proposals would likely increase the cost of energy, including purchases of diesel fuel, steam and electricity, and certain raw materials used or transported by the Company. Proposed domestic and international cap-and-trade systems could materially increase raw material and operating costs of the Company's customer base. Future environmental regulatory developments related to climate change in the United States that restrict emissions of greenhouse gases could result in financial impacts on the Company's operations that cannot be predicted with certainty at this time.

The Company's marine transportation segment is subject to volatility in the United States production of petrochemicals. For 2016, 49% of the marine transportation segment's revenues were from the movement of petrochemicals, including the movement of raw materials and feedstocks from one refinery or petrochemical plant to another, as well as the movement of more finished products to end users and terminals for export. During 2016, petrochemical volumes were stable compared with 2015. Petrochemical volumes improved during 2015 compared with 2014. The United States petrochemical industry continues to benefit from a low-cost domestically produced natural gas feedstock advantage, producing strong volumes of raw materials and intermediate products for transportation between Gulf Coast petrochemical plants and the transportation of more finished products to terminals for both domestic consumers and for export destinations. Higher natural gas prices and other factors could negatively impact the United States petrochemical industry and its production volumes, which would negatively impact the Company.

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The Company's marine transportation segment could be adversely impacted by the construction of tank barges by its competitors. At the present time, there are an estimated 3,850 inland tank barges in the United States, of which the Company operates 876, or 23%. The number of tank barges peaked at an estimated 4,200 in 1982, slowly declined to 2,750 by 2003, and then gradually increased to an estimated 3,850 by the end of 2015 and 2016. During 2014, the Company estimates that 300 tank barges were placed in service, of which 61 were for the Company, and 100 tank barges were retired, 38 of which were by the Company. During 2015, the Company estimates that 260 tank barges were placed in service, of which 36 were for the Company, and 60 tank barges were retired, 18 of which were by the Company. For 2016, the Company estimated that industry-wide 100 tank barges were placed in service, of which five were by the Company, and 100 tank barges were retired, 50 of which were by the Company. The increases for 2014 and part of 2015 reflect the improved demand for inland petrochemical, refined petroleum products and black oil barges and federal tax incentives on new equipment. Strong tank barge markets for 2014 and part of 2015 absorbed the additional capacity built by the industry. With the decline in demand for crude oil and natural gas condensate movements by inland tank barges in 2015 and 2016 and the movement of such barges to other markets, the Company estimates that approximately 40 tank barges were ordered during 2016 for delivery throughout 2017, two of which are for the Company, and many older tank barges, including an expected 32 by the Company, will be retired, dependent on 2017 market conditions.

The long-term risk of an oversupply of inland tank barges may be mitigated by the fact that the inland tank barge industry has a mature fleet. Of the estimated 3,850 tank barges in the industry at the present time, approximately 600 are over 30 years old and approximately 270 of those over 40 years old. Given the age profile of the industry inland tank barge fleet, the expectation is that older tank barges will continue to be removed from service and replaced by new tank barges that will enter the fleet, with the extent of the retirements dependent on 2017 petrochemical and refinery production levels and crude oil and natural gas condensate movements, both of which can have a direct effect on industry-wide tank barge utilization, as well as term and spot contract rates.

During 2014 and the majority of 2015, the coastal operations reflected improvements in market conditions with tank barge utilization in the 90% to 95% range, occasionally declining to the high-80% level during portions of the 2015 fourth quarter. During 2014 and the majority of 2015, the Company experienced increased demand for coastal crude oil and natural gas condensate moves and success in expanding the coastal customer base to include inland customers with coastal requirements. During the 2015 fourth quarter and all of 2016, a decline in crude oil and natural gas condensate transportation volumes increased available capacity and resulted in some reluctance among certain customers to extend term contracts, which led to an increase in the number of coastal vessels operating in the spot market. In addition, the Company and the industry added new coastal tank barge capacity during 2015 and 2016, with additional new capacity coming on-line in 2017 and 2018. Much of this new capacity is replacement capacity for older vessels anticipated to be retired.

The Company estimates there are approximately 295 tank barges operating in the 195,000 barrel or less coastal industry fleet, the sector of the market in which the Company operates, and approximately 35 of those are over 30 years old. One coastal tank barge and tugboat unit was built and placed in service by a competitor during 2014. In January 2014, the Company signed an agreement to construct a 185,000 barrel coastal articulated tank barge and tugboat unit ("ATB") and, in April 2014, the Company exercised its option for the construction of a second 185,000 barrel coastal ATB. The first unit was placed in service in late 2015 and the second in June 2016. In July 2014, the Company signed agreements to construct two 155,000 barrel coastal ATBs. The first unit was placed in service in November 2016 and the second unit is scheduled to be placed in service in the summer of 2017. The Company also took delivery in December 2016 of a 35,000 barrel coastal petrochemical tank barge. The Company is aware of eight coastal tank barges placed in service in 2016 by competitors and 11 announced coastal tank barge and tugboat units in the 195,000 barrel or less category under construction by competitors for delivery in 2017 and 2018.

Higher fuel prices could increase operating expenses and fuel price volatility could reduce profitability. The cost of fuel during 2016 was approximately 7% of marine transportation revenue. All marine transportation term contracts

contain fuel escalation clauses, or the customer pays for the fuel. However, there is generally a 30 to 90 day delay before contracts are adjusted depending on the specific contract. In general, the fuel escalation clauses are effective over the long-term in allowing the Company to adjust to changes in fuel costs due to fuel price changes; however, the short-term effectiveness of the fuel escalation clauses can be affected by a number of factors including, but not limited to, specific terms of the fuel escalation formulas, fuel price volatility, navigating conditions, tow sizes, trip routing, and the location of loading and discharge ports that may result in the Company over or under recovering its fuel costs. Spot contract rates generally reflect current fuel prices at the time the contract is signed but do not have escalators for fuel.

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Loss of a large customer or other significant business relationship could adversely affect the Company. Four marine transportation customers accounted for approximately 25% of the Company's 2016, 30% of 2015 and 25% of 2014 revenue. The Company has contracts with these customers expiring in 2017 through 2021. Although the Company considers its relationships with these companies to be strong, the loss of any of these customers could have an adverse effect on the Company.

The Company's diesel engine services segment has a 51-year relationship with EMD, the largest manufacturer of medium-speed diesel engines. In addition, the Company serves as both an EMD distributor and service center for select markets and locations for both service and parts. Sales and service of EMD products account for approximately 3% of the Company's revenues for 2016. Although the Company considers its relationship with EMD to be strong, the loss of the EMD distributorship and service rights, or a disruption of the supply of EMD parts, could have a negative impact on the Company's ability to service its customers.

United has maintained continuous exclusive distribution rights for MTU and Allison since 1946. United is one of MTU's top five distributors of off-highway engines in North America, with exclusive distribution rights in Oklahoma, Arkansas, Louisiana and Mississippi. In addition, as a distributor of Allison products, United has distribution rights in Oklahoma, Arkansas and Louisiana. United is also the distributor for parts, service and warranty on Daimler engines and related equipment in Oklahoma, Arkansas and Louisiana. Sales and service of MTU and Allison products accounted for approximately 3% of the Company's revenues during 2016. Although the Company considers its relationships with MTU and Allison to be strong, the loss of MTU, Allison or Daimler distributorships and service rights, or a disruption of the supply of MTU or Allison parts, could have a negative impact on the Company's ability to service its customers.

The Company is subject to competition in both its marine transportation and diesel engine services segments. The inland and coastal tank barge industry remains very competitive. The Company's primary competitors are noncaptive inland tank barge operators and coastal operators. The Company also competes with companies who operate refined product and petrochemical pipelines, railroad tank cars and tractor-trailer tank trucks. Increased competition from any significant expansion of or additions to facilities or equipment by the Company's competitors could have a negative impact on the Company's results of operations.

The diesel engine services industry is also very competitive. The segment's primary marine diesel competitors are independent diesel services companies and other factory-authorized distributors, authorized service centers and authorized marine dealers. Certain operators of diesel powered marine equipment also elect to maintain in-house service capabilities. In the power generation market, the primary competitors are other independent service companies. The segment's land-based market's principal competitors are independent diesel engine service and oilfield manufacturing companies and other factory-authorized distributors and service centers. In addition, certain oilfield service companies that are customers of the Company also manufacture and service a portion of their own oilfield equipment. Increased competition in the diesel engine services industry and continued low price of natural gas, crude oil or natural gas condensate, and resulting decline in drilling for such natural resources in North American shale formations, could result in less oilfield equipment being manufactured and remanufactured, lower rates for service and parts pricing and result in less manufacturing, remanufacturing, service and repair opportunities and parts sales for the Company.

Significant increases in the construction cost of tank barges and towing vessels may limit the Company's ability to earn an adequate return on its investment in new tank barges and towing vessels. The price of steel increased significantly from 2006 to 2009, thereby increasing the construction cost of new tank barges and towing vessels. The Company's average construction price for a new 30,000 barrel capacity inland tank barge ordered in 2008 for 2009 delivery was approximately 90% higher than in 2000, primarily due to the increase in steel prices. During 2009, the United States and global recession negatively impacted demand levels for inland tank barges and as a result, the construction price of inland tank barges for 2010 delivery fell significantly, primarily due to a significant decrease in steel prices, as well

as a decrease in the number of tank barges ordered. The average construction price for inland tank barges delivered since 2010 steadily increased until reaching its peak in early 2015, but remained below the construction price for tank barges delivered in 2009. Construction costs for inland tank barges ordered in 2016 for delivery in 2017 have declined, reflecting the current industry-wide over-capacity in the inland tank barge market and subsequent decline in the number of tank barges ordered for delivery in 2017.

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The Company's marine transportation segment could be adversely impacted by the failure of the Company's shipyard vendors to deliver new vessels according to contractually agreed delivery schedules and terms. The Company contracts with shipyards to build new vessels and currently has many vessels under construction. Construction projects are subject to risks of delay and cost overruns, resulting from shortages of equipment, materials and skilled labor; lack of shipyard availability; unforeseen design and engineering problems; work stoppages; weather interference; unanticipated cost increases; unscheduled delays in the delivery of material and equipment; and financial and other difficulties at shipyards including labor disputes, shipyard insolvency and inability to obtain necessary certifications and approvals. A significant delay in the construction of new vessels or a shipyard's inability to perform under the construction contract could negatively impact the Company's ability to fulfill contract commitments and to realize timely revenues with respect to vessels under construction. Significant cost overruns or delays for vessels under construction could also adversely affect the Company's financial condition, results of operations and cash flows.

The Company's diesel engine services segment could be adversely impacted by future legislation or additional regulation of hydraulic fracturing practices. The Company, through its United subsidiary, is a distributor and service provider of engine and transmission related products for the oil and gas services, power generation and transportation industries, and a manufacturer of oilfield service equipment, including pressure pumping units. The EPA is studying hydraulic fracturing practices, and legislation may be introduced in Congress that would authorize the EPA to impose additional regulations on hydraulic fracturing. In addition, a number of states have adopted or are evaluating the adoption of legislation or regulations governing hydraulic fracturing. Such federal or state legislation and/or regulations could materially impact customers' operations and greatly reduce or eliminate demand for the Company's pressure pumping fracturing equipment and related products. The Company is unable to predict whether future legislation or any other regulations will ultimately be enacted and, if so, the impact on the Company's diesel engine services segment.

The Company relies on critical information systems for the operation of its businesses, and the failure of any critical information system, including a cyber-security breach, may adversely impact its businesses. The Company is dependent on its technology infrastructure and must maintain and rely upon critical information systems for the effective and safe operation of its businesses. These information systems include software applications and hardware equipment, as well as data networks and telecommunications.

The Company's information systems, including the Company's proprietary vessel management computer system, are subject to damage or interruption from a number of potential sources, including but not limited to, natural disasters, software viruses, power failures and cyber-attacks. The Company has implemented measures such as emergency recovery processes, virus protection software, intrusion detection systems and annual attack and penetration audits to mitigate these risks. However, the Company cannot guarantee that its information systems cannot be damaged or compromised.

Any damage or compromise of its data security or its inability to use or access these critical information systems could adversely impact the efficient and safe operation of its businesses, or result in the failure to maintain the confidentiality of data of its customers or its employees and could subject the Company to increased operating expenses or legal action, which could have an adverse effect on the Company.

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Prevailing natural gas and crude oil prices, as well as the volatility of their prices, could have an adverse effect on the Company's businesses. Demand for tank barge transportation services is driven by the production of volumes of the bulk liquid commodities such as petrochemicals, black oil and refined petroleum products that the Company transports by tank barge. This production can depend on the prevailing level of natural gas and crude oil prices, as well as the volatility of their prices.

In general, lower energy prices are good for the United States economy and typically translate into increased petrochemical and refined product production and therefore increased demand for tank barge transportation services. However, during 2015 and 2016 lower crude oil prices resulted in a decline in domestic crude oil and natural gas condensate production and reduced volumes to be transported by tank barge. The Company estimates that at the beginning of 2015 there were approximately 550 inland tank barges and 35 coastal tank barges in the 195,000 barrels or less category transporting crude oil and natural gas condensate. At the end of 2016, the Company estimates that approximately 140 inland tank barges and approximately ten coastal tank barges in the 195,000 barrel or less category were transporting such products, a reduction of approximately 410 inland tank barges and 25 coastal tank barges that have moved into other markets. Volatility in the price of natural gas and crude oil can also result in heightened uncertainty which may lead to decreased production and delays in new petrochemical and refinery plant construction. Increased competition for available black oil and petrochemical barge moves caused by reduced crude oil and natural gas condensate production could have an adverse impact on the Company's marine transportation segment.

