

**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, 2019

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. 1-07615

Kirby Corporation

(Exact name of registrant as specified in its charter)

Nevada
(State or other jurisdiction of incorporation or organization)
55 Waugh Drive, Suite 1000
Houston, Texas
(Address of principal executive offices)

74-1884980
(I.R.S. Employer Identification No.)
77007
(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	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	KEX	New York Stock Exchange LLC

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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) 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 whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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

The aggregate market value of common stock held by non-affiliates of the registrant as of June 30, 2019, based on the closing sales price of such stock on the New York Stock Exchange on June 30, 2019, was \$4,675,308,000. 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 20, 2020, 59,984,000 shares of common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company’s definitive proxy statement in connection with the Annual Meeting of Stockholders to be held April 28, 2020, to be filed with the Commission pursuant to Regulation 14A, are incorporated by reference into Part III of this report.

KIRBY CORPORATION
2019 FORM 10-K
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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 four offshore dry-bulk cargo barges, four offshore tugboats and one docking tugboat transporting dry-bulk commodities in the United States coastal trade. Through its distribution and services segment, the Company provides after-market service and parts for engines, transmissions, reduction gears, and related equipment used in oilfield services, marine, power generation, on-highway and other industrial applications. The Company also rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of industrial markets, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for land-based oilfield service customers.

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. Kirby Corporation is a Nevada corporation and was incorporated in 1969 although the history of the Company goes back to 1921.

Documents and Information Available on Website

The Internet address of the Company’s website is <http://www.kirbycorp.com>. The Company makes available free of charge through its website, 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 website 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 website in the Investor Relations section under Corporate Governance.

BUSINESS AND PROPERTY

The Company, through its subsidiaries, conducts operations in two reportable business segments: marine transportation and distribution and 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 distribution and services segment, sells genuine replacement parts, provides service mechanics to overhaul and repair engines, transmissions, reduction gears and related oilfield services equipment, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and related equipment used in oilfield services, marine, power generation, on-highway and other industrial applications. The Company also rents equipment including generators, industrial compressors, railcar movers and high capacity lift trucks for use in a variety of industrial markets, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for land-based oilfield service customers.

The Company has approximately 5,700 employees, the large majority of whom are in the United States.

MARINE TRANSPORTATION

The marine transportation segment is primarily a provider of transportation services by tank barge for the inland and coastal markets. As of December 31, 2019, the equipment owned or operated by the marine transportation segment consisted of 1,053 inland tank barges with 23.4 million barrels of capacity, 299 inland towboats, 49 coastal tank barges with 4.7 million barrels of capacity, 47 coastal tugboats, four offshore dry-bulk cargo barges, four offshore tugboats and one docking tugboat with the following specifications and capacities:

Class of equipment	<u>Number in class</u>	<u>Average age (in years)</u>	<u>Barrel capacities</u>
Inland tank barges (owned and leased):			
Regular double hull:			
20,000 barrels and under	368	13.0	4,291,000
Over 20,000 barrels	637	12.2	18,279,000
Specialty double hull	48	38.5	816,000
Total inland tank barges	<u>1,053</u>	<u>13.7</u>	<u>23,386,000</u>
Inland towboats (owned and chartered):			
800 to 1300 horsepower	47	39.4	
1400 to 1900 horsepower	49	29.8	
2000 to 2400 horsepower	158	10.3	
2500 to 3200 horsepower	28	13.0	
3300 to 4800 horsepower	14	29.2	
Greater than 5000 horsepower	3	30.0	
Total inland towboats	<u>299</u>	<u>19.6</u>	
Coastal tank barges (owned and leased):			
30,000 barrels and under	2	25.9	37,000
50,000 to 70,000 barrels	9	14.4	437,000
80,000 to 90,000 barrels	19	15.4	1,586,000
100,000 to 110,000 barrels	6	13.5	630,000
120,000 to 150,000 barrels	5	20.8	648,000
Over 150,000 barrels	8	8.7	1,365,000
Total coastal tank barges	<u>49</u>	<u>14.9</u>	<u>4,703,000</u>
Coastal tugboats (owned and chartered):			
1000 to 1900 horsepower	4	31.5	
2000 to 2900 horsepower	1	44.1	
3000 to 3900 horsepower	7	37.2	
4000 to 4900 horsepower	11	15.1	
5000 to 6900 horsepower	14	9.1	
Greater than 7000 horsepower	10	15.2	
Total coastal tugboats	<u>47</u>	<u>18.2</u>	
			Deadweight Tonnage
Offshore dry-bulk cargo barges (owned)	<u>4</u>	<u>21.1</u>	<u>67,000</u>
Offshore tugboats and docking tugboat (owned and chartered)	<u>5</u>	<u>28.5</u>	

The 299 inland towboats, 47 coastal tugboats, four offshore tugboats and one docking tugboat provide the power source and the 1,053 inland tank barges, 49 coastal tank barges and four 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 up to 25 tank barges, depending upon the horsepower of the towboat, the waterway infrastructure 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 waterway 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 surface transportation of 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 23.4 million barrels equates to approximately 39,100 railroad tank cars or approximately 122,500 tractor-trailer tank trucks. Furthermore, barging is much more energy efficient. One ton of bulk product can be carried 647 miles by inland barge on one gallon of fuel, compared with 477 miles by railcar or 145 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 4.7 million barrels equates to approximately 7,900 railroad tank cars or approximately 24,600 tractor-trailer tank trucks. 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 the number of waterway incidents.

Inland Tank Barge Industry

The Company operates within the United States inland tank barge industry, a diverse and independent mixture of approximately 30 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.

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 2015 and 2016, and slightly decreased to an estimated 3,825 at the end of 2017 and an estimated 3,800 at the end of 2018 and increased slightly to an estimated 3,850 at the end of 2019. 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 the 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 number of industry tank barges has remained relatively constant from 2016 through the end of 2019. The Company’s 1,053 inland tank barges represent approximately 27% of the industry’s 3,850 inland tank barges.

For 2017 and 2018, the Company estimated that industry-wide 75 tank barges were placed in service and 100 tank barges were retired each year. For 2019, the Company estimated that industry-wide 150 tank barges were placed in service and 100 tank barges were retired. During 2017, 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 excess industry-wide tank barge capacity. During 2018 and 2019, demand for inland tank barge transportation and industry utilization rates increased above 90% due to a favorable pricing environment for customers’ products, new petrochemical industry capacity that led to increased movements of petrochemicals, and higher volumes of crude oil moved from the northern U.S. to the Gulf Coast. As a result of these improved market conditions, the Company estimates that approximately 150 tank barges were ordered for delivery throughout 2019. The risk of an oversupply of tank barges may be mitigated by increased petrochemical, black oil and refined petroleum products volumes from increased production from current facilities, plant expansions or the opening of new facilities, and the fact that the inland tank barge industry has approximately 350 tank barges over 30 years old and approximately 240 of those are over 40 years old, which could lead to retirement of older tank barges. The average age of the nation’s inland tank barge fleet is approximately 15 years.

The Company’s inland marine transportation segment also owns a shifting operation and fleet facility for dry cargo barges and tank barges on the Houston Ship Channel and in Freeport, Texas, and a shipyard for the building of inland towboats and providing routine maintenance on marine vessels. The Company also 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 20 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.

The number of coastal tank barges that operate in the 195,000 barrel or less category is approximately 280, of which the Company operates 49 or approximately 18%. The average age of the nation's coastal tank barge fleet is approximately 13 years. In June 2018, the Company purchased a 155,000 barrel coastal articulated tank barge and tugboat unit ("ATB") under construction from another operator that was delivered to the Company in the 2018 fourth quarter. The Company is aware of four coastal ATBs under construction by competitors for delivery in 2020 and 2021, including two that are in the 195,000 barrels or less category and two that are over 195,000 barrels. The coastal tank barge fleet has approximately 20 tank barges over 25 years old. The number of older tank barges, coupled with low industry-wide utilization levels and ballast water treatment regulations, could lead to further retirements of older tank barges in the next few years.

Competition in the Tank Barge Industry

The tank barge industry remains very competitive. Competition in this business is based on price and reliability, and with many of the industry's customers emphasis on enhanced vetting requirements, an increased emphasis on safety, the environment, and quality, 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, and an emphasis on 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 1,053 tank barges as of December 31, 2019, or approximately 27% 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 45 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 2019, the Company's inland marine transportation operation moved over 50 million tons of liquid cargo on the United States inland waterway system.

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 54% of the segment's 2019 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 23% of the segment's 2019 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 19% of the segment's 2019 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 4% of the segment's 2019 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 reallocating inland equipment and coastal equipment among 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 2019, 2018 and 2017, 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 to the high 80% range on average with periods of utilization in the low 80% range. During 2017 and 2018, utilization ranged from the mid-80% to the mid-90% range, reaching the mid-90% range in the late 2017 third quarter from the impact of Hurricanes Harvey and Irma, and in the low to mid-90% range during the 2017 fourth quarter and the majority of 2018 and 2019 as a result of a favorable pricing environment for customers' products, new petrochemical industry capacity that led to increased movements of petrochemicals, and the continued retirement of older barges from the segment's fleet. Extensive delay days due to poor operating conditions which slowed transport of customer cargoes, also contributed to increased utilization during the first half of 2019. Coastal tank barge utilization for the transportation of petrochemicals during 2017 ranged from the low 60% to low 80%. During 2018, coastal tank barge utilization levels ranged improved from the high 70% range in the 2018 first quarter to the 80% range during the 2018 last nine months and the low to mid-80% range during 2019, reflecting the retirement of 12 out-of-service coastal barges during the 2017 fourth quarter and improved customer demand resulting in higher utilization of spot market capacity in 2019. Utilization in the coastal marine fleet continued to be impacted by the oversupply of smaller tank barges in the coastal market.

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, 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, crude oil and natural gas condensate movements by tank barge were at reduced levels industry-wide. During 2015 and 2016, the Company and the industry were generally successful in repositioning barges from that trade to other markets. During 2017, 2018 and 2019, 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 as some of the product was transported by newly constructed pipelines. The decline in demand for crude oil and natural gas condensate movements and an industry-wide oversupply of inland tank barges resulted in a decline in inland black oil tank barge utilization in 2017 to the mid-80% to low 90% range for the first three quarters and low to mid-90% range for the fourth quarter. During 2018, inland black oil tank barge utilization was in the mid-90% range, and increased into the mid-to high 90% range during 2019. Coastal black oil tank barge utilization declined from the 90% to 95% range for the majority of 2015 to the low 80% range by the end of 2016, the low 60% to low 80% range during 2017 and low to mid-80% range during 2018 and the low 90% range during 2019, partly attributable to the decrease in the movements of crude oil and natural gas condensate and to the continued industry-wide oversupply of smaller tank barges in the coastal industry. 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 Company saw seasonally normal cessation of most operations in Alaska in the 2017, 2018 and 2019 first and fourth quarters.

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, and declined throughout 2017 from a low 80% range in first quarter to the low 60% range in the fourth quarter, all predominately from the industry-wide oversupply of coastal tank barge capacity. In 2018 and 2019, utilization increased into the 80% range primarily due to the retirement of out-of-service coastal barges during the 2017 fourth quarter and improved customer demand resulting in higher utilization of spot market capacity in 2019.

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 1,053 inland tank barges and 299 inland towboats, as well as 49 coastal tank barges and 47 coastal tugboats. The segment also operates four offshore dry-bulk cargo barges, four 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 fleet 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.

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, Louisiana 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 1,053 inland tank barges currently operated, 828 are petrochemical and refined petroleum products barges, 145 are black oil barges, 70 are pressure barges and 10 are refrigerated anhydrous ammonia barges. Of the 1,053 inland tank barges, 1,029 are owned by the Company and 24 are leased.

The fleet of 299 inland towboats ranges from 800 to 6,100 horsepower. Of the 299 inland towboats, 224 are owned by the Company and 75 are chartered. Towboats in the 800 to 2,100 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 1,400 to 3,200 horsepower classes provide power for both the River and Linehaul fleets on the Gulf Intracoastal Waterway and the Mississippi River System. Towboats above 3,600 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 term or spot contracts with customers with whom the Company has traditionally had long-standing relationships. Typically, term contracts range from one to three years, some of which have renewal options. During all of 2017, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues. During 2018 and 2019, approximately 65% of inland marine transportation revenues were under term contracts and 35% 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 are capable of controlling vapor emissions during loading and discharging operations in compliance with occupational safety and health regulations and air quality regulations.

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 capabilities offer economies of scale resulting from the ability to match tank barges, towboats, products and destinations more efficiently to meet its customers' requirements.

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 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 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 website.

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

Kirby Inland Marine also provides shore-based barge tankermen 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.

San Jac Marine, LLC ("San Jac"), a subsidiary of Kirby Inland Marine, owns and operates a shipyard in Channelview, Texas used to build marine vessels for both inland and coastal applications, and provide maintenance and repair services. Kirby Inland Marine is also building inland towboats and performing routine maintenance and repairs at the shipyard.

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 various coastal ports 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 operating in the Atlantic Division are in the 10,000 to 194,000 barrel capacity range and coastal tugboats in the 2,400 to 10,000 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 52,000 to 194,000 barrel capacity range and tugboats in the 1,000 to 11,000 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 1,000 to 5,000 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, Hawaii, a facility for large tankers to safely load and discharge their cargoes through an offshore buoy and submerged pipeline without entering the port.

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 of the United States and in Alaska have been subject to more seasonal variations in demand than the operations along the East Coast and Gulf Coast regions of the United States. 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 49 tank barges with 4.7 million barrels of capacity, primarily transporting refined petroleum products, black oil and petrochemicals. The Company owns 47 of the coastal tank barges and two are leased. Of the 49 coastal tank barges currently operating, 33 are refined petroleum products and petrochemical barges and 16 are black oil barges. The Company operates 47 coastal tugboats ranging from 1,000 to 11,000 horsepower, of which 42 are owned by the Company and five 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 2017, 2018 and 2019, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were spot contract revenues.

Kirby Offshore Marine also operates a fleet of two 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 long-term contracts of affreightment.

Kirby Ocean Transport owns and operates a fleet of two offshore dry-bulk barges, two 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 or spot contracts for customers with whom the Company has traditionally had long-standing relationships. Typically, term contracts range from one to three years, some of which have renewal options. 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 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 62% of the marine transportation's inland revenues under term contracts during 2019, 59% of revenue under term contracts during 2018 and 49% of the revenue under term contracts during 2017. 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 2017, approximately 75% of inland marine transportation revenues were under term contracts and 25% were spot contract revenues. During 2018 and 2019, approximately 65% of inland marine transportation revenues were under term contracts and 35% were spot contract revenues. Coastal time charters represented approximately 85% of the marine transportation coastal revenues under term contracts in 2019, 2018 and 2017.

No single customer of the marine transportation segment accounted for 10% or more of the Company's revenues in 2019, 2018 and 2017.

Employees

The Company's marine transportation segment has approximately 3,350 employees, of which approximately 2,650 are vessel crew members. None of the segment's inland operations are subject to collective bargaining agreements. The segment's coastal operations include approximately 675 vessel employees some of which are subject to collective bargaining agreements in certain geographic areas. Approximately 250 Kirby Offshore Marine vessel crew members employed in the Atlantic Division are subject to a collective bargaining agreement with the Richmond Terrace Bargaining Unit in effect through August 31, 2022. In addition, approximately 150 vessel crew members of Penn Maritime Inc., a wholly owned subsidiary of Kirby Offshore Marine, are represented by the Seafarers International Union under a collective bargaining agreement in effect through April 30, 2022.

Properties

The principal offices of Kirby Inland Marine, Kirby Offshore Marine, Kirby Ocean Transport and Osprey are located in Houston, Texas, in three facilities under leases that expire in July 2021, December 2025 and December 2027. Kirby Inland Marine's operating locations are on the Mississippi River at Baton Rouge and New Orleans, Louisiana, and Greenville, Mississippi, three locations in Houston, Texas, on or near the Houston Ship Channel, one in Mobile, Alabama, one in Miami, Florida, one in Covington, Louisiana, one in Lake Charles, Louisiana, one in Corpus Christi, Texas, and one in Orange, Texas. The New Orleans, Houston and Orange facilities are owned by the Company, and the Baton Rouge, Corpus Christi, Covington, Lake Charles, Greenville, Miami and Mobile 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 piers and wharf facilities and office and warehouse space. San Jac's operating location is near the Houston Ship Channel.

Governmental Regulations

General. The Company's marine transportation operations are subject to regulation by the USCG, federal laws, state laws and certain international conventions. The agencies establish safety requirements and standards and are authorized to investigate incidents.

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 also subject to USCG regulations. The USCG has enacted safety regulations governing the inspection, standards, and safety management systems of towing vessels. The regulations also create many new requirements for design, construction, equipment, and operation of towing vessels. The USCG regulations supersede the jurisdiction of the United States Occupational Safety and Health Administration ("OSHA") and any state regulations on vessel design, construction, alteration, repair, maintenance, operation, equipping, personnel qualifications and manning. The regulations requiring towing vessels to obtain a certificate of inspection became effective for existing towing vessels on July 20, 2018. Other portions of the regulations are phased in following the July 20, 2018 effective date through July 19, 2022.

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 inland and coastal vessels, including captains, pilots, engineers, tankermen and ordinary seamen, are licensed by the USCG.

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's failure to maintain these authorizations could adversely impact its operations.

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 and manned, 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 within the meaning of the Jones Act. The Company monitors citizenship and meets the requirements of the Jones Act for its owned and operated vessels.

Compliance with United States ownership requirements of the Jones Act is important to the operations of the Company, and a violation of the Jones Act could have a material negative effect on the Company and its vessels' ability to operate. The Company monitors the citizenship of its employees and stockholders and complies with United States build requirements.

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 0.1 cent per gallon leaking underground storage tank tax and 29 cents per gallon waterways user tax.

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 maintains approved VSP and FSP and 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. Violations of these laws may result in civil and criminal penalties, fines, or other sanctions.

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.

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 Clean Water Act establishes the National Pollutant Discharge Elimination System ("NPDES") permitting program which regulates discharges into navigable waters of the United States. 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. Pursuant to the NPDES program, effective February 6, 2009, the EPA issued regulations requiring 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 Incidental Discharge Act ("VIDA"), signed into law on December 4, 2018, established a new framework for the regulation of vessel incidental discharges under the Clean Water Act. VIDA requires the EPA to develop performance standards for those discharges within two years of enactment and requires the USCG to develop implementation, compliance, and enforcement regulations within two years of the EPA's promulgation of standards. Under VIDA, all provisions of the Vessel General Permit which became effective December 19, 2013, remain in force and effect until the USCG regulations are finalized. 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 manufacturers' systems that met the regulatory discharge standard equivalent to the International Maritime Organization's D-2 standard. The phase-in schedule for those existing vessels requiring a system to install a BWMS 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 some of the Company's vessels to treat ballast water before it is discharged. The installation of BWMS equipment will require significant capital expenditures at the next scheduled drydocking to complete the installation of the approved system on those existing vessels that require a system in order to comply with the BWMS regulations.

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 (“CAA”) requires states to draft State Implementation Plans (“SIPs”) under the National Ambient Air Quality Standards designed to reduce atmospheric pollution to levels mandated by this act. Several SIPs provide for the regulation of barge loading and discharging emissions at waterfront facilities. 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 vessel operators that operate in states with areas of nonattainment of air quality standards under the CAA 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 OSHA 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, adverse weather conditions, loss or contamination of cargo, personal injury of employees and third parties, and pollution and other environmental damages. The Company maintains hull, liability, general liability, workers compensation and pollution liability insurance coverage against these hazards. For shipyard operations, the Company has ship repairer’s liability and builder’s risk insurance. The Company also maintains insurance in the commercial insurance market to address commercial liabilities arising in connection with its distribution and services segment.

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 emphasizes its safety commitment through a program oriented toward extensive monitoring of safety performance for the purpose of identifying trends and initiating corrective action, and for continuously improving employee safety behavior and 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 2019, approximately 1,800 certificates were issued for the completion of courses at the training facility, of which approximately 675 were USCG approved classes and the balance was employee development and Company required classes, including leadership, communication and navigation courses. The Company uses the Seaman's Church Institute as an additional training resource for its wheelhouse crewmembers.

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.

DISTRIBUTION AND SERVICES

The Company, through its wholly owned subsidiary Kirby Distribution & Services, Inc. and its wholly owned subsidiaries Kirby Engine Systems LLC, ("Kirby Engine Systems"), Stewart & Stevenson LLC ("S&S") and United Holdings LLC ("United"), and through Kirby Engine Systems' wholly owned subsidiaries Marine Systems, Inc. ("Marine Systems") and Engine Systems, Inc. ("Engine Systems"), serves two markets, oil and gas, and commercial and industrial. The Company sells genuine replacement parts, provides service mechanics to overhaul and repair engines, transmissions, reduction gears and related oilfield service equipment, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and related equipment used in oilfield services, marine, power generation, on-highway, and other commercial and industrial applications. The Company manufactures and remanufactures oilfield service equipment, including pressure pumping units, for North American as well international oilfield service companies, and oil and gas operator and producer markets. The Company also sells engines, transmissions, power generation systems, and rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of commercial and industrial markets.

For the oil and gas market, the Company sells Original Equipment Manufacturers ("OEM") replacement parts, sells and services diesel engines, pumps and transmissions, manufactures and remanufactures pressure pumping units, and manufactures cementing and pumping equipment, coil tubing and well intervention equipment, and gas compression equipment. Customers include oilfield service companies, and oil and gas operators and producers.

For the commercial and industrial market, the Company sells OEM replacement parts and new diesel engines, provides service mechanics and maintains facilities to overhaul and repair diesel engines and ancillary products for marine and on-highway transportation companies, and industrial companies. The Company provides engineering and field services, OEM replacement parts and safety-related products to power generation operators and to the nuclear industry, manufactures engine generator and pump packages for power generation operators and municipalities, offers power generation systems customized for specific commercial and industrial applications, and rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of industrial markets.

No single customer of the distribution and services segment accounted for 10% or more of the Company's revenues in 2019, 2018 or 2017. The distribution and services segment also provides service to the Company's marine transportation segment, which accounted for approximately 2% of the distribution and services segment's 2019, 2018, and 2017 revenues. Such revenues are eliminated in consolidation and not included in the table below.

The following table sets forth the revenues for the distribution and services segment for the three years ended December 31, 2019 (dollars in thousands):

	2019		2018		2017	
	Amounts	%	Amounts	%	Amounts	%
Service and parts	\$ 939,246	75%	\$ 1,059,270	71%	\$ 687,848	77%
Manufacturing	312,071	25	428,284	29	202,464	23
	<u>\$ 1,251,317</u>	<u>100%</u>	<u>\$ 1,487,554</u>	<u>100%</u>	<u>\$ 890,312</u>	<u>100%</u>

Oil and Gas 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 oil and gas operations represented approximately 53% of the segment's 2019 revenues. The Company offers custom fabricated oilfield service equipment, fully tested and field ready. The Company manufactures and remanufactures oilfield service equipment, including pressure pumping units, nitrogen pumping units, cementers, hydration equipment, mud pumps and blenders, coil tubing, well intervention equipment and gas compression equipment. The Company sells OEM replacement parts, and sells and services diesel engines, pumps and transmissions, and offers in-house and in-field service capabilities. The Company is the largest off-highway distributor for Allison Transmission and a major distributor for MTU in North America.

The Company's manufacturing and remanufacturing facilities and service facilities are based in Houston, Texas and Oklahoma City, Oklahoma, key oil and gas producing regions.

Oil and Gas Customers

The Company's major oil and gas customers include large and mid-cap oilfield service providers, oil and gas operators and producers. The Company has long standing relationships with most of its customers. Since the oil and gas 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 Company's oil and gas distribution and services operations are largely tied to the industries it serves and, therefore, are influenced by the cycles of such industries.

Oil and Gas Competitive Conditions

The Company's primary competitors are other oilfield equipment manufacturers and remanufacturers, and equipment 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.

Commercial and Industrial Operations

The Company serves the marine, on-highway, power generation, and other commercial and industrial markets primarily in the United States. The commercial and industrial operations represented approximately 47% of the segment's 2019 revenues.

The Company is engaged in the overhaul and repair of medium-speed and high-speed marine diesel engines and reduction gears, line boring, block welding services and related parts sales for customers in the marine industry. Medium-speed diesel engines have an engine speed of 400 to 1,000 revolutions per minute ("RPM") with a horsepower range of 800 to 32,000. High-speed diesel engines have an engine speed of over 1,000 RPM and a horsepower range of 50 to 8,375. 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 oilfield service industry, marine equipment used in the offshore commercial fishing industry, harbor docking vessels, commercial ferries, vessels owned by the United States government and large pleasure crafts.

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 and Harvey, Louisiana, Houston, Texas, Chesapeake, Virginia, Paducah, Kentucky, Seattle, Washington and Tampa, Florida, serving as the authorized distributor for EMD Power Products ("EMD") throughout the United States. 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 and Harvey, Louisiana and Houston, Texas operations concentrate on the inland and offshore barge and oilfield 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 marine operations are located in Houston, Texas, Houma, Baton Rouge, Belle Chasse and New Iberia, Louisiana, Paducah, Kentucky, Mobile, Alabama, Lodi and Thorofare, New Jersey, and 10 locations in Florida. The Company serves as a factory-authorized marine dealer for Caterpillar diesel engines in multiple states. The Company also operates factory-authorized full service marine distributorships/dealerships for Cummins, Detroit Diesel, John Deere, MTU and Volvo Penta diesel engines, as well as Falk, Lufkin and Twin Disc marine gears. High-speed diesel engines provide the main propulsion for a significant amount of the United States flag commercial vessels and large pleasure craft vessels, other marine applications, including engines for power generators and barge pumps.