Lower energy prices generally result in a decrease in the number of oil and gas wells being drilled. Oilfield service companies reduce their capital spending, resulting in decreased demand for new parts and equipment, including pressure pumping units, provided by the Company's diesel engine services segment. This may also lead to order cancellations from customers or customers requesting to delay delivery of new equipment. The Company also services offshore supply vessels and offshore drillings rigs operating in the Gulf of Mexico, as well as internationally. Low energy prices may negatively impact the number of wells drilled in the Gulf of Mexico and international waters. In addition to the possibility that decreased energy prices may result in reduced demand for the Company's services, parts and equipment, energy price volatility may also result in difficulties in the Company's ability to ramp up and ramp down production on a timely basis and, therefore, could result in an adverse impact on the Company's diesel engine services segment.

The Company's diesel engine services segment could be adversely impacted by the construction of pressure pumping units by its competitors. In early 2015, an estimated 19.5 million horsepower of pressure pumping units were working in North America. By late 2016, the working horsepower in North America has declined to an estimated 9.0 million, with an estimated 4.5 million horsepower scrapped, an estimated 2.0 million horsepower available for work and an estimated 4.0 million horsepower stacked, the large majority of which would require major service before being placed back in service. A significant drop in demand due to the low price of crude oil resulted in an oversupply in the pressure pumping market and negatively impacted the Company's 2016 and 2015 results of operations. Increased expansion of, or additions to, facilities or equipment by the Company's competitors could have a negative impact on the Company's results of operations.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

The information appearing in Item 1 under "Marine Transportation– Properties" and "Diesel Engine Services– Properties" is incorporated herein by reference. The Company believes that its facilities are adequate for its needs and additional facilities would be available if required.

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Item 3. Legal Proceedings

In 2009, the Company was named a Potentially Responsible Party ("PRP") in addition to a group of approximately 250 named PRPs under CERCLA with respect to a Superfund site, the Portland Harbor Superfund site ("Portland Harbor") in Portland, Oregon. The site was declared a Superfund site in December 2000 as a result of historical heavily industrialized use due to manufacturing, shipbuilding, petroleum storage and distribution, metals salvaging, and electrical power generation activities which led to contamination of Portland Harbor, an urban and industrial reach of the lower Willamette River located immediately downstream of downtown Portland. The Company's involvement arises from four spills at the site after it was declared a Superfund site, as a result of predecessor entities' actions in the area. To date, there is no information suggesting the extent of the costs or damages to be claimed from the 250 notified PRPs. Based on the nature of the involvement at the Portland Harbor site, the Company believes its potential contribution is de minimis; however, to date neither the EPA nor the named PRPs have performed an allocation of potential liability in connection with the site nor have they provided costs and expenses in connection with the site.

In January 2015, the Company was named as a defendant in a Complaint filed in the U.S. District Court of the Southern District of Texas, USOR Site PRP Group vs. A&M Contractors, USES, Inc. et al. This is a civil action pursuant to the provisions of CERCLA and the Texas Solid Waste Disposal Act for recovery of past and future response costs incurred and to be incurred by the USOR Site PRP Group for response activities at the U.S. Oil Recovery Superfund Site. The property was a former sewage treatment plant owned by defendant City of Pasadena, Texas from approximately 1945 until it was acquired by U.S. Oil Recovery in January 2009. Throughout its operating life, the U.S. Oil Recovery facility portion of the USOR Site received and performed wastewater pretreatment of municipal and Industrial Class I and Class II wastewater, characteristically hazardous waste, used oil and oily sludges, and municipal solid waste. Associated operations were conducted at the MCC Recycling facility portion of the USOR Site after it was acquired by U.S. Oil Recovery from the City of Pasadena in January 2009. Initially, the plaintiff stayed prosecution of the case pending responses to initial settlement demands. In January 2016, the Company filed responsive pleadings in this matter. Based on the nature of the involvement at the USOR Site, the Company believes its potential contribution is de minimis; however, to date neither the EPA nor the named PRPs have performed an allocation of potential liability in connection with the site nor have they provided costs and expenses in connection with the site.

On October 13, 2016, the Company, as a successor to Hollywood Marine, Inc., was issued a General Notice under CERCLA in which it was named as a PRP for liabilities associated with the SBA Shipyard Site located near Jennings, Louisiana ("Site"). The Site was added to the EPA's National Priorities List of sites under CERCLA in September 2016. SBA used the facility for construction, repair, retrofitting, sandblasting, and cleaning and painting of barges beginning in 1965. Three barge slips and a dry dock are located off the Mermentau River. The slips were used to dock barges during cleaning or repair. In 2001, a group of PRPs that had been former customers of the SBA Shipyard facility formed an organization called the SSIC Remediation, LLC (hereinafter, "the Companies") to address removal actions at the Site. In 2002, EPA approved an Interim Measures/Removal Action of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc. (pursuant to RCRA Section 3008(h)) that was proposed by SBA Shipyard and the Companies. Interim removal activities were conducted from March 2001 through January 2005 under an EPA 2002 Order and Agreement. In September 2012, the Louisiana Department of Environmental Quality requested EPA address the SBA Shipyard site under CERCLA authority. The Company is investigating its activities in connection with Site.

With respect to the above sites, the Company has recorded reserves, if applicable, for its estimated potential liability for its portion of the EPA's past costs claim based on information developed to date including various factors such as the Company's liability in proportion to other responsible parties and the extent to which such costs are recoverable from third parties.

On October 13, 2016, the tug Nathan E. Stewart and barge DBL 55, an articulated tank barge and tugboat unit, ran aground at the entrance to Seaforth Channel on Atholone Island, British Columbia. The grounding resulted in a breach

of a portion of the Nathan E. Stewart's fuel tanks causing a discharge of diesel fuel into the water. The USCG and the National Transportation Safety Board ("NTSB") designated the Company as a party of interest in their investigation as to the cause of the incident. The Canadian authorities including Transport Canada and the Canadian Transportation Safety Board are also investigating the cause of the incident. The Company is subject to claims from third parties as well as the provincial and federal government as a result of the incident. The Company has various insurance policies covering liabilities including pollution, property, marine and general liability and believes that it has satisfactory insurance coverage for the cost of cleanup and salvage operations as well as other potential liabilities arising from the incident.

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On March 22, 2014, two tank barges and a towboat (the M/V Miss Susan), owned by Kirby Inland Marine, LP, a wholly owned subsidiary of the Company, were involved in a collision with the M/S Summer Wind on the Houston Ship Channel near Texas City, Texas. The lead tank barge was damaged in the collision resulting in a discharge of intermediate fuel oil from one of its cargo tanks. The USCG and the NTSB named the Company and the Captain of the M/V Miss Susan, as well as the owner and the pilot of the M/S Summer Wind, as parties of interest in their investigation as to the cause of the incident. Sea Galaxy Ltd is the owner of the M/S Summer Wind. The Company is participating in the natural resource damage assessment and restoration process with federal and state government natural resource trustees.

The Company and the owner of the M/S Summer Wind filed actions in the U.S. District Court for the Southern District of Texas seeking exoneration from or limitation of liability relating to the foregoing incident as provided for in the federal rules of procedure for maritime claims. The two actions were consolidated for procedural purposes since they both arise out of the same occurrence. Multiple parties filed claims in limitation seeking various damages under OPA, including claims for business interruption, loss of profit and loss of use of natural resources (OPA claimants). On November 2, 2016, the Company, the M/S Summer Wind and its owners and the OPA claimants entered into a settlement agreement pursuant to which the parties have resolved their respective claims against one another. The dismissal of the OPA claims was entered by the Court on November 14, 2016.

The Company has also been named as a defendant in a civil action by two crewmembers of the M/V Miss Susan, alleging damages under the general maritime law and the Jones Act. The Company is defending the civil action in the proceeding in Galveston Civil District Court. The Company is processing claims that have not been filed in the limitation matter that are properly presented, documented and recoverable under OPA.

On September 13, 2016, the Company entered into a Consent Decree with the Department of Justice (“DOJ”) to settle civil penalty provisions under Section 311(b) of the Clean Water Act involving the discharge of intermediate fuel oil as a result of the collision between the tank barge and the M/S Summer Wind. Under the Consent Decree, the Company agreed to pay a civil penalty of $4,900,000 and undertake certain actions relating to navigation procedures. On September 27, 2016, the DOJ filed the proposed Consent Decree with the U.S. District Court for the Southern District of Texas along with an Original Complaint setting out the allegations that the Company is civilly liable for violation of Section 311(b) of the Clean Water Act. The Consent Decree was approved by the federal court on November 14, 2016.

The Company believes it has adequate insurance coverage for pollution, marine and other potential liabilities arising from the incident. The Company believes it has accrued adequate reserves for the incident and does not expect the incident to have a material adverse effect on its business or financial condition.

In addition, the Company is involved in various legal and other proceedings which are incidental to the conduct of its business, none of which in the opinion of management will have a material effect on the Company’s financial condition, results of operations or cash flows. Management believes that it has recorded adequate reserves and believes that it has adequate insurance coverage or has meritorious defenses for these other claims and contingencies.

Item 4. Mine Safety Disclosures

Not applicable.

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PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

The Company's common stock is traded on the New York Stock Exchange under the symbol KEX. The following table sets forth the high and low sales prices per share for the common stock for the periods indicated:

	Sales Price	
	High	Low
2017		
First Quarter (through February 22, 2017)	$73.40	$61.65
2016		
First Quarter	63.03	44.63
Second Quarter	73.25	57.92
Third Quarter	64.85	50.80
Fourth Quarter	70.90	55.11
2015		
First Quarter	82.91	70.89
Second Quarter	84.24	73.31
Third Quarter	78.72	59.54
Fourth Quarter	69.05	50.42

As of February 22, 2017, the Company had 53,957,000 outstanding shares held by approximately 740 stockholders of record; however, the Company believes the number of beneficial owners of common stock exceeds this number.

The Company does not have an established dividend policy. Decisions regarding the payment of future dividends will be made by the Board of Directors based on the facts and circumstances that exist at that time. Since 1989, the Company has not paid any dividends on its common stock. The Company's credit agreements contain covenants restricting the payment of dividends by the Company at any time when there is a default under the agreements.

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Item 6. Selected Financial Data

The comparative selected financial data of the Company and consolidated subsidiaries is presented for the five years ended December 31, 2016. The information should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations of the Company in Item 7 and the Financial Statements included under Item 8 (selected financial data in thousands, except per share amounts).

	December 31,				
	2016	2015	2014	2013	2012
Revenues:					
Marine transportation	$1,471,893	$1,663,090	$1,770,684	$1,713,167	$1,408,893
Diesel engine services	298,780	484,442	795,634	529,028	703,765
	$1,770,673	$2,147,532	$2,566,318	$2,242,195	$2,112,658
Net earnings attributable to Kirby	$141,406	$226,684	$282,006	$253,061	$209,438
Net earnings per share attributable to Kirby common stockholders:					
Basic	$2.63	$4.12	$4.95	$4.46	$3.75
Diluted	$2.62	$4.11	$4.93	$4.44	$3.73
Common stock outstanding:					
Basic	53,454	54,729	56,674	56,354	55,466
Diluted	53,512	54,826	56,867	56,552	55,674

	December 31,				
	2016	2015	2014	2013	2012
Property and equipment, net	$2,921,374	$2,778,980	$2,589,498	$2,370,803	$2,315,165
Total assets	$4,303,499	$4,152,281	$4,137,614	$3,675,860	$3,645,060
Long-term debt, including current portion	$722,802	$774,849	$712,405	$742,493	$1,127,042
Total equity	$2,412,867	$2,279,196	$2,264,913	$2,022,153	$1,707,054

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Statements contained in this Form 10-K that are not historical facts, including, but not limited to, any projections contained herein, are forward-looking statements and involve a number of risks and uncertainties. Such statements can be identified by the use of forward-looking terminology such as "may," "will," "expect," "anticipate," "estimate," or "continue the negative thereof or other variations thereon or comparable terminology. The actual results of the future events described in such forward-looking statements in this Form 10-K could differ materially from those stated in such forward-looking statements. Among the factors that could cause actual results to differ materially are: adverse economic conditions, industry competition and other competitive factors, adverse weather conditions such as high water, low water, tropical storms, hurricanes, tsunamis, fog and ice, tornados, marine accidents, lock delays, fuel costs, interest rates, construction of new equipment by competitors, government and environmental laws and regulations, and the timing, magnitude and number of acquisitions made by the Company. For a more detailed discussion of factors that could cause actual results to differ from those presented in forward-looking statements, see Item 1A-Risk Factors. Forward-looking statements are based on currently available information and the Company assumes no obligation to update any such statements.

For purposes of Management's Discussion, all net earnings per share attributable to Kirby common stockholders are "diluted earnings per share." The weighted average number of common shares outstanding applicable to diluted earnings

per share for 2016, 2015 and 2014 were 53,512,000, 54,826,000 and 56,867,000, respectively. The decrease in the weighted average number of common shares outstanding for 2016 and 2015 compared with 2014 primarily reflects common stock repurchases in the 2014 fourth quarter through the 2016 first quarter, partially offset by the issuance of restricted stock and the exercise of stock options.