The Company distributes, sells parts for and services diesel engines and transmissions for on-highway use and provides in-house and in-field service capabilities. The Company is the largest on-highway distributor for Allison Transmission and Detroit Diesel/Daimler Truck North America, providing parts, service and warranty on engines, transmissions and related equipment in Arkansas, Colorado, Florida, Louisiana, New Mexico, New York, Oklahoma, Texas, Wyoming, and the country of Colombia. The Company also provides similar service for off-highway use and additionally has distributor rights for Deutz and Isuzu diesel engines. Off-highway applications are primarily surface and underground mining equipment, including loaders, crawlers, crushers, power screens, pumps, cranes, generators, haul trucks and personnel carriers, as well as equipment rental.

The Company is engaged in the overhaul and repair of diesel engines and generators, and related parts sales for power generation customers. 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 also sells power generation systems that are customized for specific applications and the rental of power generation systems.

The Company has power generation operations throughout the United States providing in-house and in-field repair capabilities and products for power generation applications. Through its Rocky Mount, North Carolina operation, the Company serves as 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 Baker Hughes Company (“Baker Hughes”) 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.

The Company sells pre-packaged and fabricated power generation systems for emergency, standby and auxiliary power for commercial and industrial applications. The Company also offers rental generator systems from MTU, Atlas Copco, and Multiquip from 50 to 2,000 kilowatts of power to a broad range of customers. The Company also is engaged in the rental of generators, industrial compressors, railcar movers and high capacity lift trucks. In addition, the Company provides accessory products such as cables, hoses, fuel cells, air dryers, air compressor boosters and ground heaters. Lastly, the Company is a dealer for Thermo King refrigeration systems for trucks, railroad cars and other land transportation markets in Texas and Colorado.

Commercial and Industrial Customers

The Company’s major marine customers include inland and offshore barge operators, oilfield service companies, offshore fishing companies, other marine transportation entities, the United States government and large pleasure crafts. Since the marine business is linked to the relative health of the inland towboat, offshore and coastal tugboat, harbor docking tugboat, offshore oilfield service, oil and gas drilling, offshore commercial fishing industries, Great Lakes ore vessels, dredging vessels, coastal ferries, United States government vessels and the pleasure craft industry, there is no assurance that its present gross revenues can be maintained in the future. The results of the distribution and services industry are largely tied to the industries it serves and, therefore, are influenced by the cycles of such industries.

The Company’s on-highway customers are long-haul and short-haul trucking companies, commercial and industrial companies with truck fleets, buses owned by municipalities and private companies. Off-highway companies include surface and underground mining operations with a large variety of equipment.

The Company’s power generation customers are domestic utilities and the worldwide nuclear power industry, municipalities, universities, medical facilities, data centers, petrochemical plants, manufacturing facilities, shopping malls, office complexes, residential and other industrial users.

The Company’s rental customers are primarily commercial and industrial companies, and residential customers with short-term rental requirements.

Commercial and Industrial Competitive Conditions

The Company’s primary marine competitors are independent distribution and 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, John Deere, MTU and Volvo Penta parts. The Company is also the marine distributor for Falk, Lufkin and Twin Disc reduction gears throughout the United States.

The Company's primary power generation 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 above, the Company is the exclusive worldwide distributor of EMD, Baker Hughes, 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.

Employees

The Company's distribution and services segment has approximately 2,200 employees. None of the United Holdings and Kirby Engine Systems operations are subject to collective bargaining agreements. Approximately 60 S&S employees in New Jersey are subject to a collective bargaining agreement with the Local 15C, International Union of Operating Engineers, AFL-CIO that expires in October 2023. The remaining S&S employees are not subject to collective bargaining agreements.

Properties

The principal office of the distribution and services segment is located in Houston, Texas. There are 63 active facilities in the distribution and services segment, of which 27 facilities are owned and 36 facilities are leased.

The oil and gas operation's principal manufacturing facilities are located in Houston, Texas and Oklahoma City, Oklahoma, with both facilities owned by the Company. The oil and gas focused operations have 19 parts and service facilities, with one in Arkansas, two in Colorado, four in Louisiana, one in New Mexico, one in Oklahoma, nine in Texas and one in Wyoming, with many of these facilities shared with the commercial and industrial operations.

The commercial and industrial businesses operate 42 parts and service facilities, with one facility in Alabama, one in Connecticut, one in Colorado, 11 in Florida, one in Kentucky, two in Louisiana, one in Massachusetts, one in Oklahoma, three in New Jersey, one in New York, one in North Carolina, 11 in Texas, one in Virginia, one in Washington and five facilities located in Colombia, South America.

Executive Officers of the Registrant

The executive officers of the Company are as follows:

Name	Age	Positions and Offices
David W. Grzebinski	58	President and Chief Executive Officer
William G. Harvey	62	Executive Vice President and Chief Financial Officer
Christian G. O'Neil	47	President – Kirby Inland Marine, Kirby Offshore Marine, and San Jac Marine, LLC
Joseph H. Reniers	45	President – Kirby Distribution & Services, Inc.
Dorman L. Strahan	63	President – Kirby Engine Systems
Kim B. Clarke	64	Vice President and Chief Human Resources Officer
Ronald A. Dragg	56	Vice President, Controller and Assistant Secretary
Eric S. Holcomb	45	Vice President – Investor Relations
Amy D. Husted	51	Vice President, General Counsel and Secretary
Scott P. Miller	41	Vice President and Chief Information Officer
Kurt A. Niemi	47	Vice President and Treasurer
William M. Woodruff	59	Vice President – Public and Governmental Affairs

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.

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 operational and financial 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 in manufacturing, engineering and financial roles.

William G. Harvey is a Chartered Financial Analyst and holds a Master of Business Administration degree from the University of Toronto and a degree in mechanical engineering from Queens University. He has served as Executive Vice President and Chief Financial Officer since February 2018. He served as Executive Vice President – Finance from January 2018 to February 2018. Prior to joining the Company, Mr. Harvey served as Executive Vice President and Chief Financial Officer of Walter Energy, Inc. from 2012 to 2017, Senior Vice President and Chief Financial Officer of Resolute Forest Products Inc. (“Resolute”) from 2008 to 2011, and as Executive Vice President and Chief Financial Officer of Bowater Inc., a predecessor company of Resolute, from 2004 to 2008.

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 President of Kirby Inland Marine and Kirby Offshore Marine since January 2018 and as President of San Jac Marine, LLC since October 2018. He served as Executive Vice President and Chief Operating Officer of Kirby Inland Marine and Kirby Offshore Marine from May 2016 to January 2018. He also 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.

Joseph H. Reniers holds a Master of Business Administration degree from the University of Chicago Booth School of Business and a degree in mechanical engineering from the United States Naval Academy. He has served the Company as President – Kirby Distribution & Services, Inc. since September 2017. He served as Executive Vice President – Diesel Engine Services and Supply Chain from May 2016 to September 2017, 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.

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.

Kim B. Clarke holds a Bachelor of Science degree from the University of Houston. She has served as Vice President and Chief Human Resources Officer since October 2017. She served as Vice President – Human Resources from December 2016 to October 2017. 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, Controller and Assistant Secretary since April 2014. He also served as Vice President and Controller from January 2007 to April 2014, 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.

Eric S. Holcomb is a Certified Public Accountant and holds a Bachelor of Business Administration degree in accounting from Southern Methodist University. He has served the Company as Vice President – Investor Relations since December 2017. Prior to joining the Company, he was employed by Baker Hughes Incorporated from 2003 to December 2017 serving in various roles including Investor Relations Director, Finance Director for North America Land, Finance Director for North America Offshore and Finance Director for Canada.

Amy D. Husted holds a doctorate of jurisprudence from South Texas College of Law and a Bachelor of Science degree in political science from the University of Houston. She has served the Company as Vice President, General Counsel and Secretary since April 2019. She also served as Vice President and General Counsel from January 2017 to April 2019, Vice President – Legal from January 2008 to January 2017 and 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.

Scott P. Miller holds a Bachelor of Science in Management of Information Systems from Louisiana State University and a Master of Business Administration degree from the University of Houston. He has served as Vice President and Chief Information Officer since April 2019. Prior to joining the Company, he was employed by Key Energy Services, Inc. from May 2006 to March 2019, serving in various senior leadership roles including Managing Director of Strategy, Vice President and Chief Information Officer from March 2013 to December 2015 and as Senior Vice President, Operations Services and Chief Administrative Officer from January 2016 to March 2019.

Kurt A. Niemietz holds a Master of Business Administration degree from St. Mary's University and a degree in accounting from the University of Texas at San Antonio. He has served as Vice President and Treasurer since April 2019. Prior to joining the Company, he was employed by Pacific Drilling from 2013 to 2019, serving in various roles of increasing responsibility, including Treasurer from 2017 to 2019, and in various financial positions with FMC, from 2006 to 2013. Prior to joining FMC, he was employed by Austin, Calvert & Flavin as a buy-side equity analyst.

William M. Woodruff holds a doctorate of jurisprudence from the University of Houston Law Center and a bachelor of science degree from Texas A&M University. He has served as Vice President – Public and Governmental Affairs since October 2017. He served as Director – Public & Government Affairs from 2014 to October 2017 after joining the Company as Director – Government Affairs in 2004. Prior to joining the Company, he was a maritime lawyer in private practice and Vice President and General Counsel of Coastal Towing, Inc.

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 distribution and services segments. The Company's marine transportation segment is subject to weather condition volatility. 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, limit navigation periods and dictate horsepower requirements. The Company's distribution and 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 an extended period of time. Although statistically marine transportation is the safest means of surface transportation of 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 unauthorized 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. Risks may arise for which the Company may not be insured. Claims covered by insurance are subject to deductibles, the aggregate amount of which could be material, and certain policies impose limitations on coverage. Existing insurance coverage may not be able to be renewed at commercially reasonable rates or coverage capacity for certain risks may not be available or adequate to cover future claims. If a loss occurs that is partially or completely uninsured, or the carrier is unable or unwilling to cover the claim, the Company could be exposed to liability.

The Company's marine transportation segment is dependent on its ability to adequately crew its towing vessels. The Company's 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 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. 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 rotation, a 21 days on, 21 days off rotation or a 30 days on, 30 days off rotation, dependent upon the location. The nature of crewmember work schedules and assignments away from home for extended periods require special recruiting and at times it can be difficult to find candidates. 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.

The Company's marine transportation segment has approximately 3,350 employees, of which approximately 2,650 are vessel crew members. None of the segment's inland operations are subject to collective bargaining agreements. The segment's coastal operations include approximately 675 vessel employees, of whom approximately 400 are subject to collective bargaining agreements in certain geographic areas. Any work stoppages or labor disputes could adversely affect coastal operations in those areas.

The Company may be unable to make attractive acquisitions or successfully integrate acquired businesses, and any inability to do so may adversely affect the Company's business and hinder its ability to grow. The Company has made asset and business acquisitions in the past and may continue to make acquisitions of assets or businesses in the future that complement or expand the Company's current business. The Company may not be able to identify attractive acquisition opportunities. Even if attractive acquisition opportunities are identified, the Company may not be able to complete the acquisition or do so on commercially acceptable terms. The success of any completed acquisition depends on the Company's ability to integrate the acquired assets or business effectively into the Company's existing operations. The process of integrating acquired assets or businesses may involve difficulties that require a disproportionate amount of the Company's managerial and financial resources to resolve. The value of acquired assets or businesses may be negatively impacted by a variety of circumstances unknown to the Company prior to the acquisition. In addition, possible future acquisitions may be larger and for purchase prices significantly higher than those paid for earlier acquisitions. No assurance can be given that the Company will be able to identify additional suitable acquisition opportunities, negotiate acceptable terms, obtain financing for acquisitions on acceptable terms or successfully acquire identified targets. The Company's failure to achieve synergies, to integrate successfully the acquired businesses and assets into the Company's existing operations, or to minimize any unforeseen operational difficulties could have a material adverse effect on the Company's business, financial condition, and results of operations. In addition, agreements governing the Company's indebtedness from time to time may impose certain limitations on the Company's ability to undertake acquisitions or make investments or may limit the Company's ability to incur certain indebtedness and liens, which could limit the Company's ability to make acquisitions.

The Company's failure to comply with the Foreign Corrupt Practices Act ("FCPA"), or similar local applicable anti-bribery laws, could have a negative impact on its ongoing operations. The Company's operations outside the United States require the Company to comply with both a number of United States and international regulations. For example, in addition to any similar applicable local anti-bribery laws, its operations in countries outside the United States are subject to the FCPA, which prohibits United States companies or their employees and third party representatives 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 third party representatives 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 third party representatives, and severe criminal or civil sanctions could be the result of violations of the FCPA or any other applicable anti-bribery law in countries where the Company does business. The Company is also subject to the risks that its employees, joint venture partners, and third party representatives 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, owned and operated by United States citizens. The Company presently meets all of the requirements of the Jones Act for its owned and operated 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 or waived as to permit foreign flag vessels to operate in the United States as these vessels are not subject to the same United States government imposed regulations, laws, and restrictions. 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 eliminated or significantly modified in a way that has a material adverse impact on the Company 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. On September 8, 2017, following Hurricanes Harvey and Irma, the Department of Homeland Security issued a waiver of the Jones Act for a 7-day period for shipments from New York, Pennsylvania, Texas and Louisiana to South Carolina, Georgia, Florida and Puerto Rico. The waiver was specifically tailored to address the transportation of refined petroleum products due to disruptions in hurricane-affected areas. On September 11, 2017, the waiver was extended for 11 days and expanded to include additional states. Following Hurricane Maria, on September 28, 2017, the Department of Homeland Security issued a waiver of the Jones Act for movement of products shipped from United States coastwise points to Puerto Rico through October 18, 2017. 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.

The Company's marine transportation segment is subject to extensive regulation by the USCG, federal laws, other federal agencies, various 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 owned and operated 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, including carbon emissions or energy use, have increasingly become the subject of a large amount of international, national, regional, state and local attention. Pursuant to an April 2007 decision of the United States Supreme Court, the EPA was required to consider if carbon dioxide was a pollutant that endangers public health. On December 7, 2009, the EPA issued its "endangerment finding" regarding greenhouse gasses under the CAA. 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 CAA. Although the EPA has stated a preference that greenhouse gas regulation be based on new federal legislation rather than the existing CAA, 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 2019, 54% 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 2019, petrochemical volumes increased relative to 2018 and 2017, primarily as a result of new petrochemical capacity which came online in recent years. 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. In addition, approximately 20 new United States petrochemical projects, including expansion of existing plants or new plants, are scheduled to be completed during 2020 and 2021, which should provide additional movements for the marine transportation segment. 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.

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 1,053, or 27%. 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 and remained relatively flat since 2015. The Company estimates that industry-wide 75 tank barges were placed in service during 2017, of which five were by the Company, and 100 tank barges were retired, 54 of which were by the Company. For 2018, the Company estimated that industry-wide 75 tank barges were placed in service, of which one was by the Company, and 100 tank barges were retired, 48 of which were by the Company. For 2019, the Company estimated that industry-wide 150 new tank barges were placed in service, of which none were by the Company, and 100 tank barges were retired, 17 of which were by the Company. The increase for 2015 reflected the improved demand for inland petrochemical, refined petroleum products and black oil barges experienced in 2014 and federal tax incentives on new equipment. The decrease in the number of tank barges at the end of 2017 and 2018 was primarily due to continued industry-wide tank barge retirements and minimal new tank barge construction. The Company estimates that approximately 130 tank barges have been ordered during 2019 for delivery throughout 2020 and expects many older tank barges, including an expected four by the Company, will be retired, dependent on 2020 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 approximately 350 tank barges that are over 30 years old and approximately 240 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 as needed, given extensive customer vetting standards, with the extent of both retirements and new builds 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.

During 2017, 2018, and 2019, a decline in industry-wide demand for the movement of 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 2017, 2018 and 2019 with additional new capacity coming on-line in 2020. Much of this new capacity is replacement capacity for older vessels anticipated to be retired.

The Company estimates there are approximately 280 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 20 of those are over 25 years old. In June 2018, the Company purchased a 155,000 barrel coastal ATB under construction from another operator that was delivered to the Company in the 2018 fourth quarter. The Company is aware of seven coastal tank barge and tugboat units placed in service in 2017, three in 2018, and two in 2019 by competitors. There are currently four announced coastal tank barge and tugboat units under construction by competitors for delivery in 2020 and 2021. Two of these coastal ATB units under construction are greater than 195,000 barrels.

Higher fuel prices could increase operating expenses and fuel price volatility could reduce profitability. The cost of fuel during 2019 was approximately 9% of marine transportation revenue. All of the Company's 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. The Company's spot contract rates generally reflect current fuel prices at the time the contract is signed but do not have escalators for fuel.

Loss of a large customer or other significant business relationship could adversely affect the Company. Five marine transportation customers accounted for approximately 19% of the Company's 2019, 18% of 2018 and 23% of 2017 revenue. The Company has contracts with these customers expiring in 2020 through 2027. Three distribution and services customers accounted for approximately 12% of the Company's 2019 revenue, 13% of 2018 revenue, and 14% of 2017 revenue. 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 distribution and services segment has had a relationship with EMD, the largest manufacturer of medium-speed diesel engines, for over 50 years. The Company, through Kirby Engine Systems, serves as both an EMD distributor and service center for select markets and locations for both service and parts. With the acquisition of S&S in September 2017, the Company added additional EMD exclusive distributorship rights in key states, primarily through the Central, South and Eastern areas of the United States. With the S&S acquisition, the Company became the United States distributor for EMD marine and power generation applications. Sales and service of EMD products account for approximately 4% of the Company's revenues for 2019. 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 and S&S have maintained continuous exclusive distribution rights for MTU and Allison since the 1940s. United and S&S are two of MTU's top five distributors of off-highway engines in North America, with exclusive distribution rights in multiple states. In addition, as distributors of Allison products, United and S&S have exclusive distribution rights in multiple key growth states. United and S&S are also the distributor for parts, service and warranty on Daimler truck engines and related equipment in multiple states. Sales and service of MTU and Allison products accounted for approximately 17% of the Company's revenues during 2019. 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 distribution and services segments. The inland and coastal tank barge industry remains very fragmented and 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. In addition, the Company's failure to adhere to its safety, reliability and performance standards may impact its ability to retain current customers or attract new customers.

The distribution and services industry is also very competitive. The segment's oil and gas market's principal competitors are independent distribution and 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 distribution and 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. For the commercial and industrial market, 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. For power generation, the primary competitors are other independent service companies.

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, economic conditions, and supply and demand dynamics can significantly impact the construction cost of new tank barges and towing vessels. Over the last 20 years, the Company's average construction price for a new 30,000 barrel capacity inland tank barge has fluctuated up or down significantly. For example, the average construction price for a new 30,000 barrel capacity tank barge in 2009 was approximately 90% higher than in 2000, with increases primarily related to higher steel costs. 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 fell significantly in 2010, primarily due to a significant decrease in steel prices, as well as a decrease in the number of tank barges ordered. In 2018 and 2019, increases in steel costs and improvement in supply and demand dynamics resulted in construction prices for a new 30,000 barrel tank barge increasing compared to prices in 2017 when there was an industry-wide over-capacity of inland tank barges in the market.

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 distribution and services segment could be adversely impacted by future legislation or additional regulation of hydraulic fracturing practices. The Company, through its United and S&S subsidiaries, 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 or byproducts of the fracturing process. 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 distribution and 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.

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 demand and therefore increased demand for tank barge transportation services. However, during 2016 and 2017 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 estimated that approximately 140 inland tank barges and approximately 10 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 moved into other markets. At the end of 2017, the Company estimated that approximately 250 inland tank barges and approximately three coastal tank barges were transporting crude and natural gas condensate. At the end of 2018, the Company estimates that approximately 375 inland tank barges and approximately three coastal tank barges were transporting crude and natural gas condensate. As of the end of 2019, the Company estimates that approximately 335 inland tank barges and approximately five coastal tank barges were transporting crude and natural gas condensate. 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 distribution and 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. Prolonged downturns in oil and gas prices may cause substantial declines in oilfield service and exploration expenditures and could adversely impact oil and gas manufacturing, remanufacturing, parts and distribution business. In addition, 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 distribution and services segment.

The Company's distribution and services segment could be adversely impacted by the construction of pressure pumping units by its competitors. In early 2015, an estimated 21.0 million horsepower of pressure pumping units were working, or available to work, in North America. By late 2016, the working horsepower in North America had declined to an estimated 6.0 million, with an estimated 2.0 million horsepower scrapped, an estimated 2.0 million horsepower available for work and an estimated 12.5 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 2015 and 2016 results of operations. During 2017 and 2018, with the stabilization of crude oil prices in the \$40 to \$70 per barrel range, the United States land rig count improved and service intensity in the well completion business increased. As a result, the Company experienced a healthy rebound in service demand during 2018, particularly with pressure pumping unit remanufacturing and transmission overhauls, and with the acquisition of S&S in September 2017, the manufacture of oilfield service equipment, including pressure pumping units, and the sale of transmissions. At the end of 2019, an estimated 15.0 million horsepower of pressure pumping units were working in North America, with an estimated 6.0 million horsepower available to work, and 3.0 million horsepower stacked and in need of major repair. 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 “Distribution and 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.

Item 3. Legal Proceedings

In 2009, the Company was named by the EPA as 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.

On February 20, 2015, the Company was served as a defendant in a Complaint originally filed on August 14, 2014 in the U.S. District Court of the Southern District of Texas - Houston Division, *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. The EPA and the PRP Group entered into an Administrative Settlement Agreement and Order for Remedial Investigation Study (“Study”) in May 2015. The Study has not been completed by EPA to date. The Company joined as a member of the PRP Group companies at its pro-rata allocated share.

On October 13, 2016, the Company, as a successor to Hollywood Marine, was issued a General Notice under CERCLA by the EPA in which it was named as a PRP for liabilities associated with the SBA Shipyard Site located near Jennings, Louisiana (the “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 PRP Group 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 PRP Group 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 Site under CERCLA authority. The Company, as a successor to Hollywood Marine, joined the PRP Group Companies. The PRP Group Companies have submitted a draft Study work plan to EPA for their review and comment. Higman Marine, Inc. and its affiliated companies (“Higman”) was named as a PRP in connection with its activities at the Site. Higman is not a participant in the PRP Group Companies.

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 PRPs and the extent to which such costs are recoverable from third parties.

On May 10, 2019, two tank barges and a towboat, the M/V Voyager, owned and operated by Kirby Inland Marine, were struck by the LPG tanker, the Genesis River, in the Houston Ship Channel. The bow of the Genesis River penetrated the Kirby 30015T and capsized the MMI 3014. The collision penetrated the hull of the Kirby 30015T causing its cargo, reformate, to be discharged into the water. The USCG and the National Transportation Safety Board ("NTSB") designated the owner and pilot of the Genesis River as well as the subsidiary of the Company as parties of interest in their investigation into the cause of the incident. On June 19, 2019, the Company filed a limitation action in the U.S. District Court of the Southern District of Texas - Galveston Division seeking limitation of liability and asserting the Genesis River and her owner/manager are at fault for damages including removal costs and claims under OPA and maritime law. Multiple claimants have filed claims in the limitation seeking damages under the OPA. The Company has various insurance policies covering liabilities including pollution, marine and general liability and believes that it has satisfactory insurance coverage for the 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.

On October 13, 2016, the tug Nathan E. Stewart and barge DBL 55, an ATB owned and operated by Kirby Offshore Marine, 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 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 investigated the cause of the incident. On October 10, 2018, the Heiltsuk First Nation filed a civil action in the British Columbia Supreme Court against a subsidiary of the Company, the master and pilot of the tug, the vessels and the Canadian government seeking unquantified damages as a result of the incident. On May 1, 2019, the Company filed a limitation action in the Federal Court of Canada seeking limitation of liability relating to the incident as provided under admiralty law. The Heiltsuk First Nation's civil claim has been consolidated into the Federal Court of Canada limitation action as of July 26, 2019 and it is expected that the Federal Court of Canada will decide all claims against the Company. The Company is unable to estimate the potential exposure in the civil proceeding. On July 16, 2019, the Company and the Canadian government settled the charges against the subsidiary of the Company. The subsidiary of the Company agreed to pay the Canadian government a fine of approximately \$2,900,000 Canadian dollars (\$2,200,000 U.S. dollars) for violations of the Canadian Fisheries Act, the Migratory Birds Convention Act, the Pilotage Act and the Shipping Act of 2001. 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. 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.

On March 22, 2014, two tank barges and a towboat, the M/V Miss Susan, owned by Kirby Inland Marine, 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. While all legal action to date involving the Company has been resolved, the Company is participating in the natural resource damage assessment and restoration process with federal and state government natural resource trustees. 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.

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.

As of February 20, 2020, the Company had 59,984,000 outstanding shares held by approximately 570 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.

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, 2019. 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).