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Overview

The Company is the nation's largest domestic tank barge operator, transporting bulk liquid products throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts, and in Alaska and Hawaii. The Company transports petrochemicals, black oil, refined petroleum products and agricultural chemicals by tank barge. As of December 31, 2016, the Company operated a fleet of 876 inland tank barges with 17.9 million barrels of capacity, and operated an average of 234 inland towboats during 2016. The Company's coastal fleet consisted of 69 tank barges with 6.2 million barrels of capacity and 75 coastal tugboats. The Company also owns and operates six offshore dry-bulk cargo barges, six offshore tugboats and one docking tugboat transporting dry-bulk commodities in United States coastal trade. Through its diesel engine services segment, the Company provides after-market services for medium-speed and high-speed diesel engines, reduction gears and ancillary products for marine and power generation applications, distributes and services high-speed diesel engines, transmissions and pumps, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for the land-based oilfield service and oil and gas operator and producer markets.

For 2016, net earnings attributable to Kirby were $141,406,000, or $2.62 per share, on revenues of $1,770,673,000, compared with 2015 net earnings attributable to Kirby of $226,684,000, or $4.11 per share, on revenues of $2,147,532,000.

Marine Transportation

For 2016, 83% of the Company's revenues were generated by its marine transportation segment. The segment's customers include many of the major petrochemical and refining companies that operate in the United States. Products transported include intermediate materials used to produce many of the end products used widely by businesses and consumers — plastics, fiber, paints, detergents, oil additives and paper, among others, as well as residual fuel oil, ship bunkers, asphalt, gasoline, diesel fuel, heating oil, crude oil, natural gas condensate and agricultural chemicals. Consequently, the Company's marine transportation business is directly affected by the volumes produced by the Company's petroleum, petrochemical and refining customer base.

The Company's marine transportation segment's revenues for 2016 decreased 11% compared with 2015. The decrease was primarily due to lower inland marine transportation term and spot contract pricing, lower inland and coastal equipment utilization, a 24% decline in the average cost of marine diesel fuel which is largely passed through to the customer, and an increase in the number of coastal vessels operating in the spot market which led to increased idle time and decreased revenues, partially offset by the addition of the SEACOR Holdings Inc. ("Seacor") tank barges acquired in April 2016. The segment's operating income for 2016 decreased 31% compared with 2015. The decrease was primarily due to lower inland term and spot contract pricing, lower inland and coastal equipment utilization, increased idle time and voyage costs for coastal vessels and higher depreciation expense, partially offset by savings from a reduction in force earlier in the year and during 2015, and a reduction in the average number of towboats operated. Marine transportation results for 2016 also included $3,792,000 of severance charges in the 2016 first quarter. For 2016 and 2015, the inland tank barge fleet contributed 67% and 68%, respectively, and the coastal fleet 33% and 32%, respectively, of marine transportation revenues.

Inland marine transportation equipment utilization declined to the high 80% range at the end of 2016, occasionally declining to the low-to-mid 80% range during the year, from the 90% to 95% range at the beginning of 2016 and throughout 2015. Coastal tank barge utilization levels also declined throughout 2016, from the high 80% to low 90% range in the first quarter to the low 80% level in the fourth quarter. Coastal utilization levels were generally in the 90% to 95% range throughout the majority of 2015.

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During the first nine months of 2016 and all of 2015, approximately 80% of the inland marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2016 fourth quarter, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues. These allocations provide the operations with a more predictable revenue stream. Inland time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented 52% of the inland revenues under term contracts during 2016 compared with 55% during 2015. Rates on inland term contracts renewed in 2016 decreased in the 5% to 9% average range compared with term contracts renewed in 2015. Spot contract rates, which include the cost of fuel, were relatively flat in the 2016 first quarter when compared with the 2015 fourth quarter and at or below term contract pricing during the balance of 2016. Effective January 1, 2016, annual escalators for labor and the producer price index on a number of inland multi-year contracts resulted in rate increases on those contracts of approximately 1.5%, excluding fuel.

During 2016 and the 2015 third and fourth quarters, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2015 first and second quarters, approximately 85% of the coastal marine transportation revenues were under term contracts and 15% were spot contract revenues. The decrease in term contract revenues in 2016 and the 2015 third and fourth quarters reflected the continued trend of non-renewal of certain term contracts which put increased equipment in the spot contract market, leading to increased idle time. However, the coastal revenues reflected the new 185,000 barrel ATB placed in service in the 2015 fourth quarter under a long-term contract. The second new 185,000 barrel ATB was placed in service in June 2016, also under a long-term contract. Coastal time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented approximately 85% of the coastal revenues under term contracts in 2016 as compared to 90% in 2015. Rates on coastal term contracts renewed in 2016 were essentially flat when compared with term contracts renewed in 2015. Spot contract rates remained above term contract rates during the 2016 first quarter, fluctuated around term contract rates during the 2016 second quarter and fell below term contract rates during the 2016 third and fourth quarters.

The 2016 marine transportation operating margin was 17.5% compared with 22.5% for 2015. The results primarily reflected lower inland marine transportation term and spot contract pricing, lower coastal spot contract pricing, lower inland and coastal equipment utilization levels, an increase in the number of coastal vessels operating in the spot market which led to increased idle time and voyage costs, higher depreciation expense and the 2016 first quarter severance charge of $3,792,000, partially offset by savings from a reduction in force in early 2016 and during 2015, and a reduction in the average number of inland towboats operated.

Diesel Engine Services

During 2016, the diesel engine services segment generated 17% of the Company’s revenues, of which 61% was generated from overhauls and service, 38% from direct parts sales and 1% from manufacturing. The results of the diesel engine services segment are largely influenced by the economic cycles of the marine and power generation markets and the land-based oilfield service and oil and gas operator and producer markets.

Diesel engine services revenues for 2016 decreased 38% and operating income decreased 83% compared with 2015. The lower revenues in 2016 compared to 2015 were primarily attributable to the lack of demand for the manufacture of pressure pumping units and other oilfield service equipment and for the sale and distribution of engines, transmissions and parts due to the impact of the decline in the price of crude oil and decreased drilling activity in North American shale formations. During the 2016 third and fourth quarters, with the increase in the price of crude oil and resulting increase in drilling activity, the segment saw an increase in activity for the remanufacturing and servicing of pressure pumping units. The marine diesel engine services market was impacted by continued weakness in the Gulf of Mexico oilfield services market. In addition, customers continued to defer major maintenance projects in many regions of the marine diesel engine services market largely due to the weaker liquid and dry cargo barge markets and, to a lesser extent, the general economy. The power generation market was stable, benefiting from major

generator set upgrades and parts sales for both domestic and international power generation customers. The diesel engine services results for 2016 and 2015 included $1,436,000 and $1,813,000, respectively, of severance charges in response to the reduced activity in both the marine and land-based markets.

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The diesel engine services operating margin for 2016 was 1.1% compared with 3.9% for 2015. The operating margin for 2016 reflected continued weakness in the land-based market, the Gulf of Mexico marine oilfield services market and customer deferrals of major maintenance projects throughout the marine diesel engine services market.

Cash Flow and Capital Expenditures

The Company continued to generate favorable operating cash flow during 2016 with net cash provided by operating activities of $414,038,000 compared with $521,305,000 of net cash provided by operating activities for 2015. The 21% decrease was primarily from a $85,166,000 decrease in net earnings, a net decrease of $12,452,000 in cash flows from changes in operating assets and liabilities, a $11,459,000 decrease in the provision for deferred income taxes and a $2,257,000 decrease in the amortization of major maintenance costs, partially offset by a $8,677,000 increase in depreciation and amortization expense. In addition, during the 2016 and 2015, the Company generated cash of $321,000 and $3,712,000, respectively, of proceeds from the exercise of stock options and $18,617,000 and $24,429,000, respectively, of proceeds from the disposition of assets.

For 2016, cash generated and borrowings under the Company's revolving credit facility were used for capital expenditures of $231,066,000, including $10,676,000 for inland tank barge and towboat construction, $14,884,000 in final costs for the construction of two 185,000 barrel coastal ATBs, one placed in service in late 2015 and the second in June 2016, $74,689,000 for progress payments on the construction of two 155,000 barrel coastal ATBs, one placed in service in November 2016 and the second scheduled to be placed in service in the summer of 2017, $10,098,000 for progress payments on the construction of two 4900 horsepower coastal tugboats, $6,593,000 for progress payments on the construction of a 35,000 barrel coastal petrochemical tank barge placed in service in December 2016, $18,000 for progress payments on six 5000 horsepower coastal ATB tugboats, $114,108,000 primarily for upgrading existing marine equipment, and marine transportation and diesel engine services facilities, and $137,072,000 for acquisitions of businesses and marine equipment. Cash generated and borrowings under the Company's revolving credit facility in 2016 were also used for the repurchase of 35,000 shares of the Company's common stock for $1,827,000 and the acquisitions of noncontrolling interests for $8,438,000.

The Company's debt-to-capitalization ratio decreased to 23.1% at December 31, 2016 from 25.4% at December 31, 2015. The decrease was primarily due to a decrease of $52,047,000 in outstanding debt and the increase in total equity from net earnings attributable to Kirby for 2016 of $141,406,000 and the amortization of unearned equity compensation, partially offset by the acquisitions of noncontrolling interests of $8,460,000 and treasury stock purchases of $1,827,000. As of December 31, 2016, the Company had $225,986,000 outstanding under its revolving credit facility and $500,000,000 of senior notes outstanding.

During 2016, the Company took delivery of five new inland tank barges with a total capacity of approximately 141,000 barrels, acquired 27 inland tank barges from Seacor with a total capacity of approximately 807,000 barrels, transferred one tank barge into the inland fleet from the coastal fleet with a capacity of 31,000 barrels, added one leased inland tank barge with a capacity of 11,000 barrels, returned six leased inland tank barges and retired 50 inland tank barges, reducing its capacity by approximately 1,038,000 barrels. The net result was a reduction of 22 inland tank barges and approximately 48,000 barrels of capacity during 2016.

The Company projects that capital expenditures for 2017 will be in the $165,000,000 to $185,000,000 range. The 2017 construction program will consist of two inland tank barges with a total capacity of 57,000 barrels, one inland towboat, progress payments on the construction of a 155,000 barrel coastal ATB scheduled to be placed in service in the summer of 2017, progress payments on the construction of two 4900 horsepower coastal tugboats and six 5000 horsepower coastal ATB tugboats and final costs on the construction of a 35,000 barrel coastal petrochemical tank barge placed in service in December 2016. Based on current commitments, steel prices and projected delivery schedules, the Company's 2017 payments on new inland tank barges and the towboat will be approximately $3,000,000, 2017 progress payments on the construction of the 155,000 barrel coastal ATB will be approximately

$7,000,000, 2017 progress payments on the construction of the two 4900 horsepower coastal tugboats will be approximately $16,000,000, progress payments on the six 5000 horsepower coastal ATB tugboats will be approximately $27,000,000 and final costs on the construction of the 35,000 barrel coastal petrochemical tank barge will be approximately $2,000,000. The balance of approximately $110,000,000 to $130,000,000 is primarily capital upgrades and improvements to existing marine equipment, and marine transportation and diesel engine services facilities.

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Outlook

Reduced crude oil volumes to be moved by tank barge due to additional pipelines, coupled with the large number of tank barges built during the last several years, many of which were for the movement of crude oil and natural gas condensate, has resulted in excess industry-wide tank barge capacity and lower equipment utilization for both the inland and coastal marine transportation markets. This extra capacity has placed inland and coastal tank barge rates under some pressure. As a result, the inland market for 2017 will be impacted by the pricing declines experienced throughout 2016. However, with anticipated utilization in the mid 80% to low 90% levels for 2017, the industry could achieve a supply and demand balance during 2017, leading to modestly improving pricing in the second half of the year. In addition, future inland tank barge demand for petrochemical and refined petroleum products volumes from increased production from current facilities, plant expansions or the opening of new facilities should benefit the inland marine transportation markets.

In the coastal marine transportation market, a decline in crude oil and natural gas condensate transportation volumes has increased available capacity and has resulted in some reluctance among certain customers to extend term contracts, which has led to an increase in the number of coastal vessels operating in the spot market. In addition, the Company and the industry have added new coastal tank barge capacity during 2015 and 2016, with additional new capacity coming on-line in 2017 and 2018. While much of this new capacity is replacement capacity for older vessels anticipated to be retired, the Company maintains a cautious outlook as the industry absorbs the new capacity. For 2017, the Company expects tank barge utilization for the coastal markets to be in the high 70% to low 80% range.

As of December 31, 2016, the Company estimated there were approximately 3,850 inland tank barges in the industry fleet, of which approximately 600 were over 30 years old and approximately 270 of those over 40 years old. Given the age profile of the industry inland tank barge fleet and current market conditions, the expectation is that many older tank barges will be removed from service during 2017. The Company estimates approximately 100 tank barges were ordered during 2015 and 2016 for delivery throughout 2016, of which five were for the Company, significantly less than the 260 new inland tank barges placed in service during 2015, 36 of which were for the Company. The Company estimates that approximately 40 tank barges were ordered during 2016 for delivery throughout 2017, two of which are for the Company, and many older tank barges, including an expected 36 by the Company, will be retired, dependent on 2017 market conditions. Historically, 75 to 150 older inland tank barges are retired from service each year industry-wide, with the extent of the retirements dependent on petrochemical and refinery production levels, and crude oil and natural gas condensate movements, both of which can have a direct effect on industry-wide tank barge utilization, as well as term and spot contract rates.

As of December 31, 2016, the Company estimated there were approximately 295 tank barges operating in the 195,000 barrel or less coastal industry fleet, the sector of the market in which the Company operates, and approximately 35 of those were over 30 years old. In 2014 and 2015, the Company placed orders for the construction of two 185,000 barrel coastal ATBs, one of which was placed in service in late 2015 and the second in June 2016, two 155,000 barrel coastal ATBs, one of which was placed in service in November 2016 and the other scheduled for delivery in the summer of 2017, one 35,000 barrel coastal petrochemical tank barge placed in service in December 2016 and two 4900 horsepower coastal tugboats. In addition, the Company placed an order in 2016 for the construction of six 5000 horsepower coastal ATB tugboats for delivery in 2017 and 2018. The Company is aware of eight coastal tank barges placed in service in 2016 by competitors and 11 announced coastal tank barge and tugboat units in the 195,000 barrel or less category under construction by competitors for delivery in 2017 and 2018.

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In the land-based diesel engine services segment, the Company is experiencing a healthy rebound in service demand, particularly with pressure pumping unit remanufacturing. The United States land rig count has improved from the lows of 2016, oil prices have recently traded at a consistent level in the mid-$50 per barrel range, and service intensity in the well completion business has increased. The condition of the industry's pressure pumping fleet is poor. Based on these positive conditions, the Company anticipates that for 2017 the demand for pressure pumping unit remanufacturing will remain strong and that a small number of orders for new pressure pumping units and ancillary oilfield service support equipment will be received.

For the marine diesel engine services market, the Company anticipates continued weakness in the Gulf of Mexico oilfield services market throughout 2017, with the other marine markets to remain relatively consistent with 2016. The Company does anticipate some modest benefit from the VPS acquisition made in the 2016 fourth quarter. The power generation market should remain stable, benefiting from engine-generator set upgrades and parts sales for both domestic and international customers.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with United States generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. The Company evaluates its estimates and assumptions on an ongoing basis based on a combination of historical information and various other assumptions that are believed to be reasonable under the particular circumstances. Actual results may differ from these estimates based on different assumptions or conditions. The Company believes the critical accounting policies that most impact the consolidated financial statements are described below. It is also suggested that the Company's significant accounting policies, as described in the Company's financial statements in Note 1, Summary of Significant Accounting Policies, be read in conjunction with this Management's Discussion and Analysis of Financial Condition and Results of Operations.

Accounts Receivable. The Company extends credit to its customers in the normal course of business. The Company regularly reviews its accounts and estimates the amount of uncollectible receivables each period and establishes an allowance for uncollectible amounts. The amount of the allowance is based on the age of unpaid amounts, information about the current financial strength of customers, and other relevant information. Estimates of uncollectible amounts are revised each period, and changes are recorded in the period they become known. Historically, credit risk with respect to these trade receivables has generally been considered minimal because of the financial strength of the Company's customers; however, a United States or global recession or other adverse economic condition could impact the collectability of certain customers' trade receivables which could have a material effect on the Company's results of operations.

Property, Maintenance and Repairs. Property is recorded at cost. Improvements and betterments are capitalized as incurred. Depreciation is recorded on the straight-line method over the estimated useful lives of the individual assets. When property items are retired, sold or otherwise disposed of, the related cost and accumulated depreciation are removed from the accounts with any gain or loss on the disposition included in the statement of earnings. Maintenance and repairs on vessels built for use on the inland waterways are charged to operating expense as incurred and includes the costs incurred in USCG inspections unless the shipyard extends the life or improves the operating capacity of the vessel which results in the costs being capitalized. The Company's ocean-going vessels are subject to regulatory drydocking requirements after certain periods of time to be inspected, have planned major maintenance performed and be recertified by the ABS. These recertifications generally occur twice in a five year period. The Company defers the drydocking expenditures incurred on its ocean-going vessels due to regulatory marine inspections by the ABS and amortizes the costs of the shipyard over the period between drydockings, generally 30 or 60 months, depending on the type of major maintenance performed. Drydocking expenditures that extend the life or improve the operating capability of the vessel result in the costs being capitalized. Routine repairs and maintenance on ocean-going vessels

are expensed as incurred. Interest is capitalized on the construction of new ocean-going vessels.

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The Company reviews long-lived assets for impairment by vessel class whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Recoverability of the assets is measured by a comparison of the carrying amount of the assets to future net cash expected to be generated by the assets. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell. There are many assumptions and estimates underlying the determination of an impairment event or loss, if any. The assumptions and estimates include, but are not limited to, estimated fair market value of the assets and estimated future cash flows expected to be generated by these assets, which are based on additional assumptions such as asset utilization, length of service the asset will be used, and estimated salvage values. Although the Company believes its assumptions and estimates are reasonable, deviations from the assumptions and estimates could produce a materially different result.

Goodwill. The excess of the purchase price over the fair value of identifiable net assets acquired in transactions accounted for as a purchase is included in goodwill. Management monitors the recoverability of goodwill on an annual basis, or whenever events or circumstances indicate that interim impairment testing is necessary. The amount of goodwill impairment, if any, is typically measured based on projected discounted future operating cash flows using an appropriate discount rate. The assessment of the recoverability of goodwill will be impacted if estimated future operating cash flows are not achieved. There are many assumptions and estimates underlying the determination of an impairment event or loss, if any. Although the Company believes its assumptions and estimates are reasonable, deviations from the assumptions and estimates could produce a materially different result.

Accrued Insurance. The Company is subject to property damage and casualty risks associated with operating vessels carrying large volumes of bulk liquid and dry cargo in a marine environment. The Company maintains insurance coverage against these risks subject to a deductible, below which the Company is liable. In addition to expensing claims below the deductible amount as incurred, the Company also maintains a reserve for losses that may have occurred but have not been reported to the Company, or are not yet fully developed. The Company uses historic experience and actuarial analysis by outside consultants to estimate an appropriate level of reserves. If the actual number of claims and magnitude were substantially greater than assumed, the required level of reserves for claims incurred but not reported or fully developed could be materially understated. The Company records receivables from its insurers for incurred claims above the Company’s deductible. If the solvency of the insurers became impaired, there could be an adverse impact on the accrued receivables and the availability of insurance.

Acquisitions

On October 11, 2016, the Company purchased certain assets of VPS for $11,440,000 in cash. The assets purchased are mainly related to the EMD engine supply and repair business of VPS and include an EMD distributor agreement to sell engines in nine western states. Financing of the acquisition was through the Company’s revolving credit facility.

On June 30, 2016, the Company purchased an 80,000 barrel coastal tank barge from TD Equipment Finance, Inc. (“TD Equipment”) for $13,682,000 in cash. The Company had been leasing the barge from TD Equipment prior to its purchase. Financing of the equipment acquisition was through the Company’s revolving credit facility.

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On June 2, 2016, the Company purchased four coastal tugboats from Crosby Marine Transportation LLC for $26,450,000 in cash. The four coastal tugboats have an average age of 13 years. Financing of the equipment acquisition was through borrowings under the Company's revolving credit facility.

On April 15, 2016, the Company purchased the inland tank barge fleet of Seacor from subsidiaries of Seacor for a total value of $89,181,000. The assets purchased consisted of 27 inland 30,000 barrel tank barges and 14 inland towboats. The purchase price was comprised of $85,500,000 in cash and the transfer to Seacor of a Florida-based ship docking tugboat with a value of $3,681,000. The average age of the 27 inland tank barges was ten years. Seacor, through its subsidiary, SCF Waxler Marine LLC, transported refined petroleum products, petrochemicals and black oil on the Mississippi River System and the Gulf Intracoastal Waterway. Financing of the acquisition was through the Company's revolving credit facility.

Results of Operations

The Company reported 2016 net earnings attributable to Kirby of $141,406,000, or $2.62 per share, on revenues of $1,770,673,000, compared with 2015 net earnings attributable to Kirby of $226,684,000, or $4.11 per share, on revenues of $2,147,532,000, and 2014 net earnings attributable to Kirby of $282,006,000, or $4.93 per share, on revenues of $2,566,318,000.

Marine transportation revenues for 2016 were $1,471,893,000, or 83% of total revenues, compared with $1,663,090,000, or 77% of total revenues for 2015, and $1,770,684,000, or 69% of total revenues for 2014. Diesel engine services revenues for 2016 were $298,780,000, or 17% of total revenues, compared with $484,442,000, or 23% of total revenues for 2015, and $795,634,000, or 31% of total revenues for 2014.

In light of challenging market conditions, included in the 2016 first quarter results was $5,605,000 before taxes, or $.06 per share, of severance charges which were reflected in the marine transportation and diesel engine businesses and corporate staff in order to reduce costs. The 2015 first and third quarters included $1,225,000 and $702,000, respectively, of severance charges which were mainly reflected in the diesel engine services results. Also, the 2015 first quarter results included a gain of $1,621,000 before taxes, or $.02 per share, on the sale of the assets of a small product line in the diesel engine services segment.

Marine Transportation

The Company, through its marine transportation segment, is a provider of marine transportation services, operating tank barges and towing vessels transporting bulk liquid products throughout the Mississippi River System, on the Gulf Intracoastal Waterway, coastwise along all three United States coasts, and in Alaska and Hawaii. The Company transports petrochemicals, black oil, refined petroleum products and agricultural chemicals by tank barge. As of December 31, 2016, the Company operated 876 inland tank barges, including 34 leased barges, with a total capacity of 17.9 million barrels. This compares with 898 inland tank barges operated as of December 31, 2015, including 31 leased barges, with a total capacity of 17.9 million barrels. The Company operated an average of 234 inland towboats during 2016, of which an average of 73 were chartered, compared with 248 during 2015, of which an average of 84 were chartered. The Company's coastal tank barge fleet as of December 31, 2016 consisted of 69 tank barges, including seven of which were leased, with 6.2 million barrels of capacity, and 75 tugboats, eight of which were chartered. This compares with 70 coastal tank barges operated as of December 31, 2015, eight of which were leased, with 6.0 million barrels of capacity, and 73 coastal tugboats, six of which were chartered. As of December 31, 2016 and 2015, the Company operated six offshore dry-bulk cargo barge and tugboat units engaged in the offshore transportation of dry-bulk cargoes. The Company also owns a shifting operation and fleeting facility for dry cargo barges and tank barges on the Houston Ship Channel, as well as a two-thirds interest in Osprey, which transports project cargoes and cargo containers by barge.

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The following table sets forth the Company's marine transportation segment's revenues, costs and expenses, operating income and operating margins for the three years ended December 31, 2016 (dollars in thousands):

	2016	2015	% Change 2015 to 2016	2014	% Change 2014 to 2015
Marine transportation revenues	$1,471,893	$1,663,090	(11)%	$1,770,684	(6)%
Costs and expenses:					
Costs of sales and operating expenses	900,766	981,525	(8)	1,053,390	(7)
Selling, general and administrative	108,917	112,193	(3)	119,087	(6)
Taxes, other than on income	20,817	18,732	11	14,324	31
Depreciation and amortization	184,291	175,798	5	154,019	14
	1,214,791	1,288,248	(6)	1,340,820	(4)
Operating income	$257,102	$374,842	(31)%	$429,864	(13)%
Operating margins	17.5 %	22.5 %		24.3 %	

The following table shows the marine transportation markets serviced by the Company, the marine transportation revenue distribution for 2016, products moved and the drivers of the demand for the products the Company transports:

Markets Serviced	2016 Revenue Distribution	Products Moved	Drivers
Petrochemicals	49%	Benzene, Styrene, Methanol, Acrylonitrile, Xylene, Naphtha, Caustic Soda, Butadiene, Propylene	Consumer non-durables —70% Consumer durables — 30%
Black Oil	25%	Residual Fuel Oil, Coker Feedstock, Vacuum Gas Oil, Asphalt, Carbon Black Feedstock, Crude Oil, Natural Gas Condensate, Ship Bunkers	Fuel for Power Plants and Ships, Feedstock for Refineries, Road Construction
Refined Petroleum Products	23%	Gasoline, No. 2 Oil, Jet Fuel, Heating Oil, Diesel Fuel, Ethanol	Vehicle Usage, Air Travel, Weather Conditions, Refinery Utilization
Agricultural Chemicals	3%	Anhydrous Ammonia, Nitrogen-Based Liquid Fertilizer, Industrial Ammonia	Corn, Cotton and Wheat Production, Chemical Feedstock Usage

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2016 Compared with 2015

Marine Transportation Revenues

Marine transportation revenues for 2016 decreased 11% compared with 2015, primarily due to lower inland marine transportation term and spot contract pricing, lower inland and coastal equipment utilization, a 24% decline in the average cost of marine diesel fuel which is largely passed through to the customer, and an increase in the number of coastal vessels operating in the spot market which led to increased idle time and decreased revenues, partially offset by the addition of the Seacor tank barges acquired in April 2016. For 2016 and 2015, the inland tank barge fleet contributed 67% and 68%, respectively, and the coastal fleet contributed 33% and 32%, respectively, of marine transportation revenues.

Inland marine transportation equipment utilization declined to the high 80% range at the end of 2016, occasionally declining to the low-to-mid 80% range during the year, from the 90% to 95% range at the beginning of 2016 and throughout 2015. Coastal tank barge utilization levels also declined throughout 2016, from the high 80% to low 90% range in the first quarter to the low 80% level in the fourth quarter. Coastal utilization levels were generally in the 90% to 95% range throughout the majority of 2015.

The petrochemical market, the Company's largest market, contributed 49% of marine transportation revenues for 2016, reflecting continued stable volumes from Gulf Coast petrochemical plants for both domestic consumption and to terminals for export destinations, aside from the negative impact of plant maintenance turnarounds. Also, demand for movements of certain upriver petrochemicals was strong in the 2016 second half. Low priced domestic natural gas, a basic feedstock for the United States petrochemical industry, provides the industry with a competitive advantage relative to naphtha-based foreign petrochemical producers.