	Year Ended December 31,				
	2019	2018	2017	2016	2015
Revenues:					
Marine transportation	\$ 1,587,082	\$ 1,483,143	\$ 1,324,106	\$ 1,471,893	\$ 1,663,090
Distribution and services	1,251,317	1,487,554	890,312	298,780	484,442
	\$ 2,838,399	\$ 2,970,697	\$ 2,214,418	\$ 1,770,673	\$ 2,147,532
Net earnings attributable to Kirby	\$ 142,347	\$ 78,452	\$ 313,187	\$ 141,406	\$ 226,684
Net earnings per share attributable to Kirby common stockholders:					
Basic	\$ 2.38	\$ 1.31	\$ 5.62	\$ 2.63	\$ 4.12
Diluted	\$ 2.37	\$ 1.31	\$ 5.62	\$ 2.62	\$ 4.11
Common stock outstanding:					
Basic	59,750	59,557	55,308	53,454	54,729
Diluted	59,909	59,689	55,361	53,512	54,826
	December 31,				
	2019	2018	2017	2016	2015
Property and equipment, net	\$ 3,777,110	\$ 3,539,802	\$ 2,959,265	\$ 2,921,374	\$ 2,778,980
Total assets	\$ 6,079,097	\$ 5,871,594	\$ 5,127,427	\$ 4,289,895	\$ 4,140,558
Long-term debt, including current portion	\$ 1,369,767	\$ 1,410,188	\$ 992,406	\$ 722,802	\$ 774,849
Total equity	\$ 3,371,592	\$ 3,216,301	\$ 3,114,223	\$ 2,412,867	\$ 2,279,196

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," or 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 2019, 2018 and 2017 were 59,909,000, 59,689,000 and 55,361,000, respectively. The increase in the weighted average number of common shares for 2019 compared with 2018 primarily reflects the issuance of restricted stock and restricted stock units ("RSUs") and the exercise of stock options. The increase in the weighted average number of common shares for 2018 compared with 2017 primarily reflects the issuance of 5,696,259 shares of common stock associated with the acquisition of S&S on September 13, 2017 and the issuance of restricted stock and RSUs and the exercise of stock options.

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, 2019, the Company operated a fleet of 1,053 inland tank barges with 23.4 million barrels of capacity, and operated an average of 299 inland towboats during 2019. The Company's coastal fleet consisted of 49 tank barges with 4.7 million barrels of capacity and 47 coastal tugboats. The Company also owns and operates four offshore dry-bulk cargo barges, four offshore tugboats and one docking tugboat transporting dry-bulk commodities in United States coastal trade. Through its distribution and services segment, the Company provides after-market service and parts for engines, transmissions, reduction gears, and related equipment used in oilfield services, marine, power generation, on-highway, and other industrial applications. The Company also rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of industrial markets, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for land-based oilfield service customers.

For 2019, net earnings attributable to Kirby were \$142,347,000, or \$2.37 per share, on revenues of \$2,838,399,000, compared with 2018 net earnings attributable to Kirby of \$78,452,000, or \$1.31 per share, on revenues of \$2,970,697,000. The 2019 fourth quarter included \$35,525,000 before taxes, \$27,978,000 after taxes, or \$0.47 per share, non-cash inventory write-downs and \$4,757,000 before taxes, \$3,747,000 after taxes, or \$0.06 per share, severance and early retirement expense. The 2018 year reflected the integration of Targa Resources Corp.'s ("Targa") pressure barge fleet, acquired on May 10, 2018, and the integration of Higman, acquired on February 14, 2018. The 2018 fourth quarter included \$85,108,000 before taxes, \$67,235,000 after taxes, or \$1.12 per share, non-cash impairment of long-lived assets and lease cancellation costs and \$2,702,000 before taxes, \$2,135,000 after taxes, or \$0.04 per share, non-cash impairment of goodwill. The 2018 second quarter included a one-time non-deductible expense of \$18,057,000, or \$0.30 per share, related to the retirement of Joseph H. Pyne as executive Chairman of the Board of Directors, effective April 30, 2018. The 2018 first quarter included \$3,261,000 before taxes, or \$0.04 per share, of one-time transaction costs associated with the Higman acquisition, as well as \$2,912,000 before taxes, or \$0.04 per share, of severance and retirement expenses, primarily related to cost reduction initiatives in the coastal marine transportation market and the integration of Higman.

Marine Transportation

For 2019, 56% 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 2019 increased 7% when compared with 2018 and operating income increased 46%, when compared with 2018. The increase was primarily due to the addition of the Higman fleet acquired on February 14, 2018, the Targa pressure barge fleet acquired on May 10, 2018, the CGBM 100, LLC ("CGBM") inland tank barges acquired on December 14, 2018, and the Cenac Marine Services LLC ("Cenac") fleet acquired on March 14, 2019, as well as improved barge utilization in the coastal market and higher spot and term contract pricing in the inland and coastal markets. Partially offsetting these increases during 2019 were unusually poor operating conditions due to heavy fog along the Gulf Coast, prolonged periods of ice on the Illinois River, high water on the Mississippi River System, closures of key waterways as a result of lock maintenance projects, extended delays in the Houston Ship Channel, and increased shipyard days on several large capacity coastal vessels during the 2019 first and fourth quarters. Operating income for 2018 was impacted by the Higman transaction costs and severance and retirement costs which were each incurred in the 2018 first quarter and are discussed above. For 2019 and 2018, the inland tank barge fleet contributed 77% and 76%, respectively, and the coastal fleet contributed 23% and 24%, respectively, of marine transportation revenues.

Tank barge utilization levels in the Company's inland marine transportation markets averaged in the mid-90% range during the 2019 first and second quarters and the low 90% range during the 2019 third quarter and fourth quarters. For 2018, utilization ranged from the mid-90% range during the first quarter, high 80% to low 90% during the second quarter, and the low to mid-90% range during the third and fourth quarters. Strong demand from petrochemicals, black oil, refined petroleum products and agricultural chemicals customers, along with extensive delay days due to poor operating conditions which slowed the transport of customer cargoes, contributed to increased utilization during the 2019 first and second quarters. Better weather during the 2019 third quarter and receding flood waters on the Mississippi River System resulted in fewer delay days and contributed to modestly lower utilization during the 2019 third quarter. In the 2019 fourth quarter, weather conditions seasonally deteriorated, however, reduced refinery and chemical plant utilization for many of the Company's major customers resulted in tank barge utilization remaining in the low 90% range for the quarter.

Coastal tank barge utilization levels averaged in the low 80% range during the 2019 first quarter and the mid-80% range during the 2019 second, third and fourth quarters. In 2018, utilization improved from the high 70% range during the 2018 first quarter to the 80% range by end of 2018. The improvement in utilization in 2019 and throughout 2018 primarily reflected improved customer demand resulting in higher utilization of spot market capacity. Utilization in the coastal marine fleet continued to be impacted by the oversupply of smaller tank barges in the coastal industry.

During 2019 and 2018, approximately 65% of the inland marine transportation revenues were under term contracts and 35% 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 62% of the inland revenues under term contracts during 2019 compared with 59% during 2018. Rates on inland term contracts renewed in the 2019 first quarter increased in the 4% to 6% average range compared with term contracts renewed in the 2018 first quarter. Rates on inland term contracts renewed in the 2019 second quarter increased in the 5% to 8% average range compared with term contracts renewed in the 2018 second quarter. Rates on inland term contracts renewed in the 2019 third quarter increased in the 3% to 4% average range compared with term contracts renewed in the 2018 third quarter. Rates on inland term contracts renewed in the 2019 fourth quarter increased in the 2% to 4% average range compared with term contracts renewed in the 2018 fourth quarter. Spot contract rates, which include the cost of fuel, increased approximately 20% in the 2019 first quarter compared with the 2018 first quarter. In both the 2019 second and third quarters, spot contract rates increased approximately 15% compared to the 2018 second and third quarters. In the 2019 fourth quarter, spot contract rates increased approximately 5% compared with the 2018 fourth quarter. Effective January 1, 2019, 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 1.7%, excluding fuel.

During 2019 and 2018, approximately 80% of the coastal revenues were under term contracts and 20% were spot contract revenues. Coastal time charters represented approximately 85% of coastal revenues under term contracts during 2019 and 2018. Spot and term contract pricing in the coastal market are contingent on various factors including geographic location, vessel capacity, vessel type and product serviced. Rates on coastal term contract renewed in each of the 2019 first, second, and third quarters increased in the 4% to 6% average range compared with term contracts renewed in the 2018 first, second, and third quarters. Rates on coastal term contracts renewed in the 2019 fourth quarter increased in the 5% to 15% average range compared with term contracts renewed in the 2018 fourth quarter. Spot contract rates in both the 2019 first and second quarters increased in the 10% to 15% average range compared to the 2018 first and second quarters. In the 2019 third quarter, spot contract rates increased approximately 20% compared to the 2018 third quarter. In the 2019 fourth quarter, spot contract rates increased approximately 10% compared to the 2018 fourth quarter.

The 2019 marine transportation operating margin was 13.6% compared with 9.9% for 2018.

Distribution and Services

During 2019, the distribution and services segment generated 44% of the Company's revenues, of which 75% was generated from service and parts and 25% from manufacturing. The results of the distribution and services segment are largely influenced by the economic cycles of the oilfield service and oil and gas operator and producer markets, marine, power generation, on-highway and other industrial markets.

Distribution and services revenues for 2019 decreased 16% when compared to 2018 and operating income decreased 48% when compared with 2018. The decrease was primarily attributable to reduced activity in the oilfield as a result of oil price volatility in late 2018 and early 2019, an oversupply of pressure pumping equipment in North America, and reduced spending and enhanced cash flow discipline for the Company's major oilfield customers. During the first half of 2019, although oilfield activity levels and new orders for the Company's oilfield related products and services declined as compared to the same period in 2018, the segment benefited from a significant backlog of manufacturing orders for new and remanufactured pressure pumping equipment received in the 2018 third and fourth quarters. Most of these orders were completed in the 2019 first and second quarters as oilfield activity levels further declined for many of the Company's customers. As a result, customer demand and incremental orders for new and remanufactured pressure pumping equipment declined significantly for the duration of 2019, and sales of new and overhauled transmissions and related parts and service were minimal during the 2019 third and fourth quarters. For 2019, the oil and gas market represented approximately 53% of distribution and services revenues.

The commercial and industrial market, which contributed 47% of distribution and services revenues for 2019, saw increased service levels and new engine sales in the marine repair business for much of the year, although activity levels in the inland market declined during the 2019 third quarter as many customers reduced maintenance activities following months of river flooding conditions and during the summer harvest season. The commercial and industrial market also experienced increased demand for power generation equipment compared to 2018, including the sale and installation of significant back-up power systems for major data centers in the 2019 first and second quarters. Activity levels for the Company's specialty rental units, back-up power systems, and refrigeration equipment seasonally increased in anticipation of and as a result of summer storms and warm weather conditions in the 2019 second and third quarters. Demand in the nuclear power generation market was stable compared to 2018.

The distribution and services operating margin for 2019 was 5.4% compared with 8.7% for 2018.

Cash Flow and Capital Expenditures

The Company continued to generate favorable operating cash flow during 2019 with net cash provided by operating activities of \$511,813,000 compared with \$346,999,000 of net cash provided by operating activities for 2018, a 47% increase. The improvement was driven by increased revenues and operating income in the marine transportation segment driven by the Higman acquisition in February 2018, the Targa acquisition in May 2018, the CGBM acquisition in December 2018, and the Cenac acquisition in March 2019, as well as improved coastal barge utilization and improved inland and coastal pricing. The improvement was also due to a net increase in cash flows from the change in operating assets and liabilities of \$153,953,000, primarily due to a decrease in inventories reflecting reduced business activity levels in the distribution and services segment in 2019 compared to an increase in 2018. The inventory decrease in 2019 was primarily due to reduced business activity levels in the oil and gas market as compared to higher inventory levels in 2018 required to support higher business activity levels. In addition, during 2019 and 2018, the Company generated cash of \$57,657,000 and \$53,392,000, respectively, from proceeds from the disposition of assets, and \$5,743,000 and \$13,264,000, respectively, from proceeds from the exercise of stock options.

For 2019, cash generated and borrowings under the Company's Revolving Credit Facility were used for capital expenditures of \$248,164,000, including \$22,008,000 for inland towboat construction, \$18,433,000 for progress payments on three 5000 horsepower coastal ATB tugboats, \$2,294,000 for final costs on a 155,000 barrel coastal ATB under construction purchased from another operator that was delivered to the Company in the 2018 fourth quarter, and \$205,429,000 primarily for upgrading existing marine equipment and marine transportation and distribution and services facilities. The Company also used \$262,491,000 for acquisitions of businesses and marine equipment.

The Company's debt-to-capitalization ratio decreased to 28.9% at December 31, 2019 from 30.5% at December 31, 2018, primarily due to the increase in total equity from net earnings attributable to Kirby for 2019 of \$142,347,000, the exercise of stock options, the amortization of unearned equity compensation, and reduced borrowings. As of December 31, 2019, the Company had no borrowings outstanding under its Revolving Credit Facility, \$375,000,000 outstanding under the Term Loan, \$500,000,000 of Senior Notes Series A and Series B, and \$500,000,000 under the 2028 Notes (each debt agreement as defined under "*Long-Term Financing*" below) outstanding, offset by \$7,899,000 in unamortized debt discount and issuance costs (of which \$2,650,000 attributable to the Revolving Credit Facility is included in other assets on the balance sheet at December 31, 2019).

During 2019, the Company acquired 63 inland tank barges from Cenac with a total capacity of approximately 1,833,000 barrels, retired 17 inland tank barges, sold six inland tank barges, brought back into service eight inland tank barges, and chartered two inland tank barges, decreasing its capacity by approximately 271,000 barrels. The net result was an increase of 50 inland tank barges and approximately 1,562,000 barrels of capacity during 2019.

The Company projects that capital expenditures for 2020 will be in the \$155,000,000 to \$175,000,000 range. The 2020 construction program will consist of \$25,000,000 to \$30,000,000 in progress payments on the construction of six inland towboats to be placed in service in 2020. Approximately \$110,000,000 to \$120,000,000 is primarily capital upgrades and improvements to existing marine equipment and facilities. The balance of \$20,000,000 to \$25,000,000 will be for new machinery and equipment, facilities improvements and information technology projects in the distribution and services segment and corporate.

Outlook

In the inland marine transportation market, the Company anticipates favorable market dynamics with continued growth in customer demand during 2020, driven by continued growth in U.S. GDP and growth in petrochemicals as new plants come on-line. These factors, combined with only modest inland barge additions, are expected to result in inland barge utilization rates in the low to mid-90% range during the year. Together with a full year of contribution from the acquisition in March 2019 of Cenac's fleet and anticipated contributions from the acquisition of Savage Inland Marine, LLC ("Savage"), inland revenues and operating income are expected to increase during 2020.

As of December 31, 2019, the Company estimated there were approximately 3,850 inland tank barges in the industry fleet, of which approximately 350 were over 30 years old and approximately 240 of those over 40 years old. The Company estimates that approximately 130 tank barges were ordered during 2019 for delivery throughout 2020 and many older tank barges, including an expected four by the Company, will be retired, dependent on 2020 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.

In the coastal marine transportation market, the Company expects revenues and operating income to be flat to slightly up compared to 2019, with coastal tank barge utilization in the mid-to high 80% range for 2020 driven by strong customer demand and tight industry capacity. Improving market conditions are expected to be driven by improving customer demand and expected additional industry retirements of aging barges due to BWMS regulations. During 2020, the Company expects to retire four aging coastal ATBs, three of which are large capacity vessels that would have required uneconomic BWMS at their next shipyard date. These retirements are expected to have a negative impact on coastal revenue and operating income during 2020. The Company also expects volumes in its coal transportation business to decline compared to 2019.

As of December 31, 2019, the Company estimated there were approximately 280 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 20 of those were over 25 years old. The Company is aware of two announced coastal tank barge and tugboat units in the 195,000 barrel or less category under construction by competitors for delivery in 2020 and 2021.

The results of the distribution and services segment are largely influenced by the economic cycles of the land-based oilfield service and oil and gas operator and producer markets, marine, power generation, on-highway and other industrial markets.

Recent oilfield activity declines and crude oil price volatility have created some uncertainty for the Company's oil and gas market and are expected to result in lower sales of new pressure pumping equipment, maintenance on existing pressure pumping units, transmission overhauls, and parts sales. Based on current activity levels, orders and deliveries of new pressure pumping equipment are expected to remain low throughout 2020, and maintenance activities are expected to be minimal. Transmission overhauls and parts sales are also expected to decline compared to 2019, but increase relative to 2019 fourth quarter levels as the year progresses. As a result, revenues and operating income for the Company's oil and gas market are expected to decline in 2020 as compared to 2019.

For the distribution and services commercial and industrial market, the Company anticipates revenues and operating income in 2020 to be higher compared to 2019 with growth in on-highway and industrial markets. Activity in the power generation market and the commercial marine markets are expected to be stable in 2020.

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.

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 January 29, 2020, the Company signed a definitive agreement to acquire the inland tank barge fleet of Savage for approximately \$278,000,000 in cash, subject to certain closing adjustments. Savage's tank barge fleet consists of 90 inland tank barges with approximately 2.5 million barrels of capacity and 46 inland towboats. Savage primarily moves petrochemicals, refined products, and crude oil on the Mississippi River, its tributaries, and the Gulf Intracoastal Waterway. Savage also operates a significant ship bunkering business as well as barge fleet services along the Gulf Coast. The closing of the acquisition is expected to occur late in the first quarter of 2020 and is subject to customary closing conditions, including regulatory approvals under the Hart-Scott-Rodino Act. The purchase will be financed through additional borrowings.

On January 3, 2020, the Company completed the acquisition of substantially all the assets of Convoy Servicing Company and Agility Fleet Services, LLC (collectively "Convoy") for approximately \$40,000,000 in cash, before post-closing adjustments. Convoy is an authorized dealer for Thermo King refrigeration systems for trucks, railroad cars and other land transportation markets for North and East Texas as well as in Colorado. Financing of the acquisition was through borrowings under the Company's Revolving Credit Facility.

During the year ended December 31, 2019, the Company purchased, from various counterparties, a barge fleet operation in Lake Charles, Louisiana and nine inland tank barges from leasing companies for an aggregate of \$17,991,000 in cash. The Company had been leasing the barges prior to the purchases. Financing of these acquisitions was through borrowings under the Company's Revolving Credit Facility.

On March 14, 2019, the Company completed the acquisition of the marine transportation fleet of Cenac for \$244,500,000 in cash. Cenac's fleet consisted of 63 inland 30,000 barrel tank barges with approximately 1,833,000 barrels of capacity, 34 inland towboats and two offshore tugboats. Cenac transported petrochemicals, refined products and black oil, including crude oil, residual fuels, feedstocks and lubricants on the lower Mississippi River, its tributaries, and the Gulf Intracoastal Waterway for major oil companies and refiners. The average age of the inland tank barges was approximately five years and the inland towboats had an average age of approximately seven years. Financing of the acquisition was through borrowings under the Company's Revolving Credit Facility.

On December 28, 2018, the Company purchased three inland tank barges from a leasing company for \$3,120,000 in cash. The Company had been leasing the barges prior to the purchase. Financing of the equipment acquisition was through borrowings under the Company's Revolving Credit Facility.

On December 14, 2018, the Company purchased 27 inland tank barges with a barrel capacity of 306,000 barrels from CGBM for \$28,500,000 in cash. The 27 tank barges transport petrochemicals and refined products on the Mississippi River System and the Gulf Intracoastal Waterway. The average age of the barges was eight years. Financing of the equipment acquisition was through borrowings under the Company's Revolving Credit Facility.

On November 30, 2018, the Company purchased an inland towboat from a leasing company for \$3,050,000 in cash. The Company had been leasing the towboat prior to the purchase. Financing of the equipment acquisition was through borrowings under the Company's Revolving Credit Facility.

On May 10, 2018, the Company completed the purchase of Targa's inland tank barge business from a subsidiary of Targa for \$69,250,000 in cash. Targa's inland tank barge fleet consisted of 16 pressure barges with a total capacity of 258,000 barrels, many of which were under multi-year contracts that the Company assumed from Targa. The 16 tank barges transport petrochemicals on the Mississippi River System and the Gulf Intracoastal Waterway. Financing of the business acquisition was through borrowings under the Company's Revolving Credit Facility.

On March 15, 2018, the Company purchased two inland pressure tank barges from a competitor for \$10,400,000 in cash. The average age of the two tank barges was five years. Financing of the equipment acquisition was through borrowings under the Company's Revolving Credit Facility.

On February 14, 2018, the Company completed the acquisition of Higman for \$421,922,000 in cash. Higman's fleet consisted of 163 inland tank barges with 4.8 million barrels of capacity, and 75 inland towboats, transporting petrochemicals, black oil, including crude oil and natural gas condensate, and refined petroleum products on the Mississippi River System and the Gulf Intracoastal Waterway. The average age of the inland tank barges was approximately seven years and the inland towboats had an average age of approximately eight years. Financing of the acquisition was through the issuance of the 2028 Notes. The 2028 Notes were issued on February 12, 2018 in preparation for closing of the acquisition.

On October 20, 2017, San Jac, a subsidiary of the Company, purchased certain assets of Sneed Shipbuilding, Inc. for \$14,852,000 in cash including its Channelview, Texas shipyard. San Jac is a builder of marine vessels for both inland and offshore applications and a provider of repair and maintenance services. The Company intends to build towboats at the shipyard and use the facilities for routine maintenance. Financing of the acquisition was through borrowings under the Company's Revolving Credit Facility.

On September 13, 2017, the Company completed the acquisition of substantially all of the assets of S&S, a global manufacturer and distributor of products and services for the oil and gas, marine, construction, power generation, transportation, mining and agricultural industries. The acquired business, which the Company operates through a newly formed subsidiary renamed Stewart & Stevenson LLC after the closing of the acquisition, was founded in 1902 and serves domestic and global markets with equipment, rental solutions, parts and service through a strategic network of sales and service centers in domestic and international locations.

The total value of the transaction was \$758,213,000 consisting of cash consideration of \$377,935,000, the assumption of \$13,724,000 of debt and \$366,554,000 through the issuance of 5,696,259 shares of Company common stock valued at \$64.35 per share, the Company's closing share price on September 13, 2017. The debt assumed consisted of \$12,135,000 of term debt and \$1,589,000 of short-term secured loans related to the Company's South American operations. The term debt was paid off without penalty in the 2017 fourth quarter. Financing of the acquisition was through a combination of the Company's Revolving Credit Facility and the issuance of Company common stock.

S&S is a distributor in certain geographic areas for Allison Transmission, MTU, Detroit Diesel, EMD, Deutz and several other manufacturers. S&S' principal customers are oilfield service companies, oil and gas operators and producers, and companies in the marine, mining, power generation, on-highway and other commercial and industrial applications.

On July 10, 2017, the Company completed the purchase of certain inland marine assets from an undisclosed competitor for \$68,000,000 in cash. The assets purchased consisted of nine specialty pressure tank barges, four 30,000 barrel tank barges and three 1320 horsepower inland towboats. The average age of the 13 inland tank barges was five years. The 13 tank barges transport petrochemicals and refined petroleum products on the Mississippi River System and the Gulf Intracoastal Waterway. Financing of the equipment acquisition was through borrowings under the Company's Revolving Credit Facility.

During July 2017, the Company purchased four inland tank barges for \$1,450,000, as well as a barge fleet and marine fueling operation business in Freeport, Texas for \$3,900,000. The Company had been leasing the barges prior to the purchase. Financing of the acquisitions was through the Company's Revolving Credit Facility.

Results of Operations

The Company reported 2019 net earnings attributable to Kirby of \$142,347,000, or \$2.37 per share, on revenues of \$2,838,399,000, compared with 2018 net earnings attributable to Kirby of \$78,452,000, or \$1.31 per share, on revenues of \$2,970,697,000, and 2017 net earnings attributable to Kirby of \$313,187,000, or \$5.62 per share, on revenues of \$2,214,418,000.

Marine transportation revenues for 2019 were \$1,587,082,000, or 56% of total revenues, compared with \$1,483,143,000, or 50% of total revenues for 2018, and \$1,324,106,000, or 60% of total revenues for 2017. Distribution and services revenues for 2019 were \$1,251,317,000, or 44% of total revenues, compared with \$1,487,554,000, or 50% of total revenues for 2018, and \$890,312,000, or 40% of total revenues for 2017.

The 2019 fourth quarter included \$35,525,000 before taxes, \$27,978,000 after taxes, or \$0.47 per share, non-cash inventory write-downs and \$4,757,000 before taxes, \$3,747,000 after taxes, or \$0.06 per share, severance and early retirement expense.

The 2018 fourth quarter included \$85,108,000 before taxes, \$67,235,000 after taxes, or \$1.12 per share, non-cash impairment of long-lived assets and lease cancellation costs and \$2,702,000 before taxes, \$2,135,000 after taxes, or \$0.04 per share, non-cash impairment of goodwill. The 2018 second quarter included a one-time non-deductible expense of \$18,057,000, or \$0.30 per share, related to the retirement of Joseph H. Pyne as executive Chairman of the Board of Directors, effective April 30, 2018. The 2018 first quarter included \$3,261,000 before taxes, or \$0.04 per share, of one-time transaction costs associated with the Higman acquisition, as well as \$2,912,000 before taxes, or \$0.04 per share, of severance and retirement expenses, primarily related to cost reduction initiatives in the coastal marine transportation market and the integration of Higman.

The 2017 year included \$269,472,000 after taxes, or \$4.83 per share, of deferred tax benefit, the result of recent federal tax reform legislation that resulted in the remeasurement of the Company's United States deferred tax assets and liabilities. This was partially offset by \$105,712,000 before taxes, \$66,975,000 after taxes, or \$1.20 per share, non-cash impairment of long-lived assets and \$5,449,000 before taxes, \$3,389,000 after taxes, or \$0.06 per share, charge for severance and early workforce retirements.