The black oil market, which contributed 25% of marine transportation revenues for 2016, reflected lower fleet utilization due to commodity price volatility. During 2016, the Company continued to transport crude oil and natural gas condensate produced from the Eagle Ford and Permian Basin shale formations in Texas both along the Gulf Intracoastal Waterway with inland vessels and in the Gulf of Mexico with coastal equipment, and continued to transport Utica natural gas condensate downriver from the Mid-Atlantic to the Gulf Coast, however, at reduced levels compared with 2015.

The refined petroleum products market, which contributed 23% of marine transportation revenues for 2016, reflected increased volumes in the inland market as a result of the Seacor acquisition in April 2016, partially offset by soft demand in the coastal market, primarily a result of weak heating oil demand in the 2016 first quarter and the movement of vessels to the spot market at lower rates with increased idle time.

The agricultural chemicals market, which contributed 3% of marine transportation revenues for 2016, saw typical seasonal demand for transportation of both domestically produced and imported products during the first, third and fourth quarters and a decline in demand in the second quarter, primarily due to a shortened spring season.

For 2016, the inland operations incurred 7,278 delay days, 8% less than the 7,924 delay days that occurred during 2015. Delay days measure the lost time incurred by a tow (towboat and one or more tank barges) during transit when the tow is stopped due to weather, lock conditions or other navigational factors. Operating conditions during the 2016 first quarter were challenging due to periodic high wind and heavy fog along the Gulf Coast. Additionally, high water on the Mississippi River System led to tow size restrictions and added horsepower requirements, as well as slower transit times for most of the 2016 first quarter. During the 2016 second quarter, operating conditions were seasonally normal, although high cross currents at floodgates and river crossings on the Gulf Intracoastal Waterway led to congestion and added delays at certain points along the Gulf Coast. During the 2016 third quarter, operating conditions were seasonally normal, although there was significant flooding in Louisiana that caused some disruptions

in the Gulf Intracoastal Waterway for a short period. During the 2016 fourth quarter, dense fog and high winds along the Gulf Coast created operating challenges and ice on the Illinois River presented some short-term challenges for upriver transit times and efficiency.

During the first nine months of 2016 and all of 2015, approximately 80% of the inland marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2016 fourth quarter, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues. These allocations provide the operations with a more predictable revenue stream. Inland time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented 52% of the inland revenues under term contracts during 2016 compared with 55% during 2015.

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During 2016 and the 2015 third and fourth quarters, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were spot contract revenues. During the 2015 first and second quarters, approximately 85% of the coastal marine transportation revenues were under term contracts and 15% were spot contract revenues. The decrease in term contract revenues in 2016 and the 2015 third and fourth quarters reflected the continued trend of non-renewal of certain term contracts which put increased equipment in the spot contract market, leading to increased idle time. However, the coastal revenues reflected the new 185,000 barrel ATB placed in service in the 2015 fourth quarter under a long-term contract. The second new 185,000 barrel ATB was placed in service in June 2016, also under a long-term contract. Coastal time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented approximately 85% of the coastal revenues under term contracts in 2016 as compared to 90% in 2015.

Rates on inland term contracts renewed in 2016 decreased in the 5% to 9% average range compared with term contracts renewed in 2015. Spot contract rates, which include the cost of fuel, were relatively flat in the 2016 first quarter when compared with the 2015 fourth quarter and at or below term contract pricing during the balance of 2016. Effective January 1, 2016, annual escalators for labor and the producer price index on a number of inland multi-year contracts resulted in rate increases on those contracts of approximately 1.5%, excluding fuel.

Rates on coastal term contracts renewed in 2016 were essentially flat when compared with term contracts renewed in 2015. Spot contract rates remained above term contract rates during the 2016 first quarter, fluctuated around term contract rates during the 2016 second quarter and fell below term contract rates during the 2016 third and fourth quarters.

Marine Transportation Costs and Expenses

Costs and expenses for 2016 decreased 6% compared with 2015. Costs of sales and operating expenses for 2016 decreased 8% compared with 2015, primarily reflecting lower business activity levels, lower fuel costs due to the decline in the price of diesel fuel and fewer inland towboats operated.

The inland marine transportation fleet operated an average of 234 towboats during 2016, of which an average of 73 towboats were chartered, compared with 248 during 2015, of which an average of 84 towboats were chartered. As demand, or anticipated demand, increases or decreases, as new tank barges are added to the fleet, as chartered towboat availability changes, or as weather or water conditions dictate, such as the heavy ice and high water conditions that occurred in the 2016 first and fourth quarters, the Company charters-in or releases chartered towboats in an effort to balance horsepower needs with current requirements. The Company has historically used chartered towboats for approximately one-third of its horsepower requirements.

During 2016, the inland operations consumed 40.0 million gallons of diesel fuel compared to 42.9 million gallons consumed during 2015. The average price per gallon of diesel fuel consumed during 2016 was $1.46 compared with $1.92 for 2015. Fuel escalation and de-escalation clauses on term contracts are designed to rebate fuel costs when prices decline and recover additional fuel costs when fuel prices rise; however, there is generally a 30 to 90 day delay before the contracts are adjusted. Spot contracts do not have escalators for fuel.

Taxes, other than on income, for 2016 increased 11% compared with 2015. The increase is mainly due to higher property taxes on marine transportation equipment.

Selling, general and administrative expenses for 2016 decreased 3% compared with 2015, primarily a reflection of a $3,792,000 severance charge in the 2016 first quarter and the resulting cost savings in the 2016 second, third and fourth quarters, partially offset by salary increases effective August 1, 2016.

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Depreciation and amortization for 2016 increased 5% compared with 2015. The increases were primarily attributable to the Seacor acquisition and increased capital expenditures in both the inland and coastal fleets, including new inland tank barges and towboats, as well as a coastal 185,000 barrel ATB placed in service in the fourth quarter of 2015 and a second coastal 185,000 barrel ATB placed in service in the second quarter of 2016.

Marine Transportation Operating Income and Operating Margins

Marine transportation operating income for 2016 decreased 31% compared with 2015. The operating margin for 2016 was 17.5% compared with 22.5% for 2015. The results primarily reflected lower inland marine transportation term and spot contract pricing, lower coastal spot contract pricing, lower inland utilization levels, an increase in the number of coastal vessels operating in the spot market which led to increased idle time and voyage costs, higher depreciation expense and the 2016 first quarter severance charge of $3,792,000, partially offset by savings from a reduction in force in early 2016 and during 2015, and a reduction in the average number of inland towboats operated.

2015 Compared with 2014

Marine Transportation Revenues

Marine transportation revenues for 2015 decreased 6% when compared with 2014 primarily due to a 37% decline in the average cost of marine diesel fuel in 2015, which is largely passed through to the customer. Also, a heavier coastal marine shipyard schedule, slightly lower inland and coastal tank barge utilization in the later part of 2015, and lower inland marine transportation term and spot contract rates contributed to the year over year decline in revenues. For 2015 and 2014, the inland tank barge fleet contributed 68% and the coastal fleet contributed 32% of marine transportation revenues. The Company’s inland and coastal petrochemical, black oil and refined petroleum products fleets achieved relatively consistent tank barge utilization in the 90% to 95% range throughout the majority of 2015, consistent with 2014, and occasionally declined to the high-80% level during the 2015 fourth quarter.

The petrochemical market, the Company’s largest market, contributed 47% of marine transportation revenues for 2015, reflecting continued stable volumes from Gulf Coast petrochemical plants for both domestic consumption and to terminals for export destinations. Low priced domestic natural gas, a basic feedstock for the United States petrochemical industry, has provided the industry with a competitive advantage relative to foreign petrochemical producers.

The black oil market, which contributed 30% of marine transportation revenues for 2015, reflected continued stable demand driven by high refinery production levels and the export of refined petroleum products and fuel oils. Demand for crude oil and natural gas condensate movements declined during 2015; however, the Company was successful in moving barges from that trade to other markets. The Company continued to transport crude oil and natural gas condensate produced from the Eagle Ford and Permian Basin shale formations in Texas both along the Gulf Intracoastal Waterway with inland vessels and in the Gulf of Mexico with coastal equipment, and continued to transport Utica crude oil and natural gas condensate downriver from the Mid-Atlantic to the Gulf Coast, however at reduced levels compared with 2014.

The refined petroleum products market, which contributed 20% of marine transportation revenues for 2015, reflected continued stable demand, driven by high refinery production levels, for the movement of products in the inland and coastal markets. The refined petroleum products market was also driven by a cold winter in the Northeast that increased the demand for heating oil during the 2015 first quarter and by additional vehicle miles driven during 2015.

The agricultural chemical market, which contributed 3% of marine transportation revenues for 2015, saw typical seasonal demand for transportation of both domestically produced and imported products during 2015.

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For 2015, the inland operations incurred 7,924 delay days, 2% more than the 7,804 delay days that occurred during 2014. Delay days measure the lost time incurred by a tow (towboat and one or more tank barges) during transit when the tow is stopped due to weather, lock conditions or other navigational factors. Operating conditions were challenging during the 2015 third and fourth quarters due to scheduled lock closures along the Gulf Intracoastal Waterway and high water conditions. Operating conditions were also challenging during the 2015 second and fourth quarters due to high water conditions and lock closures on the Mississippi River System, as well as strong currents at river crossings along the Gulf Intracoastal Waterway.

During 2015 and 2014, approximately 80% of the inland marine transportation revenues were under term contracts and 20% were spot contract revenues, thereby providing the operations with a more predictable revenue stream. Inland time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented 55% of the inland revenues under term contracts during 2015 compared with 56% during 2014.

During 2015, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were under spot contracts. During 2014, 85% of coastal marine transportation revenues were under term contracts and 15% were under spot contracts. Coastal time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented approximately 90% of the coastal revenues under term contracts during 2015 and 2014.

Rates on inland term contracts renewed in the 2015 first quarter were flat or down slightly compared with term contracts in the first quarter of 2014, while rates for the balance of 2015 decreased in the 1% to 5% average range compared with the corresponding 2014 period. Spot contract rates, which include the cost of fuel, remained at or above term contract pricing for the majority of 2015 until the fourth quarter when spot contract pricing was at or below term contract pricing. Effective January 1, 2015, annual escalators for labor and the producer price index on a number of inland multi-year contracts resulted in rate increases on those contracts of approximately 1.5%, excluding fuel.

Rates on coastal term contracts renewed increased in the 2015 first quarter in the 6% to 8% average range, second quarter in the 4% to 6% average range, third quarter in the 2% to 4% average range, and in the fourth quarter were flat to up slightly compared with corresponding 2014 quarters. Spot contract rates, which include the cost of fuel, remained above term contract rates during 2015.

Marine Transportation Costs and Expenses

Costs and expenses for 2015 decreased 4% compared with 2014. Costs of sales and operating expenses for 2015 decreased 7% compared with 2014, reflecting a 37% decline in the average cost of marine diesel fuel for 2015, which is largely passed through to the customer. This decrease was partially offset by higher operating labor costs due to vessel salary increases effective January 1, 2015, increased pension expense for inland marine vessel personnel resulting from actuarial changes to mortality tables and a lower discount rate, and higher shipyard activity in the coastal marine transportation market in the 2015 second and third quarters.

The inland marine transportation fleet operated an average of 248 towboats during 2015, of which an average of 84 towboats were chartered, compared with 251 during 2014, of which an average of 79 towboats were chartered. As demand, or anticipated demand, increases or decreases, as new tank barges are added to the fleet, as chartered towboat availability changes, or as weather or water conditions dictate, such as the heavy ice and high water conditions that occurred in the 2015 first and second quarters, and high water and scheduled lock closures along the Gulf Intracoastal Waterway in the 2015 third and fourth quarters, the Company charters-in or releases chartered towboats in an effort to balance horsepower needs with current requirements. The Company has historically used chartered towboats for approximately one-third of its horsepower requirements.

During 2015, the inland operations consumed 42.9 million gallons of diesel fuel compared to 44.7 million gallons consumed during 2014. The average price per gallon of diesel fuel consumed during 2015 was $1.92 compared with $3.06 for 2014. Fuel escalation and de-escalation clauses on term contracts are designed to rebate fuel costs when prices decline and recover additional fuel costs when fuel prices rise; however, there is generally a 30 to 90 day delay before the contracts are adjusted. Spot contracts do not have escalators for fuel.

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Taxes, other than on income, for 2015 increased 31% compared with 2014. The increase is mainly due to higher property taxes on marine transportation equipment and an increase in the inland waterways user tax rate from 20 to 29 cents per gallon of fuel consumed effective April 1, 2015. This user tax is largely passed through to the customer.

Selling, general and administrative expenses for 2015 decreased 6% compared with 2014, primarily a reflection of a $2,215,000 severance charge in the 2014 first quarter and lower professional fees in the 2015 first and second quarters, partially offset by salary increases effective April 1, 2015.

Depreciation and amortization for 2015 increased 14% compared with 2014. The increase was primarily attributable to increased capital expenditures in both the inland and coastal fleets, including new inland tank barges and towboats, as well as six inland pressure tank barges purchased in February 2015. In addition, during the 2015 third and fourth quarters, the Company shortened the estimated useful lives of certain assets in the coastal fleet prior to their scheduled 2016 shipyards, resulting in an increase in depreciation expense.

Marine Transportation Operating Income and Operating Margins

Marine transportation operating income for 2015 decreased 13% compared with 2014. The operating margin for 2015 was 22.5% compared with 24.3% for 2014. The results reflected continued stable demand across the majority of the Company’s inland and coastal markets, but 2015 was negatively impacted by lower inland marine transportation term and spot contract rates, the impact of fuel price adjustments on inland marine affreightment contracts, higher coastal marine transportation depreciation expense and amortization of major maintenance costs in the 2015 third and fourth quarters, higher shipyard activity in the coastal marine transportation fleet in the 2015 second and third quarters, higher operating labor costs due to vessel salary increases effective January 1, 2015, and increased pension expense for inland marine vessel personnel resulting from actuarial changes to mortality tables and a lower discount rate.

Diesel Engine Services

The Company, through its diesel engine services segment, sells genuine replacement parts, provides service mechanics to overhaul and repair medium-speed and high-speed diesel engines, transmissions, reduction gears, pumps, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and manufactures and remanufactures oilfield service equipment, including pressure pumping units. The Company primarily services the marine, power generation and the land-based oilfield service and oil and gas operator and producer markets.

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The following table sets forth the Company's diesel engine services segment's revenues, costs and expenses, operating income and operating margins for the three years ended December 31, 2016 (dollars in thousands):

	2016	2015	% Change 2015 to 2016	2014	% Change 2014 to 2015
Diesel engine services revenues	$298,780	$484,442	(38)%	$795,634	(39)%
Costs and expenses:					
Costs of sales and operating expenses	226,186	380,841	(41)	641,492	(41)
Selling, general and administrative	54,714	70,267	(22)	80,309	(13)
Taxes, other than on income	1,861	1,915	(3)	2,307	(17)
Depreciation and amortization	12,833	12,498	3	11,463	9
	295,594	465,521	(37)	735,571	(37)
Operating income	$3,186	$18,921	(83)%	$60,063	(68)%
Operating margins	1.1 %	3.9 %		7.5 %	

The following table shows the markets serviced by the Company, the revenue distribution for 2016, and the customers for each market:

Markets Serviced	2016 Revenue Distribution	Customers
Land-Based	48%	Land-Based Oilfield Services, Oil and Gas Operators and Producers, On-Highway Transportation
Marine	36%	Inland River Carriers — Dry and Liquid, Offshore Towing — Dry and Liquid, Offshore Oilfield Services — Drilling Rigs & Supply Boats, Harbor Towing, Dredging, Great Lakes Ore Carriers
Power Generation	16%	Standby Power Generation, Pumping Stations

2016 Compared with 2015

Diesel Engine Services Revenues

Diesel engine services revenues for 2016 decreased 38% compared with 2015, primarily due to the lack of demand for the manufacture of pressure pumping units and other oilfield service equipment and for the sale and distribution of engines, transmissions and parts due to the impact of the decline in the price of crude oil and decreased drilling activity in North American shale formations. During 2016 third and fourth quarters, with the increase in the price of crude oil and resulting increase in drilling activity, the segment saw an increase in activity for the remanufacturing and servicing of pressure pumping units. The marine diesel engine services market remained at lower activity levels, primarily due to continued weakness in the Gulf of Mexico oilfield services market. In addition, customers continued to defer major maintenance projects in many regions of the marine diesel engine services market largely due to the weaker barge market and, to a lesser extent, the general economy. The power generation market was relatively stable during 2016, benefiting from major generator set upgrades and parts sales for both domestic and international power generation customers.

Diesel Engine Services Costs and Expenses

Costs and expenses for 2016 decreased 37% compared with 2016. Costs of sales and operating expenses for 2016 decreased 41% compared with 2015, reflecting a significant decrease in the number of pressure pumping units and other oilfield service equipment manufactured, a decline in the sale and service of land-based engines, transmissions and parts and continued weakness in the marine markets. The 2016 first quarter, the 2015 first quarter and the 2015 third quarter selling, general and administrative expenses included severance charges of $1,436,000, $1,111,000 and $702,000, respectively, in response to the reduced activity in both the marine and land-based markets.

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Diesel Engine Services Operating Income and Operating Margins

Operating income for 2016 decreased 83% compared with 2015. The operating margin for 2016 was 1.1% compared with 3.9% for 2015. The results reflected continued weakness in the land-based market, the Gulf of Mexico marine oilfield services market and customer deferrals of major maintenance projects throughout the marine diesel engine services market.

2015 Compared with 2014

Diesel Engine Services Revenues

Diesel engine services revenues for 2015 decreased 39% compared with 2014, primarily due to the lack of demand for the manufacture and remanufacture of pressure pumping units and other oilfield service equipment in the land-based market and for decreased demand for service and distribution of parts, engines and transmissions due to impact of the decline in the price of crude oil and decreased drilling activity in North American shale formations. With the reduction in activity levels, oilfield service customers in the land-based market continued to delay new orders and postpone delivery of existing orders for new pressure pumping units and other oilfield service equipment. The marine diesel engine services market declined modestly, due primarily to weakness in the Gulf of Mexico oilfield services market. The power generation market was stable, benefiting from major generator set upgrades and parts sales for both domestic and international power generation customers.

Diesel Engine Services Costs and Expenses

Costs and expenses for 2015 decreased 37%, compared with 2014. Costs of sales and operating expenses for 2015 decreased 41% compared with 2014, reflecting a significant decrease in the number of pressure pumping units and other oilfield service equipment manufactured and remanufactured, and a decline in the sale and service of land-based engines, transmissions and parts. The 2015 first quarter reflected the completion of the manufacturing of pressure pumping units in backlog from 2014. Units carried over from 2014, which incurred delays and production issues, negatively impacted the profitability in the 2015 first quarter. The 2015 selling, general and administrative expenses included a $1,111,000 first quarter severance charge in response to the reduced activity in manufacturing in the land-based market and a $702,000 third quarter severance charge in response to reduced activity in the Gulf of Mexico oilfield services market.

Diesel Engine Services Operating Income and Operating Margins

Diesel engine services operating income for 2015 decreased 68% compared with 2014. The operating margin for 2015 was 3.9% compared with 7.5% for 2014. The results reflected weakness in the land-based market due to the negative impact of reduced oilfield service activity levels, production issues and weakness in the Gulf of Mexico oilfield services market, as well as the $1,111,000 first quarter 2015 and $702,000 third quarter 2015 severance charges.

General Corporate Expenses

General corporate expenses for 2016, 2015 and 2014 were $14,966,000, $14,773,000 and $14,896,000, respectively. The increase for 2016 was 1% when compared to 2015. The decrease for 2015 was less than 1% when compared to 2014.

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Gain (Loss) on Disposition of Assets

The Company reported a net loss on disposition of assets of $127,000 in 2016 compared with net gains on disposition of assets of $1,672,000 in 2015 and $781,000 in 2014. The net loss and gains were predominantly from the sale or retirement of marine equipment and, in the 2015 first quarter, the sale of the assets of a small diesel engine services product line.

Other Income and Expenses

The following table sets forth equity in earnings of affiliates, other expense, noncontrolling interests and interest expense for the three years ended December 31, 2016 (dollars in thousands):

	2016	2015	% Change 2015 to 2016	2014	% Change 2014 to 2015
Equity in earnings of affiliates	$532	$451	18 %	$384	17 %
Other expense	(291)	(663)	(56)%	(345)	92 %
Noncontrolling interests	(1,398)	(1,286)	9 %	(2,602)	(51)%
Interest expense	(17,690)	(18,738)	(6)%	(21,461)	(13)%

Equity in Earnings of Affiliates

Equity in earnings of affiliates consisted of the Company’s 50% ownership of a barge fleeting operation.

Noncontrolling Interests

Noncontrolling interests for 2016 increased 9% compared with 2015 and decreased 51% for 2015 compared with 2014, primarily due to lower business levels at the Company’s 51% owned shifting operation and fleeting facility for dry cargo barges and tank barges on the Houston Ship Channel with the Company acquiring the remaining 49% interest in December 2016.

Interest Expense

Interest expense for 2016 decreased 6% compared with 2015, primarily due to lower average debt levels. Interest expense for 2015 decreased 13% compared with 2014, primarily due to lower interest rates and increased capitalized interest. During 2016, 2015 and 2014, the average debt and average interest rate (excluding capitalized interest expense) were $750,499,000 and 2.7%, $797,322,000 and 2.7%, and $682,616,000 and 3.2%, respectively. Interest expense for 2016, 2015 and 2014 excludes capitalized interest of $2,974,000, $3,026,000 and $639,000, respectively.

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Financial Condition, Capital Resources and Liquidity

Balance Sheet

Total assets at December 31, 2016 were $4,303,499,000 compared with $4,152,281,000 at December 31, 2015 and $4,137,614,000 at December 31, 2014. The following table sets forth the significant components of the balance sheet as of December 31, 2016 compared with 2015 and 2015 compared with 2014 (dollars in thousands):

	2016	2015	% Change 2015 to 2016	2014	% Change 2014 to 2015
Assets:					
Current assets	$646,555	$640,776	1%	$803,154	(20)%
Property and equipment, net	2,921,374	2,778,980	5	2,589,498	7
Investment in affiliates	2,622	2,090	25	2,539	(18)
Goodwill	598,131	586,718	2	591,405	(1)
Other assets	134,817	143,717	(6)	151,018	(5)
	$4,303,499	$4,152,281	4%	$4,137,614	—%
Liabilities and stockholders' equity:					
Current liabilities	$358,338	$361,917	(1)%	$594,027	(39)%
Long-term debt-less current portion	722,802	774,849	(7)	595,705	30
Deferred income taxes	719,057	669,808	7	595,769	12
Other long-term liabilities	90,435	66,511	36	87,200	(24)
Total equity	2,412,867	2,279,196	6	2,264,913	1
	$4,303,499	$4,152,281	4%	$4,137,614	—%

2016 Compared with 2015

Current assets as of December 31, 2016 increased 1% compared with December 31, 2015. Trade accounts receivable increased 2% driven by slower collections at the Company's marine transportation segment and several large projects billed late in 2016 fourth quarter in the diesel engine services segment. Prepaid expenses and other assets increased 9% primarily due to an increase in prepaid fuel and prepaid insurance. Other accounts receivable decreased 7%, primarily due to a decrease in income tax receivable for income taxes overpaid in the 2015 fourth quarter partially offset by an increase in insurance claims receivables.

Property and equipment, net of accumulated depreciation, at December 31, 2016 increased 5% compared with December 31, 2015. The increase reflected $233,103,000 of capital expenditures for 2016, more fully described under Capital Expenditures Reflected on the Balance Sheet below, the fair value of the property and equipment acquired in acquisitions of $127,400,000, less $192,450,000 of depreciation expense for 2016 and $22,871,000 of property disposals during 2016.

Goodwill at December 31, 2016 increased 2% compared with December 31, 2015 mainly due to the purchases of the inland tank barge fleet of Seacor in April 2016 and VPS in October 2016.

Other assets at December 31, 2016 decreased 6% compared with December 31, 2015 primarily due to the amortization of intangibles other than goodwill and the amortization of major maintenance costs on ocean-going vessels, net of major maintenance drydock expenditures for 2016. Partially offsetting the decrease was the addition of intangible assets as a result of the purchase of certain assets of VPS in October 2016.

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Current liabilities as of December 31, 2016 decreased 1% compared with December 31, 2015. The decrease was primarily due to a 28% decrease in employee compensation due to lower employee incentive compensation accruals for 2016 and a 13% decrease in deferred revenues reflecting decreased advanced billings in the coastal marine transportation market and in the diesel engine services power generation market. The decrease was partially offset by an increase of 14% in taxes other than on income due to the timing of property tax payments and an increase of 10% in accrued insurance premiums and claims.

Long-term debt, less current portion, as of December 31, 2016 decreased 7% compared with December 31, 2015, reflecting net payments of $52,848,000 on the revolving credit facility during 2016. Net deferred debt issue costs were $3,184,000 and $3,985,000 at December 31, 2016 and 2015, respectively.

Deferred income taxes as of December 31, 2016 increased 7% compared with December 31, 2015. The increase was primarily due to the 2016 deferred tax provision of $51,296,000, the result of bonus tax depreciation on qualifying expenditures due to the Protecting Americans from Tax Hikes Act (“PATH”) of 2015. PATH continued the bonus tax percentage of 50% for qualifying expenditures placed in service in 2015 through 2017, but then phases down to 40% in 2018 and 30% in 2019.

Other long-term liabilities as of December 31, 2016 increased 36% compared with December 31, 2015. The increase was primarily due to an increase in the pension liability due to a lower discount rate and no contribution to the pension plan in 2016.

Total equity as of December 31, 2016 increased 6% compared with December 31, 2015. The increase was primarily the result of $141,406,000 of net earnings attributable to Kirby for 2016 and a $7,746,000 decrease in treasury stock, partially offset by a $2,324,000 decrease in additional paid-in capital due to the exercise of stock options at exercise prices below the cost of treasury stock issued and the issuance of restricted stock below the cost of treasury stock issued, a $6,321,000 decrease in accumulated other comprehensive income (“OCI”) and a decrease in noncontrolling interests of $6,836,000. The decrease in treasury stock was mainly due to the issuance of restricted stock in connection with stock award plans, partially offset by purchases during 2016 of $1,827,000 of the Company’s common stock. The decrease in accumulated OCI primarily resulted from the increase in unrecognized losses related to the Company’s defined benefit plans and the decrease in noncontrolling interests was primarily due to the acquisition of the remaining interests in two partnerships in which the Company had the controlling interest.

2015 Compared with 2014

Current assets as of December 31, 2015 decreased 20% compared with December 31, 2014. Trade accounts receivable decreased 30%, primarily a reflection of the decrease in revenues in the 2015 fourth quarter compared to the 2014 fourth quarter. Inventory decreased 4% due to the sale of inventory purchased in 2014 for 2015 projects, the sale of a small diesel engine services product line in the 2015 first quarter and the sale of a diesel engine services compression systems business in the 2015 fourth quarter. This was partially offset by increases in the land-based inventory due to lower activity levels and parts ordered prior to customer order cancelations or delays.