The 2017 results reflect the acquisition of S&S on September 13, 2017. The 2017 results were negatively impacted by S&S acquisition related costs of \$2,119,000, or \$0.02 per share. The 2017 third quarter also included an estimated net \$0.03 per share negative impact of Hurricane Harvey, which made landfall along the Texas Gulf Coast in late August 2017, impacting the marine transportation and distribution and services operations, and Hurricane Irma, which disrupted the coastal marine transportation and distribution and services operations along the East Coast.

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, 2019, the Company operated 1,053 inland tank barges, including 24 leased barges, with a total capacity of 23.4 million barrels. This compares with 1,003 inland tank barges operated as of December 31, 2018, including 31 leased barges, with a total capacity of 21.8 million barrels. The Company operated an average of 299 inland towboats during 2019, of which an average of 75 were chartered, compared with 278 during 2018, of which an average of 77 were chartered.

The Company's coastal tank barge fleet as of December 31, 2019 consisted of 49 tank barges, including two of which were leased, with 4.7 million barrels of capacity, and 47 coastal tugboats, five of which were chartered. This compares with 53 coastal tank barges operated as of December 31, 2018, four of which were leased, with 5.1 million barrels of capacity, and 50 coastal tugboats, four of which were chartered. As of December 31, 2019 and 2018, the Company owned four offshore dry-bulk cargo barge and tugboat units engaged in the offshore transportation of dry-bulk cargoes. The Company also owns shifting operations and fleeting facilities for dry cargo barges and tank barges on the Houston Ship Channel and in Freeport, Texas, a shipyard for building towboats and performing routine maintenance near the Houston Ship Channel, as well as a two-thirds interest in Osprey, which transports project cargoes and cargo containers by barge.

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, 2019 (dollars in thousands):

	2019	2018	% Change 2018 to 2019	2017	% Change 2017 to 2018
Marine transportation revenues	\$ 1,587,082	\$ 1,483,143	7%	\$ 1,324,106	12%
Costs and expenses:					
Costs of sales and operating expenses	1,034,758	997,979	4	867,069	15
Selling, general and administrative	122,202	122,421	—	116,827	5
Taxes, other than on income	34,538	33,020	5	25,765	28
Depreciation and amortization	179,742	182,307	(1)	178,898	2
	<u>1,371,240</u>	<u>1,335,727</u>	3	<u>1,188,559</u>	12
Operating income	\$ 215,842	\$ 147,416	46%	\$ 135,547	9%
Operating margins	<u>13.6%</u>	<u>9.9%</u>		<u>10.2%</u>	

The following table shows the marine transportation markets serviced by the Company, the marine transportation revenue distribution for 2019, products moved and the drivers of the demand for the products the Company transports:

Markets Serviced	2019 Revenue Distribution	Products Moved	Drivers
Petrochemicals	54%	Benzene, Styrene, Methanol, Acrylonitrile, Xylene, Naphtha, Caustic Soda, Butadiene, Propylene	Consumer non-durables — 70% Consumer durables — 30%
Black Oil	23%	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	19%	Gasoline, No. 2 Oil, Jet Fuel, Heating Oil, Diesel Fuel, Ethanol	Vehicle Usage, Air Travel, Weather Conditions, Refinery Utilization
Agricultural Chemicals	4%	Anhydrous Ammonia, Nitrogen-Based Liquid Fertilizer, Industrial Ammonia	Corn, Cotton and Wheat Production, Chemical Feedstock Usage

2019 Compared with 2018

Marine Transportation Revenues

Marine transportation revenues for 2019 increased 7% when compared with 2018. The increase was primarily due to the addition of the Higman fleet acquired on February 14, 2018, the Targa pressure barge fleet acquired on May 10, 2018, the CGBM inland tank barges acquired on December 14, 2018, and the Cenac fleet acquired on March 14, 2019, as well as improved barge utilization in the coastal market and higher spot and term contract pricing in the inland and coastal markets. Partially offsetting the increase were unusually poor operating conditions due to heavy fog along the Gulf Coast, prolonged periods of ice on the Illinois River, high water on the Mississippi River System, closures of key waterways as a result of lock maintenance projects, extended delays in the Houston Ship Channel, and increased shipyard days on several large capacity coastal vessels during the 2019 first and fourth quarters. For 2019 and 2018, the inland tank barge fleet contributed 77% and 76%, respectively, and the coastal fleet 23% and 24%, respectively, of marine transportation revenues. The Cenac fleet was quickly integrated into the Company's own fleet and the Cenac equipment began to operate on the Company's contracts soon after the acquisition and Cenac barges worked with the Company's towboats and vice versa resulting in differences in vessel utilization and pricing among individual assets and the consolidated fleet. Due to this quick integration, it is not practical to provide a specific amount of revenues for Cenac but the acquisition in March 2019 was one of the factors that drove increases in marine transportation revenues in 2019 as compared to 2018.

Tank barge utilization levels in the Company's inland marine transportation markets averaged the mid-90% range during the 2019 first and second quarters and low 90% range during the 2019 third and fourth quarters. Strong demand from petrochemicals, black oil, refined petroleum products and agricultural chemicals customers, along with extensive delay days due to poor operating conditions which slowed the transport of customer cargoes, contributed to increased utilization during the 2019 first and second quarters. Better weather during the 2019 third quarter and receding flood waters on the Mississippi River System resulted in fewer delay days and contributed to modestly lower utilization during the 2019 third quarter. In the 2019 fourth quarter, weather conditions seasonally deteriorated, however, reduced refinery and chemical plant utilization for many of the Company's major customers resulted in tank barge utilization remaining in the low 90% range for the quarter.

Coastal tank barge utilization levels averaged in the low 80% range during the 2019 first quarter and mid-80% range during the 2019 second, third and fourth quarters. The improvement in utilization in 2019 primarily reflected improved customer demand resulting in higher utilization of spot market capacity. Utilization in the coastal marine fleet continued to be impacted by the oversupply of smaller tank barges in the coastal industry.

The petrochemical market, the Company's largest market, contributed 54% of marine transportation revenues for 2019, reflecting continued stable volumes from Gulf Coast petrochemical plants for both domestic consumption and to terminals for export destinations, the addition of the Targa pressure barge fleet in May 2018. 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. In addition, favorable commodity prices and the addition of new petrochemical industry capacity in 2018 and 2019 benefited the market.

The black oil market, which contributed 23% of marine transportation revenues for 2019, reflected strong demand from steady refinery production levels and the export of refined petroleum products and fuel oils. 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 vessels. Additionally, the Company transported increased volumes of Utica natural gas condensate downriver from the Mid-Atlantic to the Gulf Coast and Canadian and Bakken crude downriver from the Midwest to the Gulf Coast.

The refined petroleum products market, which contributed 19% of marine transportation revenues for 2019, reflected increased volumes in the inland market, due in part to the acquisition of Cenac, and stable volumes in coastal.

The agricultural chemical market, which contributed 4% of marine transportation revenues for 2019, saw typical seasonal demand for transportation of both domestically produced and imported products during 2019.

For 2019, the inland operations incurred 13,259 delay days, 32% more than the 10,046 delay days that occurred during 2018. 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. The increase in delay days reflected unusually poor operating conditions during 2019 due to heavy fog along the Gulf Coast, extended periods of ice on the Illinois River, near record high water conditions on the Mississippi River System, closures of key waterways as a result of lock maintenance projects and extended delays in the Houston Ship Channel. Flood waters on the Mississippi River System receded in the beginning of August 2019.

During 2019 and 2018, approximately 65% of marine transportation inland revenues were under term contracts and 35% were spot contract revenues. Inland time charters, which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented 62% of inland revenues under term contracts during 2019 compared with 59% during 2018.

Rates on inland term contracts renewed in the 2019 first quarter increased in the 4% to 6% average range compared with term contracts renewed in the 2018 first quarter. Rates on inland term contracts renewed in the 2019 second quarter increased in the 5% to 8% average range compared with term contracts renewed in the 2018 second quarter. Rates on inland term contracts renewed in the 2019 third quarter increased in the 3% to 4% average range compared with term contracts renewed in the 2018 third quarter. Rates on inland term contracts renewed in the 2019 fourth quarter increased in the 2% to 4% average range compared with term contracts renewed in the 2018 fourth quarter. Spot contract rates, which include the cost of fuel, increased approximately 20% in the 2019 first quarter compared with the 2018 first quarter. In both the 2019 second and third quarters, spot contract rates increased approximately 15% compared with the 2018 second and third quarters. In the 2019 fourth quarter, spot contract rates increased approximately 5% compared with the 2018 fourth quarter. Effective January 1, 2019, 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 1.7%, excluding fuel.

During 2019 and 2018, approximately 80% of the coastal revenues were under term contracts and 20% were spot contract revenues. Coastal time charters which insulate the Company from revenue fluctuations caused by weather and navigational delays and temporary market declines, represented approximately 85% of coastal revenues under term contracts during 2019 and 2018. Spot and term contract pricing in the coastal market are contingent on various factors including geographic location, vessel capacity, vessel type and product serviced. Spot market rates in the 2019 first and second quarters increased in the 10% to 15% average range compared to the 2018 first and second quarters. In the 2019 third quarter, spot market rates increased approximately 20% compared to the 2018 third quarter. In the 2019 fourth quarter, spot market rates increased approximately 10% compared to the 2018 fourth quarter. Rates on coastal term contracts renewed in each of the 2019 first, second, and third quarters increased in the 4% to 6% average range compared with term contracts renewed in the 2018 first, second, and third quarters. Rates on coastal term contracts renewed in the 2019 fourth quarter increased in the 5% to 15% average range compared with term contracts renewed in the 2018 fourth quarter.

Marine Transportation Costs and Expenses

Costs and expenses for 2019 increased 3% when compared with 2018. Costs of sales and operating expenses for 2019 increased 4% compared with 2018, primarily due to the addition of the Higman fleet in February 2018 and the Cenac fleet in March 2019, partially offset by lower fuel costs.

The inland marine transportation fleet operated an average of 299 towboats during 2019, of which an average of 75 were chartered, compared with 278 during 2018, of which an average of 77 were chartered. The increase was primarily due to the addition of inland towboats with the Cenac acquisition on March 14, 2019. Generally, 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, 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-fourth of its horsepower requirements.

During 2019, the inland operations consumed 50.0 million gallons of diesel fuel compared to 49.3 million gallons consumed during 2018. The average price per gallon of diesel fuel consumed during 2019 was \$2.06 per gallon compared with \$2.20 per gallon for 2018. 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.

Selling, general and administrative expenses for 2019 was consistent with 2018. The 2019 fourth quarter included \$1,447,000 related to severance and early retirement expense. The 2019 year also included costs due to Cenac acquisition related costs of \$442,000 and salaries as well as the related costs of personnel acquired in the Higman acquisition. In 2018, there were transaction costs of \$3,261,000, consisting primarily of legal, audit and other professional fees associated with the Higman acquisition and severance charges of \$2,591,000 associated with the integration of Higman into the Company and further reduction in headcount in the coastal sector in order to manage costs, both of which were incurred in the 2018 first quarter.

Taxes, other than on income for 2019 increased 5% compared with 2018, mainly due to higher property taxes on marine transportation equipment, including the Higman, Targa, CGBM, and Cenac fleets.

Marine Transportation Operating Income and Operating Margins

Marine transportation operating income for 2019 increased 46% compared with 2018. The operating margin was 13.6% for 2019 compared with 9.9% for 2018. The operating income increase in 2019 compared to 2018 was primarily due to the acquisitions of Higman, Targa's pressure barge fleet, CGBM's inland tank barges, and Cenac's fleet as well as improved barge utilization in the coastal market and higher spot and term contract pricing in the inland and coastal markets, partially offset by significant weather and navigational challenges in 2019.

2018 Compared with 2017

Marine Transportation Revenues

Marine transportation revenues for 2018 increased 12% when compared with 2017 primarily due to the addition of the Higman inland tank barges acquired on February 14, 2018 and the Targa pressure barge fleet acquired on May 10, 2018, and improved barge utilization and spot contract pricing in the inland market. Partially offsetting the increase were lower term and spot contract pricing in the coastal market, poor seasonal weather conditions in the first four months and fourth quarter of 2018, lock closures in the 2018 second half and fewer coastal tank barges available with the retirement of 12 tank barges in the 2017 fourth quarter. Demand in the coastal markets continued to be impacted by the oversupply of tank barges in the coastal industry. For 2018 and 2017, the inland tank barge fleet contributed 76% and 70%, respectively, and the coastal fleet 24% and 30%, respectively, of marine transportation revenues. The Higman fleet was quickly integrated into the Company's own fleet. The Higman equipment began to operate on the Company's contracts soon after the acquisition and Higman barges worked with the Company's towboats and vice versa resulting in differences in vessel utilization and pricing among individual assets and the consolidated fleet. Due to this quick integration, it is not practical to provide a specific amount of revenues for Higman but the acquisition in February 2018 was one of the primary factors that drove increases in marine transportation revenues in 2018 as compared to 2017.

Tank barge utilization levels in the Company's inland marine transportation markets were in the mid-90% range during the 2018 first quarter, high 80% to low 90% during the second quarter, and the low to mid-90% range during the third and fourth quarters. Increased customer demand and poor seasonal operating conditions contributed to a tight market across the entire inland tank barge industry during 2018. Operating conditions were adversely impacted by high water conditions on the Mississippi River early in the 2018 second quarter, however, weather conditions improved in May and June, enhancing operating efficiency but driving seasonally lower utilization compared to the 2018 first quarter. Increasing volumes from petrochemical and black oil customers, lock infrastructure projects in Louisiana as well as on the Ohio River, and refinery turnarounds contributed to increased utilization during the 2018 second half compared to the 2018 first half.

Coastal tank barge utilization levels improved throughout 2018 from the high 70% range during the 2018 first quarter to the 80% range by end of 2018. The improvement in utilization primarily reflected the retirement of 12 out-of-service coastal barges during the 2017 fourth quarter.

The petrochemical market, the Company's largest market, contributed 56% of marine transportation revenues for 2018, reflecting continued stable volumes from Gulf Coast petrochemical plants for both domestic consumption and to terminals for export destinations, the addition of the Targa pressure barge fleet in May 2018 and the addition of inland tank barges acquired in July 2017 from an undisclosed competitor. 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. In addition, favorable commodity prices and the addition of new petrochemical industry capacity in 2017 and 2018 benefited the market.

The black oil market, which contributed 21% of marine transportation revenues for 2018, reflected higher revenues in the inland market primarily due to the addition of the Higman fleet. 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. Revenues for the transportation of black oil products in the coastal market during 2018 were lower compared with 2017 due to the continued industry-wide over supply of tank barges in the coastal industry.

The refined petroleum products market, which contributed 19% of marine transportation revenues for 2018, reflected stronger volumes in the inland market primarily due to the addition of the Higman fleet, partially offset by lower utilization in the coastal market, primarily a result of the oversupply of coastal tank barge capacity.

The agricultural chemical market, which contributed 4% of marine transportation revenues for 2018, saw typical seasonal demand for transportation of both domestically produced and imported products during 2018.

For 2018, the inland operations incurred 10,046 delay days, 33% more than the 7,577 delay days that occurred during 2017. 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. The increase in delay days reflected the lock infrastructure projects in the 2018 third quarter and the challenging operating conditions in the 2018 first quarter due to ice on the Illinois River, infrastructure issues on the Ohio River, seasonal fog and high winds, as well as lock delays along the Gulf Intracoastal Waterway. High water conditions on the Ohio and Mississippi Rivers in the first four months of 2018 also increased delay days.

During 2018, approximately 65% of marine transportation inland revenues were under term contracts and 35% were spot contract revenues. For 2017, approximately 75% of inland 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 delay and temporary market declines, represented 59% of inland revenues under term contracts during 2018 compared with 49% for 2017.

During 2018 and 2017, approximately 80% of the coastal marine transportation revenues were under term contracts and 20% were spot contract revenues. 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 2018 and 2017.

Rates on inland term contracts renewed in the 2018 first quarter decreased in the 4% to 6% average range compared with term contracts renewed in the first quarter of 2017. Rates on inland term contracts renewed in the 2018 second quarter increased in the 1% to 3% average range compared with term contracts renewed in the second quarter of 2017. In the 2018 third quarter, rates on inland term contracts renewed increased in the 3% to 5% average range compared with term contracts renewed in the third quarter of 2017. In the 2018 fourth quarter, rates on inland term contracts were generally higher in the 1% to 3% average range, though some multi-year contracts did renew lower, compared with term contracts renewed in the fourth quarter of 2017. Spot contract rates, which include the cost of fuel, increased in the 10% to 15% range in the 2018 first and second quarters compared with the 2017 first and second quarters. In the 2018 third and fourth quarters, spot contract rates increased in the 20% to 25% range compared with the 2017 third and fourth quarters. Effective January 1, 2018, 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 1.0%, excluding fuel.

During 2018 and 2017, approximately 80% of the coastal revenues were under term contracts and 20% were spot contract revenues. Coastal time charters represented approximately 85% of coastal revenues under term contracts during 2018 and 2017. Spot and term contract pricing, which are contingent on various factors including geographic location, vessel capacity, vessel type and product serviced, were stable throughout the 2018 first and second quarters compared with pricing in the 2017 fourth quarter, and moved modestly higher in the 2018 third and fourth quarters. In the 2018 first and second quarters, both term and spot contract pricing declined in the 10% to 15% range compared to the 2017 first and second quarters. Compared to the 2017 third quarter, spot market pricing in the 2018 third quarter was similar but term contract pricing increased modestly. Compared to the 2017 fourth quarter, spot market pricing in the 2018 fourth quarter was approximately 10% higher and term contract pricing increased modestly.

Marine Transportation Costs and Expenses

Costs and expenses for 2018 increased 12% when compared with 2017. Costs of sales and operating expenses for 2018 increased 15% compared with 2017, primarily due to the addition of the Higman fleet of inland tank barges and towboats in February 2018 and higher fuel costs.

The inland marine transportation fleet operated an average of 278 towboats during 2018, of which an average of 77 were chartered, compared with 224 during 2017, of which an average of 70 were chartered. The increase was primarily due to the addition of inland towboats with the Higman acquisition on February 14, 2018. Generally, 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, 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 2018, the inland operations consumed 49.3 million gallons of diesel fuel compared to 40.4 million gallons consumed during 2017, driven by the Higman acquisition. The average price per gallon of diesel fuel consumed during 2018 was \$2.20 per gallon compared with \$1.79 per gallon for 2017. 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. The Company's spot contracts do not have escalators for fuel.

Selling, general and administrative expenses for 2018 increased 5% compared with 2017, primarily due to the addition of Higman personnel and related expenses plus higher incentive compensation accruals. The increase included \$3,261,000 of transaction costs, consisting primarily of legal, audit and other professional fees associated with the Higman acquisition, severance charges of \$2,591,000 associated with the integration of Higman into the Company and further reduction in headcount in the coastal sector in order to manage costs, and \$2,378,000 of non-cash expenses related to the amendment of the employee stock award plan; all of which were incurred in the 2018 first quarter.

Taxes, other than on income for 2018 increased 28% compared with 2017, mainly due to higher property taxes on marine transportation equipment, including the Higman and Targa fleets, and higher waterway use taxes due to higher business activity levels, mainly due to the Higman acquisition.

Marine Transportation Operating Income and Operating Margins

Marine transportation operating income for 2018 increased 9% compared with 2017. The operating margin was 9.9% for 2018 compared with 10.2% for 2017. The operating income increase in 2018 compared to 2017 was primarily due to the acquisitions of Higman and Targa's pressure barge fleet, improved term and spot contract pricing in the inland market, and improved barge utilization in the inland market, partially offset by lower coastal term and spot contract pricing, poor seasonal weather conditions in the first four months and fourth quarter of 2018 and lock closures in the 2018 second half. Higman transaction costs, severance and retirement charges, and expenses related to the amendment of the employee stock award plan also negatively impacted the 2018 first quarter.

Distribution and Services

The Company, through its distribution and services segment, sells genuine replacement parts, provides service mechanics to overhaul and repair engines, transmissions, reduction gears and related oilfield services equipment, rebuilds component parts or entire diesel engines, transmissions and reduction gears, and related equipment used in oilfield services, marine, power generation, on-highway and other industrial applications. The Company also rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of industrial markets, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for land-based oilfield service customers.

The following table sets forth the Company's distribution and services segment's revenues, costs and expenses, operating income and operating margins for the three years ended December 31, 2019 (dollars in thousands):

	2019	2018	% Change 2018 to 2019	2017	% Change 2017 to 2018
Distribution and services revenues	\$ 1,251,317	\$ 1,487,554	(16)%	\$ 890,312	67%
Costs and expenses:					
Costs of sales and operating expenses	995,288	1,162,967	(14)	691,029	68
Selling, general and administrative	145,473	149,756	(3)	89,060	68
Taxes, other than on income	7,357	6,177	19	3,357	84
Depreciation and amortization	35,998	39,349	(9)	20,387	93
	<u>1,184,116</u>	<u>1,358,249</u>	(13)	<u>803,833</u>	69
Operating income	\$ 67,201	\$ 129,305	(48)%	\$ 86,479	50%
Operating margins	<u>5.4%</u>	<u>8.7%</u>		<u>9.7%</u>	

The following table shows the markets serviced by the Company, the revenue distribution for 2019, and the customers for each market:

Markets Serviced	2019 Revenue Distribution	Customers
Oil and Gas	53%	Oilfield Services, Oil and Gas Operators and Producers
Commercial and Industrial	47%	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, Pleasure Crafts, On and Off-Highway Transportation, Power Generation, Standby Power Generation, Pumping Stations

2019 Compared with 2018

Distribution and Services Revenues

Distribution and services revenues for 2019 decreased 16% when compared to 2018. The decrease was primarily attributable to reduced activity in the oilfield as a result of oil price volatility in late 2018 and early 2019, an oversupply of pressure pumping equipment in North America, and reduced spending and enhanced cash flow discipline for the Company's major oilfield customers. During the first half of 2019, although oilfield activity levels and new orders for the Company's oilfield related products and services declined as compared to the same period in 2018, the segment benefited from a significant backlog of manufacturing orders for new and remanufactured pressure pumping equipment received in the 2018 third and fourth quarters. Most of these orders were completed in the 2019 first and second quarters as oilfield activity levels further declined for many of the Company's customers. As a result, customer demand and incremental orders for new and remanufactured pressure pumping equipment declined significantly for the duration of 2019, and sales of new and overhauled transmissions and related parts and service were minimal during the 2019 third and fourth quarters. For 2019, the oil and gas market represented approximately 53% of distribution and services revenues.

The commercial and industrial market, which contributed 47% of distribution and services revenues for 2019, saw increased service levels and new engine sales in the marine repair business for much of the year, although activity levels in the inland market declined during the 2019 third quarter as many customers reduced maintenance activities following months of river flooding conditions and during the summer harvest season. The commercial and industrial market also experienced increased demand for power generation equipment compared to 2018, including the sale and installation of significant back-up power systems for major data centers in the 2019 first and second quarters. Activity levels for the Company's specialty rental units, back-up power systems, and refrigeration equipment seasonally increased in anticipation of and as a result of summer storms and warm weather conditions in the 2019 second and third quarters. Demand in the nuclear power generation market was stable compared to 2018.

Distribution and Services Costs and Expenses

Costs and expenses for 2019 decreased 13%, compared with 2018. Costs of sales and operating expenses for 2019 decreased 14% compared with 2018, reflecting lower demand for new and remanufactured pressure pumping equipment and reduced demand for new and overhauled transmissions and related parts and service in the oil and gas market.

Selling, general and administrative expenses for 2019 decreased 3%, compared with 2018, primarily due to lower incentive compensation and professional fees, partially offset by \$3,310,000 related to severance and early retirement expense incurred in the 2019 fourth quarter.

Depreciation and amortization expenses for 2019 decreased 9%, compared to 2018 primarily due to sales of distribution and services facilities resulting in lower depreciation.

Distribution and Services Operating Income and Operating Margins

Operating income for the distribution and services segment for 2019 decreased 48% compared to 2018. The operating margin for 2019 was 5.4% compared with 8.7% for 2018. The results primarily reflected decreased sales in higher margin oil and gas related revenue and increased sales of lower margin power generation equipment.

2018 Compared with 2017

Distribution and Services Revenues

Distribution and services revenues for 2018 increased 67% when compared with 2017. The higher revenues were primarily attributable to the acquisition of S&S, completed on September 13, 2017, as well as increased demand in the oil and gas market for the manufacturing of oilfield service equipment, including new pressure pumping units, the sale and distribution of engines and related parts, and improving market conditions in the commercial marine diesel engine repair business, partially offset by lower demand in the 2018 second half for new and overhauled transmissions and related parts and remanufactured pressure pumping units from some key oilfield customers.

For 2018, the oil and gas market contributed approximately 68% of the distribution and services revenues. The increased demand challenged the Company's vendor supply chain in 2018 and created delays for the delivery of new engines, transmissions and parts required for the completion of both new and remanufactured oilfield service equipment, including pressure pumping units, and impacted the recognition of revenue. However, the supply chain issues were largely resolved during the 2018 fourth quarter resulting in a sequential increase in the number of new and remanufactured pressure pumping units delivered in the fourth quarter. In the commercial and industrial market, approximately 32% of the distribution and services revenues for 2018, the marine sector experienced higher service levels for diesel engine service and related parts sales throughout 2018. The power generation sector saw increased demand from commercial customers for specialty rental units and back-up power systems in the 2018 second and third quarters in anticipation of and as a result of summer storms. Demand for standby-by power generation equipment declined in the 2018 fourth quarter compared to the 2017 fourth quarter which had experienced higher levels of activity during the 2017 hurricane season. Demand in the nuclear power generation market was stable compared to 2017.