Property and equipment, net of accumulated depreciation, at December 31, 2015 increased 7% compared with December 31, 2014. The increase reflected $343,269,000 of capital expenditures for 2015, more fully described under Capital Expenditures Reflected on the Balance Sheet below, and $41,250,000 for the purchase of six inland pressure tank barges in February 2015, less $183,714,000 of depreciation expense for 2015 and $10,430,000 of property disposals during 2015.

Goodwill at December 31, 2015 decreased 1% compared with December 31, 2014 mainly due to the sale of a diesel engine services compression systems business.

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Other assets at December 31, 2015 decreased 5% compared with December 31, 2014 primarily due to the amortization of intangibles other than goodwill and the amortization of major maintenance costs on ocean-going vessels, net of major maintenance drydock expenditures for 2015. Partially offsetting the decrease was a $3,780,000 long-term notes receivable from the sale of equipment in the marine transportation segment.

Current liabilities as of December 31, 2015 decreased 39% compared with December 31, 2014. The decrease in the current portion of long-term debt at December 31, 2015 reflected the reclassification of the balance of the revolving credit facility as long-term debt as the Company extended the maturity date of its revolving credit agreement to April 30, 2020. Accounts payable decreased 40%, primarily due to decreased business activity levels in the land-based diesel engine services market. Accrued liabilities decreased 8%, primarily from lower employee incentive compensation accruals for 2015 and payments on insurance claims. Deferred revenues decreased 19%, primarily reflecting decreased business activity levels in the land-based diesel engine services market.

Long-term debt, less current portion, as of December 31, 2015 increased 30% compared with December 31, 2014, reflecting net borrowings of $62,134,000 on the revolving credit facility during 2015 and the reclassification of the current portion of the revolving credit facility to long-term debt, as the revolving credit facility was refinanced on April 30, 2015. The borrowings on the revolving credit facility were used primarily to finance treasury stock purchases of $241,105,000, to purchase six inland pressure tank barges for $41,250,000 in February 2015 and to refinance the $100,000,000 outstanding under the Company’s term loan agreement on April 30, 2015.

Deferred income taxes as of December 31, 2015 increased 12% compared with December 31, 2014. The increase was primarily due to the 2015 deferred tax provision of $62,755,000, the result of bonus tax depreciation on qualifying expenditures due to PATH.

Other long-term liabilities as of December 31, 2015 decreased 24% compared with December 31, 2014. The decrease was primarily due to a decrease in the pension liability due to a higher discount rate and a $10,000,000 contribution to the pension plan.

Total equity as of December 31, 2015 increased 1% compared with December 31, 2014. The increase was primarily the result of $226,684,000 of net earnings attributable to Kirby for 2015, a $6,308,000 increase in additional paid-in capital and a $16,351,000 increase in accumulated OCI, partially offset by a $234,568,000 increase in treasury stock. The increase in treasury stock was attributable to purchases during 2015 of $241,105,000 of the Company’s common stock, partially offset by the exercise of stock options and the issuance of restricted stock. The increase in additional paid-in capital was due to the excess of proceeds received upon exercise of stock options and the issuance of restricted stock over the cost of the treasury stock issued. The increase in accumulated OCI primarily resulted from the decrease in unrecognized losses related to the Company’s defined benefit plans.

Retirement Plans

The Company sponsors a defined benefit plan for its inland vessel personnel and shore based tankermen. The plan benefits are based on an employee’s years of service and compensation. The plan assets consist primarily of equity and fixed income securities. The Company’s pension plan funding strategy has historically been to contribute an amount equal to the greater of the minimum required contribution under ERISA or the amount necessary to fully fund the plan on an accumulated benefit obligation (“ABO”) basis at the end of the fiscal year. No pension contribution was made in 2016 for the 2016 year and the pension contribution for the 2015 year was $10,000,000. The fair value of plan assets was $257,517,000 and $243,588,000 at December 31, 2016 and December 31, 2015, respectively.

The Company’s investment strategy focuses on total return on invested assets (capital appreciation plus dividend and interest income). The primary objective in the investment management of assets is to achieve long-term growth of principal while avoiding excessive risk. Risk is managed through diversification of investments within and among

asset classes, as well as by choosing securities that have an established trading and underlying operating history.

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The Company makes various assumptions when determining defined benefit plan costs including, but not limited to, the current discount rate and the expected long-term return on plan assets. Discount rates are determined annually and are based on a yield curve that consists of a hypothetical portfolio of high quality corporate bonds with maturities matching the projected benefit cash flows. The Company used discount rates of 4.2% and 4.5% in 2016 and 2015, respectively, in determining its benefit obligations. The Company estimates that every 0.1% decrease in the discount rate results in an increase in the ABO of approximately $4,200,000. The Company assumed that plan assets would generate a long-term rate of return of 7.0% and 7.5% in 2016 and 2015, respectively. The Company developed its expected long-term rate of return assumption by evaluating input from investment consultants and comparing historical returns for various asset classes with its actual and targeted plan investments. The Company believes that long-term asset allocation, on average, will approximate the targeted allocation.

Long-Term Financing

The Company has a $550,000,000 unsecured revolving credit facility (“Revolving Credit Facility”) with a syndicate of banks, with JPMorgan Chase Bank, N.A. as the administrative agent bank, with a maturity date of April 30, 2020. In addition, the credit agreement allows for a $300,000,000 increase in the aggregate commitments of the banks in the form of revolving credit loans or term loans, subject to the consent of each bank that elects to participate in the increased commitment. The variable interest rate spread varies with the Company’s senior debt rating and is currently 1.00% over the London Interbank Offered Rate (“LIBOR”) or equal to an alternate base rate calculated with reference to the agent bank’s prime rate, among other factors (“Alternate Base Rate”). The commitment fee is currently 0.10%. The Revolving Credit Facility contains certain restrictive financial covenants including an interest coverage ratio and a debt-to-capitalization ratio. In addition to financial covenants, the Revolving Credit Facility contains covenants that, subject to exceptions, restrict debt incurrence, mergers and acquisitions, sales of assets, dividends and investments, liquidations and dissolutions, capital leases, transactions with affiliates and changes in lines of business. Borrowings under the Revolving Credit Facility may be used for general corporate purposes, the purchase of existing or new equipment, the purchase of the Company’s common stock, or for business acquisitions. As of December 31, 2016, the Company was in compliance with all Revolving Credit Facility covenants and had $225,986,000 of debt outstanding under the Revolving Credit Facility. The Revolving Credit Facility includes a $25,000,000 commitment which may be used for standby letters of credit. Outstanding letters of credit under the Revolving Credit Facility were $2,518,000 as of December 31, 2016.

The Company has $500,000,000 of unsecured senior notes (“Senior Notes Series A” and “Senior Notes Series B”) with a group of institutional investors, consisting of $150,000,000 of 2.72% Senior Notes Series A due February 27, 2020 and $350,000,000 of 3.29% Senior Notes Series B due February 27, 2023. No principal payments are required until maturity. The Senior Notes Series A and Series B contain certain covenants on the part of the Company, including an interest coverage covenant, a debt-to-capitalization covenant and covenants relating to liens, asset sales and mergers, among others. The Senior Notes Series A and Series B also specify certain events of default, upon the occurrence of which the maturity of the notes may be accelerated, including failure to pay principal and interest, violation of covenants or default on other indebtedness, among others. As of December 31, 2016, the Company was in compliance with all Senior Notes Series A and Series B covenants and had $150,000,000 of Senior Notes Series A outstanding and $350,000,000 of Senior Notes Series B outstanding.

The Company has a $10,000,000 line of credit (“Credit Line”) with Bank of America, N.A. (“Bank of America”) for short-term liquidity needs and letters of credit, with a maturity date of June 30, 2017. The Credit Line allows the Company to borrow at an interest rate agreed to by Bank of America and the Company at the time each borrowing is made or continued. The Company had no borrowings outstanding under the Credit Line as December 31, 2016. Outstanding letters of credit under the Credit Line were $1,012,000 as of December 31, 2016.

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Capital Expenditures Reflected on the Balance Sheet

Capital expenditures for 2016 were $233,103,000, including $10,676,000 for inland tank barge and towboat construction, $14,884,000 in final costs for the construction of two 185,000 barrel coastal ATBs, one placed in service in late 2015 and the second in June 2016, $74,689,000 for progress payments on the construction of two 155,000 barrel coastal ATBs, one placed in service in November 2016 and the second scheduled to be placed in service in the summer of 2017, $10,098,000 for progress payments on the construction of two 4900 horsepower coastal tugboats, $6,593,000 for progress payments on the construction of a 35,000 barrel coastal petrochemical tank barge placed in service in December 2016, $18,000 for progress payments on six 5000 horsepower coastal ATB tugboats, $116,145,000 primarily for upgrading existing marine equipment, and marine transportation and diesel engine services facilities. The Company purchased the inland tank barge fleet of Seacor for $88,196,000 in April 2016, excluding the transfer of a coastal tugboat to Seacor and goodwill of $985,000, four coastal tugboats for $26,450,000 in June 2016 and a previously leased coastal tank barge for $12,753,000 in June 2016. Capital expenditures for 2015 were $343,269,000, including $70,956,000 for inland tank barge and towboat construction, $74,442,000 for progress payments on the construction of two 185,000 barrel coastal ATBs, one of which was placed in service in late 2015 and the second in June 2016, $33,030,000 for progress payments on the construction of two 155,000 barrel coastal ATBs, one placed in service in November 2016 and one scheduled to be placed in service in the summer of 2017, $8,468,000 for progress payments on the construction of two 4900 horsepower coastal tugboats, $1,600,000 for progress payments on the construction of a 35,000 barrel coastal petrochemical tank barge placed in service in December 2016 and $154,773,000 primarily for upgrading existing marine equipment, and marine transportation and diesel engine service facilities. The Company purchased six inland pressure tank barges for $41,250,000 in February 2015. Financing of the construction of the inland tank barges and towboats, the coastal tank barge and tugboat units, the coastal tugboats, the coastal petrochemical tank barge and purchases of the inland tank barge fleet of Seacor, the four coastal tugboats, the previously leased coastal tank barge, and the six inland pressure tank barges was through operating cash flows and available credit under the Company’s Revolving Credit Facility.

During 2016, the Company took delivery of five new inland tank barges with a total capacity of approximately 141,000 barrels, acquired 27 inland tank barges from Seacor with a total capacity of approximately 807,000 barrels, transferred one tank barge into the inland fleet from the coastal fleet with a capacity of 31,000 barrels, added one leased inland tank barge with a capacity of 11,000 barrels, returned six leased inland tank barges and retired 50 inland tank barges, reducing its capacity by approximately 1,038,000 barrels. The net result was a reduction of 22 inland tank barges and approximately 48,000 barrels of capacity during 2016.

The Company projects that capital expenditures for 2017 will be in the $165,000,000 to $185,000,000 range. The 2017 construction program will consist of two inland tank barges with a total capacity of 57,000 barrels, one inland towboat, progress payments on the construction of a 155,000 barrel coastal ATB scheduled to be placed in service in the summer of 2017, progress payments on the construction of two 4900 horsepower coastal tugboats and six 5000 horsepower coastal ATB tugboats and final costs on the construction of a 35,000 barrel coastal petrochemical tank barge placed in service in December 2016. Based on current commitments, steel prices and projected delivery schedules, the Company’s 2017 payments on new inland tank barges and the towboat will be approximately $3,000,000, 2017 progress payments on the construction of the 155,000 barrel coastal ATB will be approximately $7,000,000, 2017 progress payments on the construction of the two 4900 horsepower coastal tugboats will be approximately $16,000,000, progress payments on the six 5000 horsepower coastal ATB tugboats will be approximately $27,000,000 and final costs on the construction of the 35,000 barrel coastal petrochemical tank barge will be approximately $2,000,000. The balance of approximately $110,000,000 to $130,000,000 is primarily capital upgrades and improvements to existing marine equipment, and marine transportation and diesel engine services facilities.

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Funding for future capital expenditures is expected to be provided through operating cash flows and available credit under the Company's Revolving Credit Facility.

Treasury Stock Purchases

In February 2016, the Company purchased 35,000 shares of its common stock for $1,827,000, for an average price of $52.53 per share. As of February 22, 2017, the Company had approximately 1,411,000 shares available under its existing repurchase authorizations. The treasury stock purchases are financed through operating cash flows and borrowings under the Company's Revolving Credit Facility. The Company is authorized to purchase its common stock on the New York Stock Exchange and in privately negotiated transactions. When purchasing its common stock, the Company is subject to price, trading volume and other market considerations. Shares purchased may be used for reissuance upon the exercise of stock options or the granting of other forms of incentive compensation, in future acquisitions for stock or for other appropriate corporate purposes.

Liquidity

The Company generated net cash provided by operating activities of $414,038,000, $521,305,000 and $438,909,000 for the years ended December 31, 2016, 2015 and 2014, respectively. The 2016 year experienced a net decrease in cash flows from changes in operating assets and liabilities of $12,452,000 compared with a net increase in 2015 of $3,530,000.

The 2015 year experienced a net increase in cash flows from changes in operating assets and liabilities of $3,530,000 compared with a net decrease in 2014 of $125,761,000. The increase was primarily due to a decrease in receivables in 2015 due to reduced business activity levels compared to an increase in receivables and inventory during 2014 due to increased business activity levels in the land-based diesel engine services market.

Funds generated from operations are available for acquisitions, capital expenditure projects, common stock repurchases, repayments of borrowings and for other corporate and operating requirements. In addition to net cash flow provided by operating activities, the Company also had available as of February 22, 2017, $342,280,000 under its Revolving Credit Facility and $8,988,000 available under its Credit Line.