Distribution and Services Costs and Expenses

Costs and expenses for 2018 increased 69%, compared with 2017. Costs of sales and operating expenses for 2018 increased 68% compared with 2017, reflecting the acquisition of S&S on September 13, 2017, as well as increased demand for the remanufacture of pressure pumping units and transmission overhauls, improvement in the manufacturing of oilfield service equipment, including pressure pumping units, and an increase in demand for the sale and distribution of engines, transmissions and related parts in the oil and gas market.

Selling, general and administrative expenses for 2018 increased 68%, compared with 2017, primarily due to the S&S acquisition, as well as increased activity in the oil and gas market. The 2018 year included a \$171,000 severance charge incurred in the 2018 first quarter associated with the integration of S&S into the Company and \$1,168,000 of non-cash expenses, also incurred in the 2018 first quarter, related to the amendment of the employee stock award plan.

Distribution and Services Operating Income and Operating Margins

Operating income for the distribution and services segment for 2018 increased 50% compared to 2017. The operating margin for 2018 was 8.7% compared with 9.7% for 2017. The results primarily reflected the earnings contribution of S&S and continued strong demand for the remanufacture of pressure pumping units and transmission overhauls, the manufacturing of oilfield service equipment, and the sale of new transmissions and related parts.

General Corporate Expenses

General corporate expenses for 2019, 2018 and 2017 were \$13,643,000, \$35,590,000 and \$18,202,000, respectively. The general corporate expenses for 2018 are higher when compared to both 2019 and 2017 primarily due to a one-time non-deductible expense of \$18,057,000 in the 2018 second quarter related to the retirement of the Company's executive Chairman, effective April 30, 2018, and higher incentive compensation accruals.

Gain (Loss) on Disposition of Assets

The Company reported a net gain on disposition of assets of \$8,152,000 in 2019 compared to \$1,968,000 in 2018 and a net loss on disposition of assets of \$4,487,000 in 2017. The net gains in 2019 and 2018 were predominantly from the sales or retirements of marine equipment and distribution and services facilities. The 2017 loss was primarily from the retirement and sale of older and less efficient inland towboats during the 2017 fourth quarter.

Other Income and Expenses

The following table sets forth inventory write-down, impairment of long-lived assets, impairment of goodwill, lease cancellation costs, equity in earnings of affiliates, other income, noncontrolling interests and interest expense for the three years ended December 31, 2019 (dollars in thousands):

	2019	2018	% Change 2018 to 2019	2017	% Change 2017 to 2018
Inventory write-down	\$ (35,525)	\$ —	N/A	\$ —	—%
Impairment of long-lived assets	—	(82,705)	(100)%	(105,712)	(22)%
Impairment of goodwill	—	(2,702)	(100)%	—	N/A
Lease cancellation costs	—	(2,403)	(100)%	—	N/A
Equity in earnings of affiliates	379	355	7%	291	22%
Other income	3,408	5,371	(37)%	570	842%
Noncontrolling interests	(672)	(626)	7%	(716)	(13)%
Interest expense	(55,994)	(46,856)	20%	(21,472)	118%

Inventory Write-down

During the fourth quarter of 2019, the Company recorded a \$35,525,000 non-cash pre-tax write-down of oilfield and pressure pumping related inventory in the distribution and services segment. The after-tax effect of the charge was \$27,978,000 or \$0.47 per share.

Impairment of Long-lived Assets

During the fourth quarter of 2018, the Company recorded a \$82,705,000 non-cash pre-tax impairment charge. The after-tax effect of the charge was \$65,337,000 or \$1.09 per share. The USCG adopted regulations on BWMS 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 BWMS. The USCG has approved manufacturers' systems that met the regulatory discharge standard equivalent to the International Maritime Organization's D-2 standard. The phase-in schedule for those existing vessels requiring a system to install BWMS equipment 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 some of the Company's vessels to treat ballast water before it is discharged. The installation of BWMS equipment will require significant capital expenditures at the next scheduled drydocking to complete the installation of the approved system on those existing vessels that require a system to comply with the BWMS regulations.

Due to the advanced age of four of the Company's older ATBs and the high cost of installation of BWMS, the Company will retire the ATBs at their next scheduled shipyard dates which range between 2020 and 2023 instead of installing the expensive BWMS equipment required to operate the vessels past their next required shipyard dates. A pre-tax impairment charge of \$78,835,000 was incurred in the fourth quarter of 2018 to reduce the ATBs to a fair value of \$13,247,000 due to reduced estimated cash flows resulting from reduced lives on these four older ATBs. The reduced estimated useful lives are due to the assessment of the impact of the new regulations by USCG that require the installation of BWMS. The fair value of the four ATBs of \$13,247,000 is presented in marine transportation equipment at December 31, 2018.

The impairment charge also included a pre-tax charge of \$3,870,000 as the Company reduced the carrying value of its improvements in a leased barge to its scrap value of \$220,000. As part of a lease termination, the Company agreed to terminate the lease, purchase the barge and then scrap the barge which resulted in the Company committing to put the barge up for sale in December 2018. The barge was scrapped in January 2019. The fair market value of the barge was \$220,000 at December 31, 2018, and was presented in prepaid expenses and other current assets. In addition, the Company incurred \$2,403,000 in lease cancellation costs in December 2018 related to the leased barge.

During the fourth quarter of 2017, the Company recorded a \$105,712,000 non-cash pre-tax impairment charge. The after-tax effect of the charge was \$66,975,000 or \$1.20 per share. The impairment charge was to reduce certain vessels to a fair value of \$12,550,000 as the Company decided to put certain older out-of-service vessels up for sale in its marine transportation segment in response to lower equipment utilization, pricing pressure and expensive BWMS installations required in the next few years on some of the coastal tank barges. Retiring some of the older coastal marine vessels reduces the fleet's age profile and improves the efficiency of the fleet. The fair market value of the vessels was \$12,550,000 at December 31, 2017, and was presented in prepaid expenses and other current assets.

Impairment of Goodwill

During the fourth quarter of 2018, the Company took a \$2,702,000 charge for the impairment of the remaining goodwill recorded for Osprey. The impairment reflected the reduced profitability outlook of the container-on-barge operations due to the current economic environment.

Equity in Earnings of Affiliates

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

Other Income

Other income for 2019, 2018 and 2017 includes income of \$3,454,000, \$4,517,000 and \$621,000, respectively, for all components of net benefit costs except the service cost component related to the Company's defined benefit plans.

Interest Expense

Interest expense for 2019, 2018 and 2017 was \$55,994,000, \$46,856,000, and \$21,472,000, respectively. The increase in 2019 compared to 2018 and 2017 was primarily due to borrowings to finance the Higman acquisition in February 2018, the acquisition of Targa's pressure barge fleet in May 2018, the purchase of the 155,000 barrel coastal ATB under construction in June 2018, the acquisition of CGBM's tank barges in December 2018, and the acquisition of Cenac's fleet in March 2019. During 2019, 2018 and 2017, the average debt and average interest rate (excluding capitalized interest expense) were \$1,502,044,000 and 3.7%, \$1,370,905,000 and 3.5%, and \$774,058,000 and 3.0%, respectively. Interest expense for 2019, 2018 and 2017 excludes capitalized interest of \$1,003,000, \$2,206,000 and \$1,731,000, respectively.

Financial Condition, Capital Resources and Liquidity

Balance Sheet

Total assets at December 31, 2019 were \$6,079,097,000 compared with \$5,871,594,000 at December 31, 2018 and \$5,127,427,000 at December 31, 2017. The December 31, 2019 total assets reflect the Cenac acquisition in March 2019 for \$244,500,000. The December 31, 2018 total assets reflect the Higman acquisition in February 2018 for \$421,922,000, the purchase of Targa's inland tank barge business in May 2018 for \$69,250,000 and the purchase in December 2018 of inland tank barges from CGBM for \$28,500,000, all more fully described under Acquisitions above. The following table sets forth the significant components of the balance sheet as of December 31, 2019 compared with 2018 and 2018 compared with 2017 (dollars in thousands):

	<u>2019</u>	<u>2018</u>	<u>% Change 2018 to 2019</u>	<u>2017</u>	<u>% Change 2017 to 2018</u>
Assets:					
Current assets	\$ 917,579	\$ 1,096,489	(16)%	\$ 957,082	15%
Property and equipment, net	3,777,110	3,539,802	7	2,959,265	20
Operating lease right-of-use assets	159,641	—	N/A	—	N/A
Investment in affiliates	2,025	2,495	(19)	1,890	32
Goodwill	953,826	953,826	—	935,135	2
Other intangibles, net	210,682	224,197	(6)	232,808	(4)
Other assets	58,234	54,785	6	41,247	33
	<u>\$ 6,079,097</u>	<u>\$ 5,871,594</u>	4%	<u>\$ 5,127,427</u>	15%
Liabilities and stockholders' equity:					
Current liabilities	\$ 514,115	\$ 607,782	(15)%	\$ 480,306	27%
Long-term debt, net — less current portion	1,369,751	1,410,169	(3)	992,403	42
Deferred income taxes	588,204	542,785	8	468,451	16
Operating lease liabilities	139,457	—	N/A	—	N/A
Other long-term liabilities	95,978	94,557	2	72,044	31
Total equity	3,371,592	3,216,301	5	3,114,223	3
	<u>\$ 6,079,097</u>	<u>\$ 5,871,594</u>	4%	<u>\$ 5,127,427</u>	15%

2019 Compared with 2018

Current assets as of December 31, 2019 decreased 16% compared with December 31, 2018. Trade accounts receivable decreased 9% mainly due to decreased activities in the distribution and services oil and gas market, partially offset by increased activities in the inland marine transportation market. Inventories, net, decreased 31%, primarily reflecting lower inventory levels due to reduced business activity levels in the oil and gas market and write-downs of oilfield and pressure pumping related inventory of \$35,525,000.

Property and equipment, net of accumulated depreciation, at December 31, 2019 increased 7% compared with December 31, 2018. The increase reflected \$234,289,000 of capital expenditures for 2019, more fully described under Capital Expenditures Reflected on the Balance Sheet below, the fair value of the property and equipment acquired in the Cenac acquisition of \$247,122,000, and the nine inland tank barges purchased during 2019 for \$13,040,000, less \$204,592,000 of depreciation expense and \$52,150,000 of property disposals during 2019.

Operating lease right-of-use assets increased due to the adoption of Accounting Standard Update ("ASU") 2016-02 "Leases (Topic 842)" ("ASU 2016-02") on January 1, 2019.

Other intangibles, net, as of December 31, 2019 decreased 6% compared with December 31, 2018, primarily due to amortization of intangibles other than goodwill.

Other assets at December 31, 2019 increased 6% compared with December 31, 2018 primarily due to the reclassification of unamortized debt issuance costs of \$2,650,000 attributable to the Revolving Credit Facility to other assets.

Current liabilities as of December 31, 2019 decreased 15% compared with December 31, 2018. Accounts payable decreased 26%, primarily due to reduced business activity levels in the distribution and services oil and gas market. Accrued liabilities decreased 4% primarily due to lower accrued employee incentive compensation during 2019. Current portion of operating lease liabilities increased due to the adoption of ASU 2016-02 on January 1, 2019. Deferred revenues decreased 46%, primarily reflecting reduced business activity levels in the distribution and services oil and gas market.

Long-term debt, net — less current portion, as of December 31, 2019 decreased 3% compared with December 31, 2018, primarily reflecting payments of \$417,373,000 on the amended and restated Revolving Credit Facility offset by the addition of the five-year Term Loan on March 27, 2019 with \$375,000,000 outstanding as of December 31, 2019. Net debt discount and deferred issuance costs were \$7,899,000 (of which \$2,650,000 attributable to the Revolving Credit Facility is included in other assets on the balance sheet) and \$7,204,000 as of December 31, 2019 and December 31, 2018, respectively.

Deferred income taxes as of December 31, 2019 increased 8% compared with December 31, 2018, primarily reflecting the 2019 deferred tax provision of \$46,839,000.

Operating lease liabilities increased due to the adoption of ASU 2016-02 on January 1, 2019.

Other long-term liabilities as of December 31, 2019 increased 2% compared with December 31, 2018. The increase was primarily due to accrued pension liabilities, offset by a decrease due to the adoption of ASU 2016-02 on January 1, 2019 and the resulting reclassification of unfavorable leases to operating lease right-of-use assets and the reclassification of deferred rent liabilities to long-term operating lease liabilities and contributions of \$3,064,000 to the Higman pension plan during 2019.

Total equity as of December 31, 2019 increased 5% compared with December 31, 2018. The increase was primarily the result of \$142,347,000 of net earnings attributable to Kirby for 2019, and an increase in additional paid-in capital of \$12,552,000, primarily due to employee stock awards.

2018 Compared with 2017

Current assets as of December 31, 2018 increased 15% compared with December 31, 2017. Inventories, net, increased 61%, primarily reflecting higher inventories, including work in process, in the distribution and services oil and gas market due to the adoption of ASU 2014-09, “Revenue from Contracts with Customers (ASC Topic 606) (“ASU 2014-09”) and to meet current business activity levels. Prepaid expenses and other current assets decreased 5% primarily due the sale of marine vessels in 2018 that were classified as assets held for sale in the 2017 fourth quarter. Trade accounts receivable decreased 8%, primarily reflecting decreased business activity levels in the distribution and services oil and gas market and lower revenue recognized due to the adoption of ASU 2014-09.

Property and equipment, net of accumulated depreciation, at December 31, 2018 increased 20% compared with December 31, 2017. The increase reflected \$318,302,000 of capital expenditures for 2018, more fully described under Capital Expenditures Reflected on the Balance Sheet below, the fair value of the property and equipment acquired in acquisitions of \$585,155,000, less \$208,212,000 of depreciation expense and \$46,083,000 of property disposals during 2018. In addition, during 2018, the Company took an impairment charge, more fully described under Impairment of Long-lived Assets above, that reduced the carrying value of marine transportation equipment by \$76,779,000.

Goodwill as of December 31, 2018 increased 2% compared with December 31, 2017, predominantly reflecting the goodwill recorded in the Higman and Targa acquisitions.

Other intangibles, net, as of December 31, 2018 decreased 4% compared with December 31, 2017, reflecting amortization of \$19,613,000, partially offset by intangible assets other than goodwill recorded in the Targa acquisition.

Other assets at December 31, 2018 increased 33% compared with December 31, 2017 primarily due to the addition of deferred major maintenance drydock expenditures on ocean-going vessels, net of amortization.

Current liabilities as of December 31, 2018 increased 27% compared with December 31, 2017. Accounts payable increased 25%, primarily due to increased business activity levels in the distribution and services segment, the acquisition of Higman and higher shipyard accruals. Accrued liabilities increased 18% primarily due to accrued liabilities assumed in the Higman acquisition including an increase in taxes other than on income, primarily waterway use taxes and property taxes, and an increase in employee incentive compensation. Deferred revenues increased 66%, primarily in the distribution and services segment, reflecting changes in revenue recognition with the adoption of ASU 2014-09.

Long-term debt, less current portion, as of December 31, 2018 increased 42% compared with December 31, 2017, primarily reflecting the issuance on February 12, 2018 of \$500,000,000 under the 2028 Notes to fund the acquisition of Higman, partially offset by payments of \$78,455,000 on the revolving credit facilities during 2018. Net debt discount and deferred issuance costs were \$7,204,000 and \$3,442,000 at December 31, 2018 and December 31, 2017, respectively.

Deferred income taxes as of December 31, 2018 increased 16% compared with December 31, 2017, primarily reflecting \$40,524,000 of deferred income taxes recorded with the Higman acquisition and the 2018 deferred tax provision of \$34,881,000.

Other long-term liabilities as of December 31, 2018 increased 31% compared with December 31, 2017. The increase was primarily due to \$11,100,000 of intangible liabilities related to unfavorable contracts of the Higman acquisition and the pension plan liability assumed with the Higman acquisition of \$33,116,000, partially offset by contributions of \$8,102,000 to the Higman pension plan during 2018.

Total equity as of December 31, 2018 increased 3% compared with December 31, 2017. The increase was primarily the result of \$78,452,000 of net earnings attributable to Kirby for 2018, an increase in additional paid-in capital of \$20,386,000, primarily due to the employee stock award plan amendment which resulted in shorter expense accrual periods on stock options and RSUs granted after February 19, 2018 to employees who are nearing retirement and meet certain years of service and age requirements, a \$6,432,000 decrease in treasury stock and a \$9,722,000 decrease in the opening balance of retained earnings with the adoption of ASU 2014-09. The decrease in treasury stock was mainly due to the issuance of restricted stock and the exercise of stock options in connection with stock award plans, partially offset by purchases during 2018 of \$776,000 of the Company's common stock.

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 is to make annual contributions in amounts equal to or greater than amounts necessary to meet minimum government funding requirements. No pension contribution was made in 2019, 2018 or 2017 for the 2019, 2018 and 2017 plan years. The fair value of plan assets was \$319,176,000 and \$269,403,000 at December 31, 2019 and December 31, 2018, respectively.

On April 12, 2017, the Company amended its pension plan to cease all benefit accruals for periods after May 31, 2017 for certain participants. Participants grandfathered and not impacted were those, as of the close of business on May 31, 2017, who either (a) had completed 15 years of pension service or (b) had attained age 50 and completed 10 years of pension service. Participants non-grandfathered are eligible to receive discretionary 401(k) plan contributions. The Company did not incur any one-time charges related to this amendment but the pension plan's projected benefit obligation decreased by \$33,433,000.

On February 14, 2018, with the acquisition of Higman, the Company assumed Higman's pension plan for its inland vessel personnel and office staff. On March 27, 2018, the Company amended the Higman pension plan to close it to all new entrants and cease all benefit accruals for periods after May 15, 2018 for all participants. The Company did not incur any one-time charges related to this amendment but the Higman pension plan's projected benefit obligation decreased by \$3,081,000. The Company made contributions to the Higman pension plan of \$1,615,000 in 2019 for the 2018 plan year, \$1,449,000 in 2019 for the 2019 plan year, \$6,717,000 in 2018 for the 2016 and 2017 plan years and \$1,385,000 in 2018 for the 2018 year. The fair value of plan assets was \$39,021,000 and \$33,748,000 at December 31, 2019 and 2018, 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.

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 3.5% and 4.4% in 2019 and 2018, respectively, in determining its benefit obligations. The Company estimates that every 0.1% decrease in the discount rate results in an increase in the accumulated benefit obligation ("ABO") of approximately \$6,582,000. The Company assumed that plan assets would generate a long-term rate of return of 7.0% in both 2019 and 2018. 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

On March 27, 2019, the Company entered into an amended and restated credit agreement (the "Credit Agreement") with a group of commercial banks, with JPMorgan Chase Bank, N.A. as the administrative agent bank, that extended the term of the Company's existing \$850,000,000 revolving credit facility ("Revolving Credit Facility") to March 27, 2024 and added a five-year term loan ("Term Loan") facility in an amount of \$500,000,000. The Credit Agreement provides for a variable interest rate based on the London interbank offered rate ("LIBOR") or a base rate calculated with reference to the agent bank's prime rate, among other factors (the "Alternate Base Rate"). The interest rate varies with the Company's credit rating and is currently 112.5 basis points over LIBOR or 12.5 basis points over the Alternate Base Rate. The Term Loan is repayable in quarterly installments originally scheduled to commence June 30, 2020, in increasing percentages of the original principal amount of the loan, with the remaining unpaid balance payable of 65% of the initial amount due on March 27, 2024. During 2019, the Company repaid \$125,000,000 under the Term Loan prior to the scheduled installments. As a result, no repayments are required until September 30, 2023. The Credit Agreement contains certain financial covenants including an interest coverage ratio and a debt-to-capitalization ratio. In addition to financial covenants, the Credit Agreement 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. The Credit Agreement specifies certain events of default, upon the occurrence of which the maturity of the outstanding loans may be accelerated, including the failure to pay principal or interest, violation of covenants and default on other indebtedness, among other events. Borrowings under the Credit Agreement may be used for general corporate purposes including acquisitions. As of December 31, 2019, the Company was in compliance with all Credit Agreement covenants and had no outstanding borrowings under the Revolving Credit Facility and \$375,000,000 outstanding under the Term Loan. 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 \$5,258,000 as of December 31, 2019.

On February 12, 2018, the Company issued \$500,000,000 of 4.2% senior unsecured notes due March 1, 2028 (the “2028 Notes”) with U.S. Bank National Association, as trustee. Interest payments of \$10,500,000 are due semi-annually on March 1 and September 1 of each year. The Company received cash proceeds of \$495,019,000, net of the original issue discount of \$705,000 and debt issuance costs of \$4,276,000. The 2028 Notes are unsecured and rank equally in right of payment with the Company’s other unsecured senior indebtedness. The 2028 Notes contain certain covenants on the part of the Company, including covenants relating to liens, sale-leasebacks, asset sales and mergers, among others. The 2028 Notes 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. The Company used the proceeds from the issuance of the 2028 Notes to fund the acquisition of Higman. The remaining net proceeds of the sale of the 2028 Notes were used for the repayment of indebtedness under the Company’s bank credit facilities. As of December 31, 2019, the Company was in compliance with all the 2028 Notes covenants and had \$500,000,000 outstanding under the 2028 Notes.

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, 2019, 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 Senior Notes Series A are excluded from short term liabilities because the Company has the ability and the intent to repay the amount due using borrowings under the Revolving Credit Facility.

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, 2021. 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 of December 31, 2019. Outstanding letters of credit under the Credit Line were \$1,171,000 as of December 31, 2019.

Capital Expenditures Reflected on the Balance Sheet

Capital expenditures for 2019 were \$234,289,000, including \$22,008,000 for inland towboat construction, \$18,433,000 for progress payments on three 5000 horsepower coastal ATB tugboats, \$2,294,000 for final costs on a 155,000 barrel coastal ATB under construction purchased from another operator that was delivered to the Company in the 2018 fourth quarter, and \$191,554,000 primarily for upgrading existing marine equipment and marine transportation and distribution and services facilities.

Capital expenditures for 2018 were \$318,302,000, including \$26,172,000 for inland tank barge and towboat construction, \$41,653,000 for progress payments on six 5000 horsepower coastal ATB tugboats, \$71,660,000 for a 155,000 barrel coastal ATB under construction purchased from another operator that was delivered to the Company in the 2018 fourth quarter, and \$178,817,000 primarily for upgrading existing marine equipment and marine transportation and distribution and services facilities.

Financing of the construction of the inland tank barges and towboats and coastal tank barges and tugboats plus upgrades of existing equipment and marine transportation and distribution and services facilities was through operating cash flows and available credit under the Company's Revolving Credit Facility.

During 2019, the Company acquired 63 inland tank barges from Cenac with a total capacity of approximately 1,833,000 barrels, retired 17 inland tank barges, sold six inland tank barges, brought back into service eight inland tank barges, and chartered two inland tank barges, decreasing its capacity by approximately 271,000 barrels. The net result was an increase of 50 inland tank barges and approximately 1,562,000 barrels of capacity during 2019.

The Company projects that capital expenditures for 2020 will be in the \$155,000,000 to \$175,000,000 range. The 2020 construction program will consist of \$25,000,000 to \$30,000,000 in progress payments on the construction of six inland towboats to be placed in service in 2020. Approximately \$110,000,000 to \$120,000,000 is primarily capital upgrades and improvements to existing marine equipment and facilities. The balance of \$20,000,000 to \$25,000,000 will be for new machinery and equipment, facilities improvements and information technology projects in the distribution and services segment and corporate.

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

The Company did not purchase any treasury stock during 2019. During 2018, the Company purchased 11,000 shares of its common stock for \$776,000, for an average price of \$69.61 per share pursuant to a stock trading plan entered into with a brokerage firm pursuant to Rule 10b5-1 under the Securities Exchange Act of 1934. The Company did not purchase any treasury stock during 2017. As of February 20, 2020, the Company had approximately 1,400,000 shares available under its existing repurchase authorizations. Historically, treasury stock purchases have been 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 \$511,813,000, \$346,999,000 and \$353,378,000 for the years ended December 31, 2019, 2018 and 2017, respectively. The increase in 2019 was driven by increased revenues and operating income in the marine transportation segment driven by the acquisitions of the Higman fleet in February 2018, the Targa fleet in May 2018, the CGBM barges in December 2018, and the Cenac fleet in March 2019, as well as improved barge utilization in the coastal market and higher spot and term pricing in the inland and coastal markets. The increase was also due to a net increase in cash flows from the change in operating assets and liabilities of \$153,953,000, primarily due to a decrease in inventories reflecting reduced business activity levels in the distribution and services segment in 2019 compared to an increase in 2018.

The 2018 year experienced a net decrease in cash flows from changes in operating assets and liabilities of \$65,436 compared with 2017, primarily due to higher inventories, including work in process, in the distribution and services oil and gas market during 2018, primarily to support the increased business activity levels, partially offset by a decrease in trade receivables due to a decrease in revenues recognized in the distribution and services oil and gas market in the 2018 fourth quarter driven by lower demand for new and overhauled transmissions and related parts and remanufactured pressure pumping units from some key oilfield customers.

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 20, 2020, \$844,742,000 under its Revolving Credit Facility and \$8,829,000 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 Credit Agreement.

The Company expects to continue to fund expenditures for acquisitions, including Savage, 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 \$850,000,000 and expires March 27, 2024. As of December 31, 2019, the Company had \$844,742,000 available under the Revolving Credit Facility. The Senior Notes Series A notes mature on February 27, 2020 and the Company intends to repay the \$150,000,000 outstanding using borrowings under the Revolving Credit Facility. The Senior Notes Series B do not mature until February 27, 2023, and require no prepayments. The 2028 Notes do not mature until March 1, 2028 and require no prepayments. The outstanding balance of the Term Loan is subject to quarterly installments, currently beginning September 30, 2023, in increasing percentages of the original principal amount of the loan, with the remaining unpaid balance payable of 65% of the initial amount due on March 27, 2024. The Term Loan is prepayable, in whole or in part, without penalty.

There are numerous factors that may negatively impact the Company's cash flow in 2019. For a list of significant risks and uncertainties that could impact cash flows, see Note 15, Contingencies and Commitments in the financial statements, and Item 1A — Risk Factors. Amounts available under the Company's existing financing arrangements are subject to the Company continuing to meet the covenants of the credit facilities as described in Note 8, Long-Term Debt in the financial statements.

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 \$22,804,000 at December 31, 2019, including \$11,240,000 in letters of credit and \$11,564,000 in performance bonds. All of these instruments have an expiration date within two 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 of the Company's 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. The Company's 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 distribution and services segment is based on prevailing current market rates.

Contractual Obligations

The contractual obligations of the Company and its subsidiaries at December 31, 2019 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	\$ 1,375,016	\$ 150,016	\$ —	\$ 725,000	\$ 500,000
Non-cancelable operating leases — barges	22,027	4,387	8,272	4,320	5,048
Non-cancelable operating leases — towing vessels (a)	24,327	7,059	5,156	5,156	6,956
Non-cancelable operating leases — land, buildings and equipment	163,512	21,928	35,581	25,016	80,987
	<u>\$ 1,584,882</u>	<u>\$ 183,390</u>	<u>\$ 49,009</u>	<u>\$ 759,492</u>	<u>\$ 592,991</u>

(a) Towing vessel payments are determined in accordance with Topic 842, *Leases*, and exclude non-lease components. The Company estimates that non-lease components comprise approximately 75% of charter rental costs, related to towboat crew costs, maintenance and insurance.

Approximately 85% 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's pension plan funding strategy is to make annual contributions in amounts equal to or greater than amounts necessary to meet minimum government funding requirements. 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, 2019, the Company's pension plan funding was 86% of the pension plans' ABO, including the Higman pension plan. The Company made a contribution of \$483,000 in January 2020 for the 2019 plan year. The Company expects to make additional pension contributions of \$314,000 in 2020 for the 2019 plan year and \$1,610,000 for the 2020 plan year.

Accounting Standards

For a discussion of recently issued accounting standards, see Note 1, Summary of Significant Accounting Policies.

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 2020 interest expense by \$206,000 based on balances outstanding at December 31, 2019, 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 105).

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 Securities Exchange Act of 1934 ("Exchange Act")), as of December 31, 2019, as required by Rule 13a-15(b) under the Exchange Act. Based on that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that, as of December 31, 2019, 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 (i) is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms and (ii) is accumulated and communicated to the Company's management, including the Chief Executive Officer and the Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual 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, 2019 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, 2019. 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.

Changes in Internal Control Over Financial Reporting. Except for remediation of the previously identified material weakness, there were no changes in the Company's internal control over financial reporting during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

As previously described in Part II, Item 9A, Controls and Procedures, of the Company's Annual Report on Form 10-K for the year ended December 31, 2018, the Company began implementing a remediation plan and removed all inappropriate privileged access rights as of March 31, 2019. The Company completed the testing and evaluation of the operating effectiveness of the affected Information Technology operating systems, databases and applications, and based on the results of the testing, the controls are operating effectively as of December 31, 2019.

PART III

Items 10 Through 14.

The information for these items is incorporated by reference to the definitive proxy statement to be filed by the Company with the Commission pursuant to Regulation 14A within 120 days of the close of the fiscal year ended December 31, 2019, except for the information regarding executive officers which is provided under Item 1.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Kirby Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Kirby Corporation and consolidated subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of earnings, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019 and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 21, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method of accounting for leases as of January 1, 2019 due to the adoption of Accounting Standards Update 2016-02, *Leases (Topic 842)*, and related amendments, and its method of accounting for recognizing revenues as of January 1, 2018 due to the adoption of Accounting Standards Update 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and related amendments.

Basis for Opinion

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 are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the acquisition-date fair value of property and equipment assets

As discussed in Note 4 to the consolidated financial statements, on March 14, 2019, the Company acquired the marine transportation fleet of Cenac Marine Services, LLC (Cenac). Cenac's fleet consisted of 63 inland tank barges, 34 inland towboats and two offshore tugboats. The acquisition-date fair value for these assets was \$247 million.

We identified the assessment of the acquisition-date fair value of these assets as a critical audit matter. There was a high degree of subjectivity in applying and evaluating the results of our testing of the approach used to determine the fair value of these assets, which included internally-developed adjustments for which there were limited observable market information. These adjustments included physical depreciation based on normal useful life and estimated salvage value. In addition, the sensitivity of these adjustments to reasonably possible changes resulted in the application of greater auditor judgment.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's acquisition-date valuation process, including controls over the development of the adjustments utilized in the determination of fair value of the assets. We involved valuation professionals with specialized skills and knowledge, who assisted in:

- evaluating the estimated fair values of the assets,
- evaluating the estimated physical depreciation using the normal useful life ranges based on industry standard useful life guidelines published by the American Society of Appraisers and observable third party market information and experience with valuing similar assets, and
- evaluating the salvage values and comparing them to current market prices for scrap metal on a per ton basis.

Evaluation of potential impairment indicators for offshore vessel classes

As discussed in Note 1 to the consolidated financial statements, 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 (triggering events). Recoverability of the vessel classes is measured by a comparison of the carrying amount of the assets to future net cash flows 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.

We identified the evaluation of potential impairment indicators for offshore vessel classes to be a critical audit matter. Evaluating the Company's judgments in determining whether a triggering event exists required a high degree of subjective auditor judgment.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's process to identify and assess the triggering events that indicate that the carrying amount of an offshore vessel class may not be recoverable. These included controls related to the consideration of forecasted to actual operating results and market conditions in the determination of a triggering event. We evaluated the Company's identification of triggering events, including future expected revenues from executed contracts with customers. We compared data used by the Company noting that such factors included both internal and external factors to analyst and industry reports. We evaluated responses as to factors considered and evaluated whether the Company omitted any significant internal or external factors in their evaluation. We evaluated the Company's data and assumptions when we identified information that was contrary to that used by the Company.

/s/ KPMG LLP

We have served as the Company's auditor since 1992.

Houston, Texas
February 21, 2020

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Kirby Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Kirby Corporation and consolidated subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of earnings, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements), and our report dated February 21, 2020 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company'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 Annual 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 are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. 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 of internal control over financial reporting 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.

Definition and Limitations of Internal Control Over Financial Reporting

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.

/s/ KPMG LLP

Houston, Texas
February 21, 2020

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
December 31, 2019 and 2018

	<u>2019</u>	<u>2018</u>
	(\$ in thousands)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 24,737	\$ 7,800
Accounts receivable:		
Trade — less allowance for doubtful accounts of \$8,372 (\$10,024 in 2018)	379,174	417,644
Other	104,175	104,239
Inventories — at lower of average cost or net realizable value	351,401	507,441
Prepaid expenses and other current assets	58,092	59,365
Total current assets	<u>917,579</u>	<u>1,096,489</u>
Property and equipment:		
Marine transportation equipment	4,770,213	4,477,718
Land, buildings and equipment	553,877	534,106
	<u>5,324,090</u>	<u>5,011,824</u>
Accumulated depreciation	(1,546,980)	(1,472,022)
Property and equipment — net	<u>3,777,110</u>	<u>3,539,802</u>
Operating lease right-of-use assets	159,641	—
Investment in affiliates	2,025	2,495
Goodwill	953,826	953,826
Other intangibles, net	210,682	224,197
Other assets	58,234	54,785
Total assets	<u>\$ 6,079,097</u>	<u>\$ 5,871,594</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Bank notes payable	\$ 16	\$ 19
Income taxes payable	665	2,794
Accounts payable	206,778	278,057
Accrued liabilities:		
Interest	12,700	13,171
Insurance premiums and claims	108,405	109,634
Employee compensation	42,875	53,089
Taxes — other than on income	39,286	38,680
Other	33,084	32,215
Current portion of operating lease liabilities	27,324	—
Deferred revenues	42,982	80,123
Total current liabilities	<u>514,115</u>	<u>607,782</u>
Long-term debt, net — less current portion	1,369,751	1,410,169
Deferred income taxes	588,204	542,785
Operating lease liabilities — less current portion	139,457	—
Other long-term liabilities	95,978	94,557
Total long-term liabilities	<u>2,193,390</u>	<u>2,047,511</u>
Contingencies and commitments		
Equity:		
Kirby stockholders' equity:		
Common stock, \$0.10 par value per share. Authorized 120,000,000 shares, issued 65,472,000 in 2019 and 2018	6,547	6,547
Additional paid-in capital	835,899	823,347
Accumulated other comprehensive income — net	(37,799)	(33,511)
Retained earnings	2,865,939	2,723,592
Treasury stock — at cost, 5,513,000 shares in 2019 and 5,608,000 shares in 2018	(301,963)	(306,788)
Total Kirby stockholders' equity	<u>3,368,623</u>	<u>3,213,187</u>
Noncontrolling interests	2,969	3,114
Total equity	<u>3,371,592</u>	<u>3,216,301</u>
Total liabilities and equity	<u>\$ 6,079,097</u>	<u>\$ 5,871,594</u>

See accompanying notes to consolidated financial statements.

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EARNINGS
For the Years Ended December 31, 2019, 2018 and 2017

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	(\$ in thousands, except per share amounts)		
Revenues:			
Marine transportation	\$ 1,587,082	\$ 1,483,143	\$ 1,324,106
Distribution and services	1,251,317	1,487,554	890,312
Total revenues	<u>2,838,399</u>	<u>2,970,697</u>	<u>2,214,418</u>
Costs and expenses:			
Costs of sales and operating expenses	2,030,046	2,160,946	1,558,098
Selling, general and administrative	312,913	304,397	220,452
Taxes, other than on income	41,933	39,251	29,163
Depreciation and amortization	219,632	224,972	202,881
Impairment of long-lived assets	—	82,705	105,712
Impairment of goodwill	—	2,702	—
Lease cancellation costs	—	2,403	—
Loss (gain) on disposition of assets	(8,152)	(1,968)	4,487
Total costs and expenses	<u>2,596,372</u>	<u>2,815,408</u>	<u>2,120,793</u>
Operating income	242,027	155,289	93,625
Equity in earnings of affiliates	379	355	291
Other income	3,408	5,371	570
Interest expense	(55,994)	(46,856)	(21,472)
Earnings before taxes on income	<u>189,820</u>	<u>114,159</u>	<u>73,014</u>
Benefit (provision) for taxes on income	<u>(46,801)</u>	<u>(35,081)</u>	<u>240,889</u>
Net earnings	143,019	79,078	313,903
Less: Net earnings attributable to noncontrolling interests	(672)	(626)	(716)
Net earnings attributable to Kirby	<u>\$ 142,347</u>	<u>\$ 78,452</u>	<u>\$ 313,187</u>
Net earnings per share attributable to Kirby common stockholders:			
Basic	\$ 2.38	\$ 1.31	\$ 5.62
Diluted	\$ 2.37	\$ 1.31	\$ 5.62

See accompanying notes to consolidated financial statements.

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME****For the Years Ended December 31, 2019, 2018 and 2017**

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		(\$ in thousands)	
Net earnings	\$ 143,019	\$ 79,078	\$ 313,903
Other comprehensive income (loss), net of taxes:			
Pension and postretirement benefits	(4,203)	7,638	18,748
Foreign currency translation adjustments	(85)	(819)	(146)
Reclassification to retained earnings of stranded tax effects from tax reform	—	(7,925)	—
Total other comprehensive income (loss), net of taxes	<u>(4,288)</u>	<u>(1,106)</u>	<u>18,602</u>
Total comprehensive income, net of taxes	138,731	77,972	332,505
Net earnings attributable to noncontrolling interests	(672)	(626)	(716)
Comprehensive income attributable to Kirby	<u>\$ 138,059</u>	<u>\$ 77,346</u>	<u>\$ 331,789</u>

See accompanying notes to consolidated financial statements.

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended December 31, 2019, 2018 and 2017

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	(\$ in thousands)		
Cash flows from operating activities:			
Net earnings	\$ 143,019	\$ 79,078	\$ 313,903
Adjustments to reconcile net earnings to net cash provided by operations:			
Depreciation and amortization	219,632	224,972	202,881
Provision (credit) for doubtful accounts	(873)	1,289	224
Provision (benefit) for deferred income taxes	46,839	34,881	(256,263)
Loss (gain) on disposition of assets	(8,152)	(1,968)	4,487
Equity in earnings of affiliates, net of distributions and contributions	471	(355)	732
Impairment and other charges	35,525	85,407	105,712
Amortization of unearned share-based compensation	13,612	19,104	11,460
Amortization of leases	(490)	—	—
Amortization of major maintenance costs	23,962	20,760	21,207
Amortization of debt issuance costs	1,702	1,218	986
Increase (decrease) in cash flows resulting from changes in:			
Accounts receivable	43,078	12,511	(60,405)
Inventory	122,773	(144,685)	19,673
Other assets	(25,470)	(38,090)	(17,049)
Income taxes payable	(2,503)	(457)	(11,823)
Accounts payable	(57,405)	22,622	20,758
Accrued and other liabilities	(43,907)	30,712	(3,105)
Net cash provided by operating activities	<u>511,813</u>	<u>346,999</u>	<u>353,378</u>
Cash flows from investing activities:			
Capital expenditures	(248,164)	(301,861)	(177,222)
Acquisitions of businesses and marine equipment, net of cash acquired	(262,491)	(533,897)	(470,101)
Proceeds from disposition of assets	57,657	53,392	54,229
Other	—	(250)	—
Net cash used in investing activities	<u>(452,998)</u>	<u>(782,616)</u>	<u>(593,094)</u>
Cash flows from financing activities:			
Borrowings (payments) on bank credit facilities, net	(417,376)	(78,455)	269,859
Borrowings on long-term debt	500,000	499,295	—
Payments on long-term debt	(125,000)	—	(13,721)
Payment of debt issue costs	(2,397)	(4,276)	(1,243)
Return of investment to noncontrolling interests	(817)	(915)	(862)
Proceeds from exercise of stock options	5,743	13,264	3,039
Purchase of treasury stock	—	(776)	—
Payments related to tax withholding for share-based compensation	(2,031)	(4,822)	(2,881)
Acquisitions of noncontrolling interest	—	—	(7)
Net cash provided by (used in) financing activities	<u>(41,878)</u>	<u>423,315</u>	<u>254,184</u>
Increase (decrease) in cash and cash equivalents	16,937	(12,302)	14,468
Cash and cash equivalents, beginning of year	7,800	20,102	5,634
Cash and cash equivalents, end of year	<u>\$ 24,737</u>	<u>\$ 7,800</u>	<u>\$ 20,102</u>
Supplemental disclosures of cash flow information:			
Cash paid during the period:			
Interest paid	\$ 55,766	\$ 40,772	\$ 21,663
Income taxes paid	\$ 2,926	\$ 640	\$ 27,196
Operating cash outflow from operating leases	\$ 39,376	\$ —	\$ —
Non-cash investing activity:			
Capital expenditures included in accounts payable	\$ 13,875	\$ (16,441)	\$ 5,525
Stock issued in acquisition	\$ —	\$ —	\$ 366,554
Cash acquired in acquisition	\$ —	\$ 2,313	\$ 98
Debt assumed in acquisition	\$ —	\$ —	\$ 13,724
Right-of-use assets obtained in exchange for lease obligations	\$ 21,195	\$ —	\$ —

See accompanying notes to consolidated financial statements.

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
For the Years Ended December 31, 2019, 2018 and 2017

	Common Stock		Additional Paid-in-Capital	Accumulated Other Comprehensive Income	Retained Earnings	Treasury Stock		Noncontrolling Interests	Total
	Shares	Amount				Shares	Amount		
Balance at December 31, 2016	59,776	\$ 5,978	\$ 432,459	\$ (51,007)	\$ 2,342,236	(5,921)	\$ (320,348)	\$ 3,549	\$ 2,412,867
Cumulative effect of adoption of ASU 2016-09	—	—	—	—	(8,486)	—	—	—	(8,486)
Stock option exercises	—	—	(531)	—	—	69	3,603	—	3,072
Issuance of shares in acquisition	5,696	569	365,985	—	—	—	—	—	366,554
Issuance of stock for equity awards, net of forfeitures	—	—	(6,406)	—	—	113	6,406	—	—
Tax withholdings on equity award vesting	—	—	—	—	—	(44)	(2,881)	—	(2,881)
Amortization of unearned share-based compensation	—	—	11,460	—	—	—	—	—	11,460
Total comprehensive income, net of taxes	—	—	—	18,602	313,187	—	—	716	332,505
Acquisition of noncontrolling interest	—	—	(6)	—	—	—	—	—	(6)
Return of investment to noncontrolling interests	—	—	—	—	—	—	—	(862)	(862)
Balance at December 31, 2017	65,472	\$ 6,547	\$ 802,961	\$ (32,405)	\$ 2,646,937	(5,783)	\$ (313,220)	\$ 3,403	\$ 3,114,223
Cumulative effect of adoption of ASU 2014-09	—	—	—	—	(9,722)	—	—	—	(9,722)
Cumulative effect of adoption of ASU 2018-02	—	—	—	—	7,925	—	—	—	7,925
Stock option exercises	—	—	2,161	—	—	232	11,151	—	13,312
Issuance of stock for equity awards, net of forfeitures	—	—	(879)	—	—	15	879	—	—
Tax withholdings on equity award vesting	—	—	—	—	—	(61)	(4,822)	—	(4,822)
Amortization of unearned	—	—	19,104	—	—	—	—	—	19,104

share-based compensation										
Treasury stock purchases	—	—	—	—	—	(11)	(776)	—	(776)	
Total comprehensive income, net of taxes	—	—	—	(1,106)	78,452	—	—	626	77,972	
Return of investment to noncontrolling interests	—	—	—	—	—	—	—	(915)	(915)	
Balance at December 31, 2018	<u>65,472</u>	<u>\$ 6,547</u>	<u>\$ 823,347</u>	<u>\$ (33,511)</u>	<u>\$ 2,723,592</u>	<u>(5,608)</u>	<u>\$ (306,788)</u>	<u>\$ 3,114</u>	<u>\$ 3,216,301</u>	
Stock option exercises	—	—	675	—	—	93	5,121	—	5,796	
Issuance of stock for equity awards, net of forfeitures	—	—	(1,735)	—	—	32	1,735	—	—	
Tax withholdings on equity award vesting	—	—	—	—	—	(30)	(2,031)	—	(2,031)	
Amortization of unearned share-based compensation	—	—	13,612	—	—	—	—	—	13,612	
Total comprehensive income, net of taxes	—	—	—	(4,288)	142,347	—	—	672	138,731	
Return of investment to noncontrolling interests	—	—	—	—	—	—	—	(817)	(817)	
Balance at December 31, 2019	<u>65,472</u>	<u>\$ 6,547</u>	<u>\$ 835,899</u>	<u>\$ (37,799)</u>	<u>\$ 2,865,939</u>	<u>(5,513)</u>	<u>\$ (301,963)</u>	<u>\$ 2,969</u>	<u>\$ 3,371,592</u>	

See accompanying notes to consolidated financial statements.

KIRBY CORPORATION AND CONSOLIDATED SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Summary of Significant Accounting Policies

Principles of Consolidation. The consolidated financial statements include the accounts of Kirby Corporation and all majority-owned subsidiaries (the “Company”). All investments in which the Company owns 20% to 50% and exercises significant influence over operating and financial policies are accounted for using the equity method. All material intercompany accounts and transactions have been eliminated in consolidation. Certain reclassifications have been made to reflect the current presentation of financial information.

Accounting Policies

Cash Equivalents. Cash equivalents consist of all short-term, highly liquid investments with maturities of three months or less at date of purchase.

Accounts Receivable. In the normal course of business, the Company extends credit to its customers. The Company regularly reviews the accounts and makes adequate provisions for probable uncollectible balances. It is the Company’s opinion that the accounts have no impairment, other than that for which provisions have been made. Included in accounts receivable-trade as of December 31, 2019 and 2018 were \$103,996,000 and \$114,159,000, respectively, of accruals for revenues earned which have not been invoiced as of the end of each year.

The Company’s marine transportation and distribution and services operations are subject to hazards associated with such businesses. The Company maintains insurance coverage against these hazards with insurance companies. Included in accounts receivable-other as of December 31, 2019 and 2018 were \$72,591,000 and \$69,624,000, respectively, of receivables from insurance companies to cover claims in excess of the Company’s deductible.

Concentrations of Credit Risk. Financial instruments which potentially subject the Company to concentrations of credit risk are primarily trade accounts receivables. The Company’s marine transportation customers include the major oil refining and petrochemical companies. The distribution and services customers are oilfield service companies, oil and gas operators and producers, on-highway transportation companies, marine transportation companies, commercial fishing companies, construction companies, power generation companies, and the United States government. 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.

Property, Maintenance and Repairs. Property is recorded at cost or acquisition date fair value. Improvements and betterments are capitalized as incurred. Depreciation is recorded on the straight-line method over the estimated useful lives of the individual assets as follows: marine transportation equipment, 5-40 years; buildings, 10-40 years; other equipment, 2-10 years; and leasehold improvements, term of lease. 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 United States Coast Guard (“USCG”) inspections unless the shipyard extends the life or improves the operating capacity of the vessel which results in the costs being capitalized.

Drydocking on Ocean-Going Vessels. 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 American Bureau of Shipping (“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. The Company recognized amortization of major maintenance costs of \$23,962,000, \$20,760,000 and \$21,207,000 for the years ended December 31, 2019, 2018 and 2017, respectively, in costs of sales and operating expenses. Routine repairs and maintenance on ocean-going vessels are expensed as incurred. Interest is capitalized on the construction of new ocean-going vessels. Interest expense excludes capitalized interest of \$1,003,000, \$2,206,000 and \$1,731,000 for the years ending December 31, 2019, 2018 and 2017, respectively.

Environmental Liabilities. The Company expenses costs related to environmental events as they are incurred or when a loss is considered probable and estimable.

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. The Company conducted its annual goodwill impairment tests at November 30, 2019, 2018 and 2017. For 2019 and 2017, there was no impairment of goodwill. For 2018, the Company incurred an impairment of goodwill charge of \$2,702,000. The Company will continue to conduct goodwill impairment tests as of November 30 of subsequent years, 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 gross carrying value of goodwill at December 31, 2019 and 2018 was \$973,995,000, and accumulated amortization at December 31, 2019 and 2018 was \$15,566,000. Accumulated impairment losses were \$4,603,000 at December 31, 2019 and 2018.

During the 2018 fourth quarter, the Company took a \$2,702,000 charge for the impairment of the remaining goodwill recorded for Osprey Line, L.L.C., a subsidiary that transports project cargoes and cargo containers by barge on the United States inland waterway system. The impairment reflected the reduced profitability outlook of the container-on-barge operations due to the current economic environment. The fair value was determined using a combination of a discounted cash flow methodology and a market based approach utilizing a net earnings before interest expense, taxes on income, depreciation and amortization (EBITDA) multiplier.

Net goodwill for the marine transportation segment was \$405,575,000 at December 31, 2019 and 2018. Net goodwill for the distribution and services segment was \$548,251,000 at December 31, 2019 and 2018.

Other Intangibles. Other intangibles include assets for favorable contracts and customer relationships, distributorship and dealership agreements, trade names and noncompete agreements and liabilities for unfavorable leases and contracts. As of December 31, 2019 and 2018, the gross carrying amounts of other intangible assets were \$332,656,000 and \$326,984,000, respectively, and the accumulated amortization was \$121,974,000 and \$102,787,000, respectively, resulting in net carrying amounts of \$210,682,000 and \$224,197,000, respectively. As of December 31, 2019 and 2018, the gross carrying amounts of other intangible liabilities were \$13,860,000 and \$18,323,000 respectively, and the accumulated amortization was \$7,956,000 and \$8,652,000, respectively, resulting in net carrying amounts of \$5,904,000 and \$9,671,000, respectively. The decrease in intangible liabilities was primarily due to the adoption of Accounting Standard Update (“ASU”) 2016-02 “Leases (Topic 842)” (“ASU 2016-02”) on January 1, 2019 and the resulting reclassification of unfavorable leases to operating lease right-of-use assets.

The costs of intangible assets and liabilities are amortized to expense in a systematic and rational manner over their estimated useful lives.

For the years ended December 31, 2019, 2018 and 2017, the amortization expense for intangibles was \$15,040,000, \$16,760,000 and \$11,296,000, respectively. Estimated net amortization expense for amortizable intangible assets and liabilities for the next five years (2020 – 2024) is approximately \$16,358,000, \$17,392,000, \$16,989,000, \$17,527,000 and \$18,092,000, respectively. As of December 31, 2019, the weighted average amortization period for intangible assets and liabilities was approximately 13 years.

Revenue Recognition. The majority of marine transportation revenue is derived from term contracts, ranging from one to three years, some of which have renewal options, and the remainder is from spot market movements. The majority of the term contracts are for terms of one year. The Company is a provider of marine transportation services for its customers and, in almost all cases, does not assume ownership of the products it transports. 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 or at a daily rate. 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. 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, including fuel, and are subject to market volatility. The Company uses a voyage accounting method of revenue recognition for its marine transportation revenues which allocates voyage revenue based on the percent of the voyage completed during the period. The performance of the service is invoiced as the transaction occurs and payment is required depending on each specific customer’s credit.