Neither the Company, nor any of its subsidiaries, is obligated on any debt instrument, swap agreement, or any other financial instrument or commercial contract which has a rating trigger, except for pricing grids on its Revolving Credit Facility.

The Company expects to continue to fund expenditures for acquisitions, capital construction projects, common stock repurchases, repayment of borrowings, and for other operating requirements from a combination of available cash and cash equivalents, funds generated from operating activities and available financing arrangements.

The Revolving Credit Facility's commitment is in the amount of $550,000,000 and expires April 30, 2020. As of December 31, 2016, the Company had $324,014,000 available under the Revolving Credit Facility. The Senior Notes Series A and Senior Notes Series B do not mature until February 27, 2020 and February 27, 2023, respectively, and require no prepayments.

There are numerous factors that may negatively impact the Company's cash flow in 2017. For a list of significant risks and uncertainties that could impact cash flows, see Note 13, Contingencies and Commitments in the financial statements, and Item 1A — Risk Factors. Amounts available under the Company's existing financial arrangements are subject to the Company continuing to meet the covenants of the credit facilities as described in Note 5, Long-Term Debt in the financial statements.

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The Company has issued guaranties or obtained standby letters of credit and performance bonds supporting performance by the Company and its subsidiaries of contractual or contingent legal obligations of the Company and its subsidiaries incurred in the ordinary course of business. The aggregate notional value of these instruments is $13,983,000 at December 31, 2016, including $3,799,000 in letters of credit and $10,184,000 in performance bonds. All of these instruments have an expiration date within three years. The Company does not believe demand for payment under these instruments is likely and expects no material cash outlays to occur in connection with these instruments.

All marine transportation term contracts contain fuel escalation clauses, or the customer pays for the fuel. However, there is generally a 30 to 90 day delay before contracts are adjusted depending on the specific contract. In general, the fuel escalation clauses are effective over the long-term in allowing the Company to recover changes in fuel costs due to fuel price changes. However, the short-term effectiveness of the fuel escalation clauses can be affected by a number of factors including, but not limited to, specific terms of the fuel escalation formulas, fuel price volatility, navigating conditions, tow sizes, trip routing, and the location of loading and discharge ports that may result in the Company over or under recovering its fuel costs. Spot contract rates generally reflect current fuel prices at the time the contract is signed but do not have escalators for fuel.

During the last three years, inflation has had a relatively minor effect on the financial results of the Company. The marine transportation segment has long-term contracts which generally contain cost escalation clauses whereby certain costs, including fuel as noted above, can be passed through to its customers. Spot contract rates include the cost of fuel and are subject to market volatility. The repair portion of the diesel engine services segment is based on prevailing current market rates.

Contractual Obligations

The contractual obligations of the Company and its subsidiaries at December 31, 2016 consisted of the following (in thousands):

	Payments Due By Period				
	Total	Less Than 1 Year	2-3 Years	4-5 Years	After 5 Years
Long-term debt	$725,986	$—	$—	$375,986	$350,000
Non-cancelable operating leases — barges	31,579	10,419	13,299	5,387	2,474
Non-cancelable operating leases — towing vessels	104,795	83,949	20,846	—	—
Non-cancelable operating leases — land, buildings and equipment	120,810	12,027	19,878	14,515	74,390
Barge and towing vessel construction contracts	95,603	54,032	41,571	—	—
	$1,078,773	$160,427	$95,594	$395,888	$426,864

Approximately half of the towboat charter agreements are for terms of one year or less. The Company’s towboat rental agreements provide the Company with the option to terminate most agreements with notice ranging from seven to 90 days. The Company estimates that 80% of the charter rental cost is related to towboat crew costs, maintenance and insurance.

The Company’s pension plan funding strategy has historically been to contribute an amount equal to the greater of the minimum required contribution under ERISA or the amount necessary to fully fund the plan on an ABO basis at the end of the fiscal year. The ABO is based on a variety of demographic and economic assumptions, and the pension plan assets’ returns are subject to various risks, including market and interest rate risk, making an accurate prediction of the pension plan contribution difficult resulting in the Company electing to only make an expected pension contribution forecast of one year. As of December 31, 2016, the pension plan was funded at 94% of the ABO.

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Accounting Standards

In August 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments" ("ASU 2016-15") to create consistency in practice in how certain cash receipts and cash payments are presented and classified in the statement of cash flows. ASU 2016-15 is effective for annual and interim periods beginning after December 15, 2017. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of this standard will have on its consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting" ("ASU 2016-09") which simplifies several aspects of the accounting for share-based payment transactions, including income tax consequences, forfeitures, minimum statutory tax withholding requirements, classification as either equity or liabilities, and classification on the statement of cash flows. ASU 2016-09 is effective for annual and interim periods beginning after December 15, 2016. The Company will adopt the provisions of ASU 2016-09 on January 1, 2017 and the Company does not expect the adoption of ASU 2016-09 to have a material impact on its consolidated financial statements. However, the adoption will result in some income statement volatility in 2017 and beyond due to the requirement that the tax effects of exercised or vested equity awards be recognized as discrete items in income tax expense or benefit in the income statement in the reporting period in which they occur.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)" ("ASU 2016-02") to increase transparency and comparability among organizations by requiring recognition of lease assets and lease liabilities on the balance sheet and disclosure of key information about leasing arrangements. ASU 2016-02 is effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted. A modified retrospective approach is required. The Company has formed a project team to evaluate the impact that the adoption of this standard will have on its consolidated financial statements and disclosures. The project team has completed training on the new standard and has started lease review and documentation, but the Company has not yet determined the effect of ASU 2016-02 on its ongoing financial reporting.

In November 2015, the FASB issued ASU 2015-17, "Balance Sheet Classification of Deferred Taxes" ("ASU 2015-17") which requires that deferred tax liabilities and assets be classified as noncurrent on the balance sheet. The current requirement that deferred tax liabilities and assets of a tax-paying component of an entity be offset and presented as a single amount is not affected by this guidance. ASU 2015-17 is effective for annual and interim periods beginning after December 15, 2016 but early application is permitted and the guidance may be applied either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. The Company will adopt the provisions of ASU 2015-17 on January 1, 2017 and the Company does not expect the adoption of ASU 2015-17 to have a material impact on its consolidated financial statements.

In July 2015, the FASB issued ASU 2015-11, "Inventory (Topic 330): Simplifying the Measurement of Inventory" ("ASU 2015-11") which applies to inventory that is measured using first-in, first-out ("FIFO") or average cost. Under the guidance, an entity should measure inventory that is within the scope of this update at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. ASU 2015-11 is effective for annual and interim periods beginning after December 15, 2016, and should be applied prospectively with early adoption permitted at the beginning of an interim period or annual reporting period. The Company will adopt the provisions of ASU 2015-11 on January 1, 2017 and the Company does not expect the adoption of ASU 2015-11 to have a material impact on its consolidated financial statements.

In April 2015, the FASB issued ASU 2015-03, "Simplifying the Presentation of Debt Issuance Costs" ("ASU 2015-03"). ASU 2015-03 requires debt issuance costs to be presented in the balance sheet as a direct deduction from the associated debt liability. Effective January 1, 2016, the Company adopted the provisions of ASU 2015-03 and prior

period amounts have been reclassified to conform to the current period presentation. The December 31, 2015 net debt issuance costs of $3,985,000 have been reclassified in the consolidated balance sheet from other assets to long-term debt, less current portion.

In August 2014, the FASB issued ASU 2014-15, “Presentation of Financial Statements - Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern” (“ASU 2014-15”), which provides guidance about management's responsibility in evaluating whether there is substantial doubt relating to an entity’s ability to continue as a going concern and to provide related footnote disclosures as applicable. Adoption of ASU 2014-15 as of December 31, 2016 did not impact the Company’s financial statements or disclosures.

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In May 2014, the FASB issued ASU 2014-09, “Revenue from Contracts with Customers” (“ASU 2014-09”). ASU 2014-09 requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. ASU 2014-09 will replace most existing revenue recognition guidance in United States Generally Accepted Accounting Principles when it becomes effective. In July 2015, the FASB voted to delay the effective date of ASU 2014-09 by one year, making it effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, with early adoption permitted as of the original effective date. ASU 2014-09 permits the use of either the retrospective, modified retrospective or prospective with a cumulative catch-up approach. The Company has formed a project team to evaluate the standard and determine the effect that ASU 2014-09 will have on its consolidated financial statements and related disclosures. The project team has completed training on the new standard and has started contract review and documentation. The Company has not yet selected a transition method nor has it determined the effect of ASU 2014-09 on its ongoing financial reporting.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

The Company is exposed to risk from changes in interest rates on certain of its outstanding debt. The outstanding loan balances under the Company’s bank credit facilities bear interest at variable rates based on prevailing short-term interest rates in the United States and Europe. A 10% change in variable interest rates would impact the 2017 interest expense by $172,000 based on balances outstanding at December 31, 2016, and would change the fair value of the Company’s debt by less than 1%.

Item 8. Financial Statements and Supplementary Data

The response to this item is submitted as a separate section of this report (see Item 15, page 97).

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures. The Company’s management, with the participation of the Chief Executive Officer and the Chief Financial Officer, has evaluated the Company’s disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act), as of December 31, 2016. Based on that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that, as of December 31, 2016, the disclosure controls and procedures were effective to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms.

Management’s Report on Internal Control Over Financial Reporting. Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). The Company’s management, with the participation of the Chief Executive Officer and the Chief Financial Officer, evaluated the effectiveness of the Company’s internal control over financial reporting as of December 31, 2016 using the framework in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on that evaluation, management concluded that the Company’s internal control over financial reporting was effective as of December 31, 2016. KPMG LLP, the Company’s independent registered public accounting firm, has audited the Company’s internal control over financial reporting, as stated in their report which is included herein.

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Changes in Internal Control Over Financial Reporting. There were no changes in the Company's internal control over financial reporting during the quarter ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART III

Items 10 Through 14.

The information for these items is incorporated by reference to the definitive proxy statement filed by the Company with the Commission pursuant to Regulation 14A within 120 days of the close of the fiscal year ended December 31, 2016, except for the information regarding executive officers which is provided under Item 1.

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Kirby Corporation:

We have audited the accompanying consolidated balance sheets of Kirby Corporation and consolidated subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of earnings, comprehensive income, cash flows and stockholders' equity for each of the years in the three-year period ended December 31, 2016. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Kirby Corporation and consolidated subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with United States generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Kirby Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 23, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

Houston, Texas
February 23, 2017

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Kirby Corporation:

We have audited Kirby Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Kirby Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Kirby Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Kirby Corporation and consolidated subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of earnings, comprehensive income, cash flows and stockholders' equity for each of the years in the three-year period ended December 31, 2016, and our report dated February 23, 2017 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP

Houston, Texas
February 23, 2017

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KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
December 31, 2016 and 2015

	2016	2015
	($ in thousands)	
ASSETS		
Current assets:		
Cash and cash equivalents	$5,634	$5,885
Accounts receivable:		
Trade — less allowance for doubtful accounts of $7,240 ($9,374 in 2015)	297,177	290,931
Other	95,327	102,443
Inventories — at lower of average cost or market	185,402	184,511
Prepaid expenses and other current assets	49,411	45,283
Deferred income taxes	13,604	11,723
Total current assets	646,555	640,776
Property and equipment:		
Marine transportation equipment	4,071,972	3,806,850
Land, buildings and equipment	256,925	252,913
	4,328,897	4,059,763
Accumulated depreciation	1,407,523	1,280,783
Property and equipment — net	2,921,374	2,778,980
Investment in affiliates	2,622	2,090
Goodwill	598,131	586,718
Other assets	134,817	143,717
Total assets	$4,303,499	$4,152,281
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term debt	$—	$—
Income taxes payable	3,288	3,564
Accounts payable	134,571	132,799
Accrued liabilities:		
Interest	5,397	5,412
Insurance premiums and claims	123,371	111,705
Employee compensation	26,916	37,243
Taxes — other than on income	15,481	13,525
Other	13,313	16,369
Deferred revenues	36,001	41,300
Total current liabilities	358,338	361,917
Long-term debt — less current portion	722,802	774,849
Deferred income taxes	719,057	669,808
Other long-term liabilities	90,435	66,511
Total long-term liabilities	1,532,294	1,511,168
Contingencies and commitments	—	—
Equity:		
Kirby stockholders' equity:		

Common stock, $.10 par value per share. Authorized 120,000,000 shares, issued 59,776,000 in 2016 and 2015	5,978	5,978
Additional paid-in capital	432,459	434,783
Accumulated other comprehensive income — net	(51,007)	(44,686)
Retained earnings	2,342,236	2,200,830
Treasury stock — at cost, 5,921,000 shares in 2016 and 6,056,000 in 2015	(320,348)	(328,094)
Total Kirby stockholders' equity	2,409,318	2,268,811
Noncontrolling interests	3,549	10,385
Total equity	2,412,867	2,279,196
Total liabilities and equity	$4,303,499	$4,152,281

See accompanying notes to consolidated financial statements.

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KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES

CONSOLIDATED STATEMENTS OF EARNINGS
For the Years Ended December 31, 2016, 2015 and 2014

	2016	2015	2014
	($ in thousands, except per share amounts)		
Revenues:			
Marine transportation	$ 1,471,893	$ 1,663,090	$ 1,770,684
Diesel engine services	298,780	484,442	795,634
Total revenues	1,770,673	2,147,532	2,566,318
Costs and expenses:			
Costs of sales and operating expenses	1,126,952	1,362,366	1,694,882
Selling, general and administrative	174,752	193,237	210,416
Taxes, other than on income	22,730	20,699	16,677