Distribution products and services are generally sold based upon purchase orders or preferential service agreements with the customer that include fixed or determinable prices. Parts sales are recognized when control transfers to the customer, generally when title passes upon shipment to customers. Service revenue is recognized over time as the service is provided using measures of progress utilizing hours worked or costs incurred as a percentage of estimated hours or expected costs. Revenue from rental agreements is recognized on a straight-line basis over the rental period. The Company recognizes the revenues on contract manufacturing activities upon shipment and transfer of control to the customer. The transactions in the distribution and services segment are typically invoiced as parts are shipped or upon the completion of the service job. Contract manufacturing activities are generally invoiced upon shipment and the Company will often get deposits from its customers prior to starting work, or progress payments during the project depending on the credit worthiness of the customer and the size of the project. During 2017, prior to the adoption of ASU 2014-09, “Revenue from Contracts with Customers (ASC Topic 606)” (“ASU 2014-09” or “ASC 606”), distribution and services manufacturing and assembly projects revenue was reported on the percentage of completion method of accounting using measurements of progress towards completion appropriate for the work performed.

Stock-Based Compensation. The Company has share-based compensation plans covering selected officers and other key employees as well as the Company’s Board of Directors. Stock-based grants made under the Company’s stock plans are recorded at fair value on the date of the grant and the cost for all grants made under the director plan and for grants made under the employee plan prior to February 19, 2018 is recognized ratably over the vesting period of the stock option or restricted stock. On February 19, 2018, the employee stock award plan was amended to also allow for the granting of restricted stock units (“RSUs”) to selected officers and other key employees. The amendment included a provision for the continued vesting of unvested stock options and RSUs for employees who meet certain years of service and age requirements at the time of their retirement. The vesting change resulted in shorter expense accrual periods on stock options and RSUs granted after February 19, 2018 to employees who are nearing retirement and meet the service and age requirements. Stock option grants are valued at the date of grant as calculated under the Black-Scholes option pricing model. The Company accounts for forfeitures as they occur. The Company’s stock-based compensation plans are more fully described in Note 10, Stock Award Plans.

Taxes on Income. The Company follows the asset and liability method of accounting for income taxes. Under the asset and liability method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using

enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

Accrued Insurance. Accrued insurance liabilities include estimates based on individual incurred claims outstanding and an estimated amount for losses incurred but not reported (“IBNR”) or fully developed based on past experience. Insurance premiums, IBNR losses and incurred claim losses, in excess of the Company’s deductible for 2019, 2018 and 2017 were \$32,372,000, \$29,306,000 and \$26,195,000, respectively.

Treasury Stock. The Company follows the average cost method of accounting for treasury stock transactions.

Impairment of Long-lived Assets and for Long-lived Assets to Be Disposed Of. The Company reviews long-lived assets and certain identifiable intangibles for impairment by vessel class whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable.

Recoverability on marine transportation assets is assessed based on vessel classes, not on individual assets, because identifiable cash flows for individual marine transportation assets are not available. Projecting customer contract volumes allows estimation of future cash flows by projecting pricing and utilization by vessel class but it is not practical to project which individual marine transportation asset will be utilized for any given contract. Because customers do not specify which particular vessel is used, prices are quoted based on vessel classes not individual assets. Nominations of vessels for specific jobs are determined on a day by day basis and are a function of the equipment class required and the geographic position of vessels within that class at that particular time as vessels within a class are interchangeable and provide the same service. The Company's vessels are mobile assets and equipped to operate in geographic regions throughout the United States and the Company has in the past and expects to continue to move vessels from one region to another when it is necessary due to changing markets and it is economical to do so. Barge vessel classes are based on similar capacities, hull type, and type of product and towing vessels are based on similar hull type and horsepower. Recoverability of the vessel classes is measured by a comparison of the carrying amount of the assets to future net cash flows 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.

Accounting Standards

In December 2019, the Financial Accounting Standards Board ("FASB") issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes" which simplifies the accounting for income taxes by removing certain exceptions to the general principles in Topic 740, Income Taxes. The guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted. The Company is currently evaluating this guidance to determine the impact on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-14, "Compensation – Retirement Benefits - Defined Benefit Plans – General (Subtopic 715-20): Disclosure Framework – Changes to the Disclosure Requirements for Defined Benefit Plans" which amends the annual disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans by removing certain requirements, providing clarification on existing requirements and adding new requirements including adding an explanation of the reasons for significant gains and losses related to changes in the benefit obligation for the period. The guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted. The amendments in this update are required to be applied on a retrospective basis to all periods presented. The Company is currently evaluating this guidance to determine the impact on its disclosures.

In January 2017, the FASB issued ASU 2017-04, "Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment" ("ASU 2017-04") which simplifies the subsequent measurement of goodwill by eliminating Step 2 in the goodwill impairment test that required an entity to perform procedures to determine the fair value of its assets and liabilities at the testing date. An entity instead will perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying value and record an impairment charge based on the excess of a reporting unit's carrying amount over its fair value. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. ASU 2017-04 will be applied prospectively and is effective for annual and interim goodwill impairment tests conducted in fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment testing dates after January 1, 2017. The Company is currently evaluating the impact, if any, that the adoption of this standard will have on its consolidated financial statements.

In February 2016, the FASB issued 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. The Company adopted ASU 2016-02 on January 1, 2019 under the optional transition method that allows for a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption and will not restate prior periods. The Company also elected certain practical expedients permitted under the transition guidance which allowed the Company to carryforward its historical lease classification and for the non-recognition of short-term leases. Adoption of ASU 2016-02 resulted in the recognition of operating lease right-of-use assets for operating leases of \$168,149,000 and lease liabilities for operating leases of \$175,778,000 on the Company's Condensed Balance Sheets as of January 1, 2019, with no material impact to the Condensed Statements of Earnings or Cash Flows. The Company did not have any financing leases as of January 1, 2019. See Note 2, Leases for additional information.

In May 2014, the FASB issued 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 replaced most existing revenue recognition guidance in United States generally accepted accounting principles and is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017. ASU 2014-09 permits the use of either the retrospective, modified retrospective or prospective with a cumulative catch-up approach. The Company adopted ASU 2014-09 on January 1, 2018 under the modified retrospective approach with a cumulative adjustment that decreased the opening balance of retained earnings by \$9,722,000. Prior period amounts were not adjusted and the prior period amounts continue to be reported under the accounting standards in effect for those periods. The cumulative adjustment primarily relates to recognition of revenue on certain contract manufacturing activities, primarily construction of new pressure pumping units in the Company's distribution and services segment. The Company previously recognized revenue on manufacturing and assembly projects on a percentage of completion method using measurements of progress towards completion appropriate for the work performed. Upon the adoption of ASU 2014-09, the Company recognizes the revenues on contract manufacturing activities upon shipment and transfer of control versus the percentage of completion method.

The following table summarizes the financial statement line items within the Company's condensed consolidated financial statements impacted by ASU 2014-09 for the year ended December 31, 2018 (in thousands):

	2018		
	As Reported	Balances without Adoption of ASC 606	Effect of Change
Statements of earnings:			
Distribution and services revenues	\$ 1,487,554	\$ 1,515,554	\$ (28,000)
Costs of sales and operating expenses	\$ 2,160,946	\$ 2,181,046	\$ (20,100)
Operating income	\$ 155,289	\$ 163,189	\$ (7,900)
Earnings before taxes on income	\$ 114,159	\$ 122,059	\$ (7,900)
Provision for taxes on income	\$ (35,081)	\$ (37,187)	\$ 2,106

Net earnings attributable to Kirby	\$	78,452	\$	84,246	\$	(5,794)
Statements of comprehensive income:						
Net earnings	\$	79,078	\$	84,872	\$	(5,794)
Comprehensive income attributable to Kirby	\$	77,346	\$	83,140	\$	(5,794)
Statements of cash flows:						
Net earnings	\$	79,078	\$	84,872	\$	(5,794)
Provision for deferred income taxes	\$	34,881	\$	32,775	\$	2,106
Decrease in cash flows resulting from changes in:						
Accounts receivable	\$	12,511	\$	(71,624)	\$	84,135
Inventory	\$	(144,685)	\$	(71,985)	\$	(72,700)
Accrued and other liabilities	\$	30,712	\$	38,459	\$	(7,747)

(2) Leases

The Company currently leases various facilities and equipment under cancelable and noncancelable operating leases. The accounting for the Company's leases may require judgments, which include determining whether a contract contains a lease, the allocation between lease and non-lease components, and determining the incremental borrowing rates. Leases with an initial noncancelable term of 12 months or less are not recorded on the balance sheet and the related lease expense is recognized on a straight-line basis over the lease term. The Company has also elected to combine lease and non-lease components on all classes of leased assets, except for leased towing vessels for which the Company estimates approximately 75% of the costs relate to service costs and other non-lease components. Variable lease costs relate primarily to real estate executory costs (i.e. taxes, insurance and maintenance).

Future minimum lease payments under operating leases that have initial noncancelable lease terms in excess of one year at December 31, 2019 were as follows (in thousands):

2020	\$	33,374
2021		25,911
2022		23,098
2023		19,162
2024		15,330
Thereafter		92,991
Total lease payments		<u>209,866</u>
Less: imputed interest		(43,085)
Operating lease liabilities	\$	<u>166,781</u>

As of December 31, 2018, future total rentals on the Company's noncancelable operating leases were \$278,602,000 in the aggregate, which consisted of the following: \$97,091,000 in 2019; \$30,062,000 in 2020; \$21,818,000 in 2021; \$20,263,000 in 2022; \$17,429,000 in 2023; and \$91,939,000 thereafter.

The following table summarizes lease cost for the year ended December 31, 2019 (in thousands):

Operating lease cost	\$	39,064
Variable lease cost		2,326
Short-term lease cost		31,340
Sublease income		(420)
Total lease cost	\$	<u>72,310</u>

The following table summarizes other supplemental information about the Company's operating leases as of December 31, 2019:

Weighted average discount rate	4.0%
Weighted average remaining lease term	11 years

(3) Revenues

The following table sets forth the Company's revenues by major source for the years ended December 31, 2019, 2018 and 2017 (in thousands):

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Marine transportation segment:			
Inland transportation	\$ 1,220,878	\$ 1,119,820	\$ 923,916
Coastal transportation	366,204	363,323	400,190
	<u>\$ 1,587,082</u>	<u>\$ 1,483,143</u>	<u>\$ 1,324,106</u>
Distribution and services segment:			
Oil and gas	\$ 659,364	\$ 1,010,410	\$ 614,128
Commercial and industrial	591,953	477,144	276,184
	<u>\$ 1,251,317</u>	<u>\$ 1,487,554</u>	<u>\$ 890,312</u>

The Company's revenue is measured based on consideration specified in its contracts with its customers. The Company recognizes revenue as it satisfies performance obligations in its contracts which occur as the Company delivers a service over time to its customers, or transfers control over a part or product to its customer.

Contract Assets and Liabilities. Contract liabilities represent advance consideration received from customers, and are recognized as revenue over time as the related performance obligation is satisfied. The amount of revenue recognized in 2019 that was included in the December 31, 2018 contract liability balance was \$76,412,000. The Company has recognized all contract liabilities within the deferred revenues financial statement caption on the balance sheet. The Company did not have any contract assets at December 31, 2019 or December 31, 2018.

Performance Obligations. The Company applies the practical expedient in ASC 606-10-50-14(a) and does not disclose information about remaining performance obligations that have original expected durations of one year or less.

(4) Acquisitions

During the year ended December 31, 2019, the Company purchased, from various counterparties, a barge fleet operation in Lake Charles, Louisiana and nine inland tank barges from leasing companies for an aggregate of \$17,991,000 in cash. The Company had been leasing the barges prior to the purchases.

On March 14, 2019, the Company completed the acquisition of the marine transportation fleet of Cenac Marine Services, LLC ("Cenac") for \$244,500,000 in cash. Cenac's fleet consisted of 63 inland 30,000 barrel tank barges with approximately 1,833,000 barrels of capacity, 34 inland towboats and two offshore tugboats. Cenac transported petrochemicals, refined products and black oil, including crude oil, residual fuels, feedstocks and lubricants on the lower Mississippi River, its tributaries, and the Gulf Intracoastal Waterway for major oil companies and refiners. The average age of the inland tank barges was approximately five years and the inland towboats had an average age of approximately seven years.

The Company considers Cenac to be a natural extension of the current marine transportation segment, expanding the capabilities of the Company's inland based marine transportation business and lowering the average age of its inland tank barge and towboat fleet.

The fair values of the assets acquired and liabilities assumed recorded at the acquisition date were as follows (in thousands):

Assets:

Prepaid expenses	\$ 1,138
Property and equipment	247,122
Other intangibles	340
Total assets	<u>\$ 248,600</u>

Other long-term liabilities	4,100
Net assets acquired	<u>\$ 244,500</u>

The Company acquired intangible assets with an amortization period of two years and incurred long-term intangible liabilities related to unfavorable contracts with a weighted average amortization period of approximately 1.3 years. Acquisition related costs of \$442,000, consisting primarily of legal and other professional fees, were expensed as incurred to selling, general and administrative expense in 2019.

On December 28, 2018, the Company purchased three inland tank barges from a leasing company for \$3,120,000 in cash. The Company had been leasing the barges prior to the purchase.

On December 14, 2018, the Company purchased 27 inland tank barges with a barrel capacity of 306,000 barrels from CGBM 100, LLC for \$28,500,000 in cash. The 27 tank barges transport petrochemicals and refined products on the Mississippi River System and the Gulf Intracoastal Waterway. The average age of the barges was eight years.

On November 30, 2018, the Company purchased an inland towboat from a leasing company for \$3,050,000 in cash. The Company had been leasing the towboat prior to the purchase.

On May 10, 2018, the Company completed the purchase of Targa Resources Corp.'s ("Targa") inland tank barge business from a subsidiary of Targa for \$69,250,000 in cash. Targa's inland tank barge fleet consisted of 16 pressure barges with a total capacity of 258,000 barrels, many of which were under multi-year contracts that the Company assumed from Targa. The 16 tank barges transport petrochemicals on the Mississippi River System and the Gulf Intracoastal Waterway. As a result of the acquisition, the Company recorded \$16,116,000 of goodwill and \$11,000,000 of intangibles with an average amortization period of 15 years. The Company expects all of the goodwill to be deductible for tax purposes.

On March 15, 2018, the Company purchased two inland pressure tank barges from a competitor for \$10,400,000 in cash. The average age of the two tank barges was five years.

On February 14, 2018, the Company completed the acquisition of Higman Marine, Inc. ("Higman") for \$421,922,000 in cash. Higman's fleet consisted of 163 inland tank barges with 4.8 million barrels of capacity, and 75 inland towboats, transporting petrochemicals, black oil, including crude oil and natural gas condensate, and refined petroleum products on the Mississippi River System and the Gulf Intracoastal Waterway. The average age of the inland tank barges was approximately seven years and the inland towboats had an average age of approximately eight years. Financing of the acquisition was through the issuance of the 2028 Notes (as defined in Note 8, Long-Term Debt) issued on February 12, 2018 in preparation for closing of the acquisition.

The Company considers Higman to be a natural extension of the current marine transportation segment, expanding the capabilities of the Company's inland based marine transportation business and lowering the average age of its inland tank barge and towboat fleet.

The fair values of the assets acquired and liabilities assumed recorded at the acquisition date were as follows (in thousands):

Assets:

Cash	\$ 2,313
Accounts receivable	27,527
Prepaid expenses	5,323
Property and equipment	497,951
Goodwill	4,657
Other assets	30
Total assets	<u>\$ 537,801</u>

Liabilities:

Accounts payable	17,012
Accrued liabilities	14,127
Deferred income taxes	40,524
Other long-term liabilities	44,216
Total liabilities	<u>\$ 115,879</u>
Net assets acquired	<u>\$ 421,922</u>

As a result of the acquisition, the Company recorded \$4,657,000 of goodwill of which the majority will be deductible for tax purposes. The Company also incurred \$11,100,000 of intangible liabilities related to unfavorable contracts with a weighted average amortization period of approximately 4.9 years. Acquisition related costs of \$3,464,000, consisting primarily of legal, audit and other professional fees plus other expenses, were expensed as incurred to selling, general and administrative expense in 2018.

On October 20, 2017, San Jac Marine, LLC (“San Jac”), a subsidiary of the Company, purchased certain assets of Sneed Shipbuilding, Inc. for \$14,852,000 in cash including its Channelview, Texas shipyard. San Jac is a builder of marine vessels for both inland and offshore applications and a provider of repair and maintenance services. The Company intends to build towboats at the shipyard and use the facilities for routine maintenance.

On September 13, 2017, the Company completed the acquisition of substantially all of the assets of Stewart & Stevenson LLC (“S&S”), a global manufacturer and distributor of products and services for the oil and gas, marine, construction, power generation, transportation, mining and agricultural industries. The acquired business, which the Company operates through a newly formed subsidiary renamed Stewart & Stevenson LLC after the closing of the acquisition, was founded in 1902 and serves domestic and global markets with equipment, rental solutions, parts and service through a strategic network of sales and service centers in domestic and international locations.

The total value of the transaction was \$758,213,000 consisting of cash consideration of \$377,935,000, the assumption of \$13,724,000 of debt and \$366,554,000 through the issuance of 5,696,259 shares of Company common stock valued at \$64.35 per share, the Company’s closing share price on September 13, 2017. The debt assumed consisted of \$12,135,000 of term debt and \$1,589,000 of short-term secured loans related to the Company’s South American operations. The term debt was paid off without penalty in the 2017 fourth quarter.

S&S is a distributor in certain geographic areas for Allison Transmission, MTU, Detroit Diesel, EMD Power Products (“EMD”), Deutz and several other manufacturers. S&S’ principal customers are oilfield service companies, oil and gas operators and producers, and companies in the marine, mining, power generation, on-highway and other commercial and industrial applications.

On July 10, 2017, the Company completed the purchase of certain inland marine assets from an undisclosed competitor for \$68,000,000 in cash. The assets purchased consisted of nine specialty pressure tank barges, four 30,000 barrel tank barges and three 1320 horsepower inland towboats. The average age of the 13 inland tank barges was five years. The 13 tank barges transport petrochemicals and refined petroleum products on the Mississippi River System and the Gulf Intracoastal Waterway. As a result of the acquisition, the Company recorded \$67,970,000 of property and \$30,000 of intangibles with a weighted average amortization period of two years.

During July 2017, the Company purchased four inland tank barges for \$1,450,000 as well as a barge fleet and marine fueling operation business in Freeport, Texas for \$3,900,000. The Company had been leasing the barges prior to the purchase.

The following unaudited pro forma results present consolidated information as if the S&S acquisition had been completed as of January 1, 2017. The pro forma results do not include any of the other acquisitions completed in 2017 through 2019 described above as the effect of these acquisitions would not be materially different from the Company’s actual results.

The pro forma results include the amortization associated with the acquired intangible assets, interest expense associated with the debt used to fund a portion of the acquisition, the impact of the additional shares issued in connection with the S&S acquisition, and the impact of certain fair value adjustments such as depreciation adjustments related to adjustments to property and equipment. The pro forma results do not include any cost savings or potential synergies related to the acquisition nor any integration costs. The pro forma results should not be considered indicative of the results of operations or financial position of the combined companies had the acquisitions had been consummated as of January 1, 2017 and are not necessarily indicative of results of future operations of the Company.

The following table sets forth the Company’s pro forma revenues and net earnings attributable to Kirby for the year ended December 31, 2017 (unaudited and in thousands):

Revenues	\$	2,556,131
Net earnings attributable to Kirby	\$	303,097

(5) Impairment of Long-lived Assets

During the fourth quarter of 2018, the Company recorded a \$82,705,000 non-cash pre-tax impairment charge. The after-tax effect of the charge was \$65,337,000 or \$1.09 per share. The USCG adopted regulations on ballast water management systems (“BWMS”) 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 BWMS. The USCG has approved manufacturers’ systems that met the regulatory discharge standard equivalent to the International Maritime Organization’s D-2 standard. The phase-in schedule for those existing vessels requiring a system to install BWMS equipment 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 some of the Company’s vessels to treat ballast water before it is discharged. The installation of BWMS equipment will require significant capital expenditures at the next scheduled drydocking to complete the installation of the approved system on those existing vessels that require a system to comply with the BWMS regulations.

Due to the advanced age of four of the Company’s older articulated tank barge and tugboat units (“ATBs”) and the high cost of installation of BWMS, the Company will retire the ATBs at their next scheduled shipyard dates which range between 2020 and 2023 instead of installing the expensive BWMS equipment required to operate the vessels past their next required shipyard dates. A pre-tax impairment charge of \$78,835,000 was incurred in the fourth quarter of 2018 to reduce the ATBs to a fair value of \$13,247,000 due to reduced estimated cash flows resulting from reduced lives on these four older ATBs. The reduced estimated useful lives are due to the assessment of the impact of the new regulations by USCG that require the installation of BWMS. The fair value of the four ATBs of \$13,247,000 is presented in marine transportation equipment at December 31, 2018.

The impairment charge also included a pre-tax charge of \$3,870,000 as the Company reduced the carrying value of its improvements in a leased barge to its scrap value of \$220,000. As part of a lease termination, the Company agreed to terminate the lease, purchase the barge and then scrap the barge which resulted in the Company committing to put the barge up for sale in December 2018. The barge was scrapped in January 2019. The fair market value of the barge was \$220,000 at December 31, 2018, and was presented in prepaid expenses and other current assets. In addition, the Company incurred \$2,403,000 in lease cancellation costs in December 2018 related to the leased barge.

During the fourth quarter of 2017, the Company recorded a \$105,712,000 non-cash pre-tax impairment charge. The after-tax effect of the charge was \$66,975,000 or \$1.20 per share. The impairment charge was to reduce certain vessels to a fair value of \$12,550,000 as the Company decided to put certain older out-of-service vessels up for sale in its marine transportation segment in response to lower equipment utilization, pricing pressure and expensive BWMS installations required in the next few years on some of the coastal tank barges. Retiring some of the older coastal marine vessels reduces the fleet’s age profile and improves the efficiency of the fleet. The fair market value of the vessels was \$12,550,000 at December 31, 2017, and was presented in prepaid expenses and other current assets.

(6) Inventories

The following table presents the details of inventories as of December 31, 2019 and 2018 (in thousands):

	<u>2019</u>	<u>2018</u>
Finished goods	\$ 291,214	\$ 406,364
Work in process	60,187	101,077
	<u>\$ 351,401</u>	<u>\$ 507,441</u>

(7) Fair Value Measurements

The accounting guidance for using fair value to measure certain assets and liabilities establishes a three tier value hierarchy, which prioritizes the inputs to valuation techniques used in measuring fair value. These tiers include: Level 1, defined as observable inputs such as quoted prices in active markets for identical assets or liabilities; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little, if any, market data exists, therefore requiring an entity to develop its own assumptions about the assumptions that market participants would use in pricing the asset or liability.

The fair value of the Company's debt instruments is described in Note 8, Long-Term Debt.

(8) Long-Term Debt

Long-term debt at December 31, 2019 and 2018 consisted of the following (in thousands):

Long-term debt, including current portion:	2019	2018
\$850,000,000 revolving credit facility due March 27, 2024	\$ —	\$ 417,373
\$500,000,000 term loan due March 27, 2024	375,000	—
\$150,000,000 senior notes Series A due February 27, 2020	150,000	150,000
\$350,000,000 senior notes Series B due February 27, 2023	350,000	350,000
\$500,000,000 senior notes due March 1, 2028	500,000	500,000
\$10,000,000 credit line due June 30, 2021	—	—
Bank notes payable	16	19
	<u>1,375,016</u>	<u>1,417,392</u>
Unamortized debt issuance costs (a)	(4,655)	(6,550)
Unamortized debt discount	(594)	(654)
	<u>\$ 1,369,767</u>	<u>\$ 1,410,188</u>

(a) Unamortized debt issuance costs excludes \$2,650,000 attributable to the Revolving Credit Facility (as defined below) included in other assets at December 31, 2019.

The aggregate payments due on the long-term debt in each of the next five years were as follows (in thousands):

2020	\$ 150,016
2021	—
2022	—
2023	381,250
2024	343,750
Thereafter	500,000
	<u>\$ 1,375,016</u>

On March 27, 2019, the Company entered into an amended and restated credit agreement (the "Credit Agreement") with a group of commercial banks, with JPMorgan Chase Bank, N.A. as the administrative agent bank, that extended the term of the Company's existing \$850,000,000 revolving credit facility ("Revolving Credit Facility") to March 27, 2024 and added a five-year term loan ("Term Loan") facility in an amount of \$500,000,000. The Credit Agreement provides for a variable interest rate based on the London interbank offered rate ("LIBOR") or a base rate calculated with reference to the agent bank's prime rate, among other factors (the "Alternate Base Rate"). The interest rate varies with the Company's credit rating and is currently 112.5 basis points over LIBOR or 12.5 basis points over the Alternate Base Rate. The Term Loan is repayable in quarterly installments originally scheduled to commence June 30, 2020, in increasing percentages of the original principal amount of the loan, with the remaining unpaid balance payable of 65% of the initial amount due on March 27, 2024. During 2019, the Company repaid \$125,000,000 under the Term Loan prior to the scheduled installments. As a result, no repayments are required until September 30, 2023. The Credit Agreement contains certain financial covenants including an interest coverage ratio and a debt-to-capitalization ratio. In addition to financial covenants, the Credit Agreement 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. The Credit Agreement specifies certain events of default, upon the occurrence of which the maturity of the outstanding loans may be accelerated, including the failure to pay principal or interest, violation of covenants and default on other indebtedness, among other events. Borrowings under the Credit Agreement may be used for general corporate purposes including acquisitions. As of December 31, 2019, the Company was in compliance with all Credit Agreement covenants and had no outstanding borrowings under the Revolving Credit Facility and \$375,000,000 outstanding under the Term Loan. The interest rate under the Revolving Credit Facility and Term Loan was 2.9% at December 31, 2019. 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 \$5,258,000 as of December 31, 2019.

On February 12, 2018, the Company issued \$500,000,000 of 4.2% senior unsecured notes due March 1, 2028 (the “2028 Notes”) with U.S. Bank National Association, as trustee. Interest payments of \$10,500,000 are due semi-annually on March 1 and September 1 of each year. The Company received cash proceeds of \$495,019,000, net of the original issue discount of \$705,000 and debt issuance costs of \$4,276,000. The 2028 Notes are unsecured and rank equally in right of payment with the Company’s other unsecured senior indebtedness. The 2028 Notes contain certain covenants on the part of the Company, including covenants relating to liens, sale-leasebacks, asset sales and mergers, among others. The 2028 Notes 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. The Company used the proceeds from the issuance of the 2028 Notes to fund the acquisition of Higman. The remaining net proceeds of the sale of the 2028 Notes were used for the repayment of indebtedness under the Company’s bank credit facilities. As of December 31, 2019, the Company was in compliance with all the 2028 Notes covenants and had \$500,000,000 outstanding under the 2028 Notes.

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, 2019, 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 Senior Notes Series A are excluded from short term liabilities because the Company has the ability and the intent to repay the amount due using borrowings under the Revolving Credit Facility.

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, 2021. 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 of December 31, 2019. Outstanding letters of credit under the Credit Line were \$1,171,000 as of December 31, 2019.

On September 13, 2017, as a result of the S&S acquisition, the Company assumed \$12,135,000 of term debt which was paid off without penalty in the 2017 fourth quarter.

The Company also had \$16,000 of short-term secured loans outstanding, as of December 31, 2019, related to its South American operations.

The estimated fair value of total debt outstanding at December 31, 2019 and 2018 was \$1,421,325,000 and \$1,411,628,000, respectively, which differs from the carrying amount of \$1,369,767,000 and \$1,410,188,000, respectively, included in the consolidated financial statements. The fair value of debt outstanding was determined using a Level 2 fair value measurement.

(9) Taxes on Income

Earnings before taxes on income and details of the provision for taxes on income for the years ended December 31, 2019, 2018 and 2017 were as follows (in thousands):

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Earnings (loss) before taxes on income:			
United States	\$ 190,839	\$ 117,800	\$ 74,267
Foreign	(1,019)	(3,641)	(1,253)
	<u>\$ 189,820</u>	<u>\$ 114,159</u>	<u>\$ 73,014</u>
Provision (benefit) for taxes on income:			
U.S. Federal:			
Current	\$ (312)	\$ —	\$ 11,143
Deferred	45,133	27,102	(258,703)
	<u>\$ 44,821</u>	<u>\$ 27,102</u>	<u>\$ (247,560)</u>
U.S. State:			
Current	\$ 76	\$ (243)	\$ 3,861
Deferred	1,706	7,619	2,280
	<u>\$ 1,782</u>	<u>\$ 7,376</u>	<u>\$ 6,141</u>
Foreign:			
Current	\$ 198	\$ 443	\$ 370
Deferred	—	160	160
	<u>\$ 198</u>	<u>\$ 603</u>	<u>\$ 530</u>
Consolidated:			
Current	\$ (38)	\$ 200	\$ 15,374
Deferred	46,839	34,881	(256,263)
	<u>\$ 46,801</u>	<u>\$ 35,081</u>	<u>\$ (240,889)</u>

The Company's provision for taxes on income varied from the statutory federal income tax rate for the years ended December 31, 2019, 2018 and 2017 due to the following:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
United States income tax statutory rate	21.0%	21.0%	35.0%
State and local taxes, net of federal benefit	0.7	6.5	0.9
Change due to U.S. tax reform	—	—	(369.0)
Other – net	3.0	3.2	3.2
	<u>24.7%</u>	<u>30.7%</u>	<u>(329.9)%</u>

The tax effects of temporary differences that give rise to significant portions of the non-current deferred tax assets and liabilities at December 31, 2019 and 2018 were as follows (in thousands):

	<u>2019</u>	<u>2018</u>
Non-current deferred tax assets and liabilities:		
Deferred tax assets:		
Allowance for doubtful accounts	\$ 1,758	\$ 2,105
Inventory	13,401	5,017
Insurance accruals	4,397	4,119
Deferred compensation	1,109	1,291
Unrealized loss on defined benefit plans	10,253	9,891
Operating loss carryforwards	143,181	81,867
Pension benefits	6,825	6,559
Other	7,392	22,421
	<u>188,316</u>	<u>133,270</u>
Valuation allowances	(20,525)	(25,568)
	<u>167,791</u>	<u>107,702</u>
Deferred tax liabilities:		
Property	(620,891)	(526,873)
Deferred state taxes	(63,640)	(74,638)
Goodwill and other intangibles	(54,844)	(34,235)
Other	(16,620)	(14,741)
	<u>(755,995)</u>	<u>(650,487)</u>
	<u>\$ (588,204)</u>	<u>\$ (542,785)</u>

During 2019, the Company generated a net operating loss mainly caused by taking the full cost deduction of purchased fixed assets. The deferred tax assets of \$117,134,000 has been recorded at December 31, 2019 and can be utilized by future taxable income indefinitely.

The Company had state operating loss deferred tax assets of \$17,282,000 in 2019 and \$19,039,000 in 2018. The valuation allowance for state deferred tax assets as of December 31, 2019 and 2018 was \$11,760,000 and \$17,027,000, respectively, related to the Company's state net operating loss carryforwards based on the Company's determination that it is more likely than not that the deferred tax assets will not be realized. Expiration of these state net operating loss carryforwards vary by state through 2037 and none will expire in fiscal 2020.

As of December 31, 2019, the Company had a Canadian net operating loss carryforward of \$8,765,000 which expires in 2038. A full valuation allowance has been provided for this asset.

The Company or one of its subsidiaries files income tax returns in the United States federal jurisdiction and various state jurisdictions. The Company is currently open to audit under the statute of limitations by the Internal Revenue Service for the 2016 through 2018 tax years. With few exceptions, the Company and its subsidiaries' state income tax returns are open to audit under the statute of limitations for the 2013 through 2018 tax years.

As of December 31, 2019, the Company has provided a liability of \$1,172,000 for unrecognized tax benefits related to various income tax issues which includes interest and penalties. The amount that would impact the Company's effective tax rate, if recognized, is \$960,000, with the difference between the total amount of unrecognized tax benefits and the amount that would impact the effective tax rate being primarily related to the federal tax benefit of state income tax items. It is not reasonably possible to determine if the liability for unrecognized tax benefits will significantly change prior to December 31, 2020 due to the uncertainty of possible examination results.

A reconciliation of the beginning and ending amount of the liability for unrecognized tax benefits for the years ended December 31, 2019, 2018 and 2017, is as follows (in thousands):

	2019	2018	2017
Balance at beginning of year	\$ 1,443	\$ 1,787	\$ 2,019
Additions based on tax positions related to the current year	51	254	403
Additions for tax positions of prior years	58	70	273
Reductions for tax positions of prior years	(669)	(668)	(908)
Balance at end of year	<u>\$ 883</u>	<u>\$ 1,443</u>	<u>\$ 1,787</u>

The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for federal and state income taxes. The Company recognized net benefit of \$71,000 and \$209,000 in interest and penalties for the year ended December 31, 2019 and 2018, respectively, and net expense of \$120,000 in interest and penalties for the years ended December 31, 2017. The Company had \$289,000, \$466,000 and \$675,000 of accrued liabilities for the payment of interest and penalties at December 31, 2019, 2018 and 2017, respectively.

(10) Stock Award Plans

The Company has share-based compensation plans which are described below. The compensation cost that has been charged against earnings for the Company's stock award plans and the income tax benefit recognized in the statement of earnings for stock awards for the years ended December 31, 2019, 2018 and 2017 were as follows (in thousands):

	2019	2018	2017
Compensation cost	\$ 13,612	\$ 19,104	\$ 11,460
Income tax benefit	\$ 3,368	\$ 5,903	\$ 4,333

The Company has an employee stock award plan for selected officers and other key employees which provides for the issuance of stock options, restricted stock awards and performance awards. On February 19, 2018, the employee stock award plan was amended to also allow for the granting of RSUs to selected officers and other key employees. Restricted stock and RSUs generally vest ratably over five years, however, the amendment included a provision for the continued vesting of unvested stock options and RSUs for employees who meet certain years of service and age requirements at the time of their retirement. The vesting change resulted in shorter expense accrual periods on stock options and RSUs granted after February 19, 2018 to employees who are nearing retirement and meet the service and age requirements.

The exercise price for each option equals the fair market value per share of the Company's common stock on the date of grant. Substantially all stock options outstanding under the plan have terms of seven years and vest ratably over three years. No performance awards payable in stock have been awarded under the plan. At December 31, 2019, 1,356,969 shares were available for future grants under the employee plan and no outstanding stock options under the employee plan were issued with stock appreciation rights.

The following is a summary of the stock option activity under the employee plan described above for the year ended December 31, 2019:

	Outstanding Non- Qualified or Nonincentive Stock Awards	Weighted Average Exercise Price
Outstanding at December 31, 2018	464,702	\$ 69.85
Granted	114,429	\$ 74.57
Exercised	(74,825)	\$ 64.83
Canceled or expired	(18,247)	\$ 72.17
Outstanding at December 31, 2019	<u>486,059</u>	<u>\$ 71.65</u>

The following table summarizes information about the Company's outstanding and exercisable stock options under the employee plan at December 31, 2019:

Range of Exercise Prices	Options Outstanding				Options Exercisable		
	Number Outstanding	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price	Aggregated Intrinsic Value	Number Exercisable	Weighted Average Exercise Price	Aggregated Intrinsic Value
\$ 51.23	69,254	2.8	\$ 51.23		69,254	\$ 51.23	
\$ 64.65 – \$68.50	97,716	4.4	\$ 67.31		44,171	\$ 68.43	
\$ 70.65 – \$75.50	275,103	4.8	\$ 74.69		93,985	\$ 74.94	
\$ 84.90 – \$101.46	43,986	1.8	\$ 94.38		37,281	\$ 96.08	
\$ 51.23 – \$101.46	<u>486,059</u>	4.2	\$ 71.65	\$8,936,000	<u>244,691</u>	\$ 70.28	\$4,955,000

The following is a summary of the restricted stock award activity under the employee plan described above for the year ended December 31, 2019:

	Unvested Restricted Stock Award Shares	Weighted Average Grant Date Fair Value Per Share
Nonvested balance at December 31, 2018	214,216	\$ 64.73
Vested	(62,748)	\$ 68.28
Forfeited	(16,799)	\$ 63.10
Nonvested balance at December 31, 2019	<u>134,669</u>	\$ 63.28

No restricted stock awards were granted under the employee plan during 2019 or 2018. The weighted average grant date fair value of restricted stock awards granted under the employee plan for the year ended December 31, 2017 was \$68.50.

The following is a summary of RSU activity under the employee plan described above for the year ended December 31, 2019:

	Unvested RSUs	Weighted Average Grant Date Fair Value Per Unit
Nonvested balance at December 31, 2018	141,055	\$ 75.59
Granted	146,650	\$ 74.46
Vested	(25,484)	\$ 75.60
Forfeited	(7,054)	\$ 74.93
Nonvested balance at December 31, 2019	<u>255,167</u>	\$ 74.96

The weighted average grant date fair value of RSUs granted for the years ended December 31, 2019 and 2018 was \$74.46 and \$75.59, respectively. No RSUs were granted during 2017.

The Company has a stock award plan for nonemployee directors of the Company which provides for the issuance of stock options and restricted stock. The director plan provides for automatic grants of restricted stock to nonemployee directors after each annual meeting of stockholders. In addition, the director plan allows for the issuance of stock options or restricted stock in lieu of cash for all or part of the annual director fee at the option of the director. The exercise prices for all options granted under the plan are equal to the fair market value per share of the Company's common stock on the date of grant. The terms of the options are ten years. The restricted stock issued after each annual meeting of stockholders vests six months after the date of grant. Options granted and restricted stock issued in lieu of cash director fees vest in equal quarterly increments during the year to which they relate. At December 31, 2019, 461,133 shares were available for future grants under the director plan. The director stock award plan is intended as an incentive to attract and retain qualified independent directors.

The following is a summary of the stock option activity under the director plan described above for the year ended December 31, 2019:

	Outstanding Non- Qualified or Nonincentive Stock Awards	Weighted Average Exercise Price
Outstanding at December 31, 2018	131,104	\$ 70.14
Granted	2,652	\$ 84.90
Exercised	(18,000)	\$ 49.51
Outstanding at December 31, 2019	<u>115,756</u>	<u>\$ 73.68</u>

The following table summarizes information about the Company's outstanding and exercisable stock options under the director plan at December 31, 2019:

Range of Exercise Prices	Options Outstanding				Options Exercisable		
	Number Outstanding	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price	Aggregate Intrinsic Value	Number Exercisable	Weighted Average Exercise Price	Aggregate Intrinsic Value
\$ 41.24 – \$56.45	25,276	0.8	\$ 49.23		25,276	\$ 49.23	
\$ 61.89 – \$62.48	22,000	2.6	\$ 62.21		22,000	\$ 62.21	
\$ 70.65 – \$99.52	68,480	4.4	\$ 86.39		67,817	\$ 86.41	
\$ 41.24 – \$99.52	<u>115,756</u>	3.3	\$ 73.68	\$2,134,000	<u>115,093</u>	\$ 73.62	\$2,131,000

The following is a summary of the restricted stock award activity under the director plan described above for the year ended December 31, 2019:

	Unvested Restricted Stock Award Shares	Weighted Average Grant Date Fair Value Per Share
Nonvested balance at December 31, 2018	264	\$ 85.30
Granted	22,273	\$ 84.81
Vested	(20,798)	\$ 84.91
Nonvested balance at December 31, 2019	<u>1,739</u>	<u>\$ 83.68</u>

The weighted average grant date fair value of restricted stock awards granted under the director plan for the years ended December 31, 2019, 2018, and 2017 were \$84.81, \$85.70, and \$70.65, respectively.

The total intrinsic value of all stock options exercised under all of the Company's plans was \$1,655,000, \$6,709,000 and \$1,671,000 for the years ended December 31, 2019, 2018 and 2017, respectively. The actual tax benefit realized for tax deductions from stock option exercises was \$410,000, \$2,073,000 and \$632,000 for the years ended December 31, 2019, 2018 and 2017, respectively.

The total fair value of all the restricted stock vestings under all of the Company's plans was \$5,917,000, \$12,936,000 and \$8,485,000 for the years ended December 31, 2019, 2018 and 2017, respectively. The actual tax benefit realized for tax deductions from restricted stock vestings was \$1,464,000, \$3,997,000 and \$3,208,000 for the years ended December 31, 2019, 2018 and 2017, respectively.

The total fair value of all the RSU vestings under the Company's employee plan was \$1,727,000 for the year ended December 31, 2019. The actual tax benefit realized for tax deductions from RSU vestings was \$427,000 for the year ended December 31, 2019. There were no RSU vestings for the years ended December 31, 2018 or 2017.

As of December 31, 2019, there was \$2,313,000 of unrecognized compensation cost related to nonvested stock options, \$4,226,000 related to restricted stock and \$10,093,000 related to nonvested RSUs. The stock options are expected to be recognized over a weighted average period of approximately 1.3 years, restricted stock over approximately 1.4 years and RSUs over approximately 3.5 years.

The weighted average per share fair value of stock options granted during the years ended December 31, 2019, 2018 and 2017 was \$22.77, \$23.53 and \$20.72, respectively. The fair value of the stock options granted during the years ended December 31, 2019, 2018 and 2017 was \$2,666,000, \$2,787,000 and \$2,617,000, respectively. The Company currently uses treasury stock shares for restricted stock grants, RSU vestings and stock option exercises. The fair value of each stock option was determined using the Black-Scholes option pricing model. The key input variables used in valuing the stock options granted during the years ended December 31, 2019, 2018 and 2017 were as follows:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Dividend yield	None	None	None
Average risk-free interest rate	2.5%	2.7%	2.0%
Stock price volatility	28%	27%	27%
Estimated option term	5.3 years	5.5 years	5.8 years

(11) 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.

On April 12, 2017, the Company amended its pension plan to cease all benefit accruals for periods after May 31, 2017 for certain participants. Participants grandfathered and not impacted were those, as of the close of business on May 31, 2017, who either (a) had completed 15 years of pension service or (b) had attained age 50 and completed 10 years of pension service. Participants non-grandfathered are eligible to receive discretionary 401(k) plan contributions. The Company did not incur any one-time charges related to this amendment but the pension plan's projected benefit obligation decreased by \$33,433,000.

On February 14, 2018, with the acquisition of Higman, the Company assumed Higman's pension plan for its inland vessel personnel and office staff. On March 27, 2018, the Company amended the Higman pension plan to close it to all new entrants and cease all benefit accruals for periods after May 15, 2018 for all participants. The Company did not incur any one-time charges related to this amendment but the Higman pension plan's projected benefit obligation decreased by \$3,081,000. The Company made contributions to the Higman pension plan of \$1,615,000 in 2019 for the 2018 plan year, \$1,449,000 in 2019 for the 2019 plan year, \$6,717,000 in 2018 for the 2016 and 2017 plan years and \$1,385,000 in 2018 for the 2018 year.

The fair value of plan assets of the Company's pension plans was \$358,197,000 and \$303,151,000 at December 31, 2019 and 2018 respectively. As of December 31, 2019 and 2018, these assets were allocated among asset categories as follows:

<u>Asset Category</u>	<u>2019</u>	<u>2018</u>	<u>Current Minimum, Target and Maximum Allocation Policy</u>
U.S. equity securities	53%	52%	30% — 50% — 70%
International equity securities	19	17	0% — 20% — 30%
Debt securities	26	28	15% — 30% — 55%
Cash and cash equivalents	2	3	0% — 0% — 5%
	<u>100%</u>	<u>100%</u>	

At December 31, 2019 and 2018, \$25,871,000 and \$22,497,000 respectively, was held in cash and equity securities classified within Level 1 of the valuation hierarchy and \$125,000 and \$804,000, respectively, was held in real estate investments classified within Level 3 of the valuation hierarchy. All other plan assets are invested in common collective trusts and valued using the net asset value per share practical expedient and therefore not valued within the valuation hierarchy.

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.

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 assumed that plan assets would generate a long-term rate of return of 7.0% in 2019 and 2018. The Company developed its expected long-term rate of return assumption by evaluating input from investment consultants comparing historical returns for various asset classes with its actual and targeted plan investments. The Company believes that its long-term asset allocation, on average, will approximate the targeted allocation.

The Company's pension plan funding strategy is to make annual contributions in amounts equal to or greater than amounts necessary to meet minimum government funding requirements. The plan's benefit obligations are 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. The Company's pension plan funding was 86% of the pension plans' accumulated benefit obligation at December 31, 2019, including the Higman pension plan.

The Company sponsors an unfunded defined benefit health care plan that provides limited postretirement medical benefits to employees who met minimum age and service requirements, and to eligible dependents. The plan limits cost increases in the Company's contribution to 4% per year. The plan is contributory, with retiree contributions adjusted annually. The plan eliminated coverage for future retirees as of December 31, 2011. The Company also has an unfunded defined benefit supplemental executive retirement plan ("SERP") that was assumed in an acquisition in 1999. That plan ceased to accrue additional benefits effective January 1, 2000.

The following table presents the change in benefit obligation and plan assets for the Company's defined benefit plans and postretirement benefit plan (in thousands):

	Pension Benefits				Other Postretirement Benefits	
	Pension Plan		SERP		Postretirement Welfare Plan	
	2019	2018	2019	2018	2019	2018
Change in benefit obligation						
Benefit obligation at beginning of year	\$ 381,483	\$ 354,994	\$ 1,246	\$ 1,412	\$ 743	\$ 679
Service cost	7,364	7,622	—	—	—	—
Interest cost	16,493	15,499	52	49	31	24
Actuarial loss (gain)	49,478	(44,935)	72	(70)	(22)	143
Gross benefits paid	(11,957)	(11,749)	(145)	(145)	(90)	(103)
Curtailments	—	(3,081)	—	—	—	—
Acquisition	—	63,133	—	—	—	—
Benefit obligation at end of year	<u>\$ 442,861</u>	<u>\$ 381,483</u>	<u>\$ 1,225</u>	<u>\$ 1,246</u>	<u>\$ 662</u>	<u>\$ 743</u>
Accumulated benefit obligation at end of year	<u>\$ 417,981</u>	<u>\$ 356,797</u>	<u>\$ 1,225</u>	<u>\$ 1,246</u>	<u>\$ 662</u>	<u>\$ 743</u>
Weighted-average assumption used to determine benefit obligation at end of year						
Discount rate (a)	3.5%	4.4%	3.5%	4.4%	3.5%	4.4%
Rate of compensation increase	Service-based table	Service-based table	—	—	—	—
Health care cost trend rate						
Initial rate	—	—	—	—	6.75%	7.0%
Ultimate rate	—	—	—	—	5.0%	5.0%
Years to ultimate	—	—	—	—	2025	2025
Effect of one-percentage-point change in assumed health care cost trend rate on postretirement obligation						
Increase	\$ —	\$ —	\$ —	\$ —	\$ 68	\$ 75
Decrease	—	—	—	—	(59)	(65)
Change in plan assets						
Fair value of plan assets at beginning of year	\$ 303,151	\$ 294,995	\$ —	\$ —	\$ —	\$ —
Actual return on plan assets	63,939	(18,214)	—	—	—	—
Employer contribution	3,064	8,102	145	145	90	103
Gross benefits paid	(11,957)	(11,749)	(145)	(145)	(90)	(103)
Acquisition	—	30,017	—	—	—	—
Fair value of plan assets at end of year	<u>\$ 358,197</u>	<u>\$ 303,151</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

(a) The discount rate for the Higman pension plan in 2018 was changed from 4.13% as of February 14, 2018 and 4.02% as of March 31, 2018 to 4.40% as of December 31, 2018.

The following table presents the funded status and amounts recognized in the Company's consolidated balance sheet for the Company's defined benefit plans and postretirement benefit plan at December 31, 2019 and 2018 (in thousands):

	Pension Benefits				Other Postretirement Benefits	
	Pension Plan		SERP		Postretirement Welfare Plan	
	2019	2018	2019	2018	2019	2018
Funded status at end of year						
Fair value of plan assets	\$ 358,197	\$ 303,151	\$ —	\$ —	\$ —	\$ —
Benefit obligations	(442,861)	(381,483)	(1,225)	(1,246)	(662)	(743)
Funded status and amount recognized at end of year	\$ (84,664)	\$ (78,332)	\$ (1,225)	\$ (1,246)	\$ (662)	\$ (743)
Amounts recognized in the consolidated balance sheets						
Noncurrent asset	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current liability	—	—	(159)	(158)	(60)	(65)
Long-term liability	(84,664)	(78,332)	(1,066)	(1,087)	(602)	(678)
Amounts recognized in accumulated other comprehensive income						
Net actuarial loss (gain)	\$ 52,160	\$ 47,101	\$ 460	\$ 415	\$ (3,795)	\$ (4,313)
Prior service cost (credit)	—	—	—	—	—	—
Accumulated other compensation income	\$ 52,160	\$ 47,101	\$ 460	\$ 415	\$ (3,795)	\$ (4,313)

The projected benefit obligation and fair value of plan assets for pension plans with a projected benefit obligation in excess of plan assets at December 31, 2019 and 2018 were as follows (in thousands):

	Pension Benefits			
	Pension Plan		SERP	
	2019	2018	2019	2018
Projected benefit obligation in excess of plan assets				
Projected benefit obligation at end of year	\$ 442,861	\$ 381,483	\$ 1,225	\$ 1,246
Fair value of plan assets at end of year	358,197	303,151	—	—

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for pension plans with an accumulated benefit obligation in excess of plan assets at December 31, 2019 and 2018 were as follows (in thousands):

	Pension Benefits			
	Pension Plan		SERP	
	2019	2018	2019	2018
Accumulated benefit obligation in excess of plan assets				
Projected benefit obligation at end of year	\$ 442,861	\$ 381,483	\$ 1,225	\$ 1,246
Accumulated benefit obligation at end of year	417,981	356,797	1,225	1,246
Fair value of plan assets at end of year	358,197	303,151	—	—

The following tables present the expected cash flows for the Company's defined benefit plans and postretirement benefit plan at December 31, 2019 and 2018 (in thousands):

	Pension Benefits				Other Postretirement Benefits	
	Pension Plan		SERP		Postretirement Welfare Plan	
	2019	2018	2019	2018	2019	2018
Expected employer contributions						
First year	\$ 2,407	\$ 2,395	\$ —	\$ —	\$ —	\$ —

	Pension Benefits				Other Postretirement Benefits	
	Pension Plan		SERP		Postretirement Welfare Plan	
	2019	2018	2019	2018	2019	2018
Expected benefit payments (gross)						
Year one	\$ 12,063	\$ 12,209	\$ 162	\$ 162	\$ 61	\$ 66
Year two	13,123	13,108	158	159	62	68
Year three	14,300	13,959	133	155	51	69
Year four	15,572	14,959	107	130	51	57
Year five	16,857	16,052	103	104	49	56
Next five years	100,587	96,547	426	447	220	261

The components of net periodic benefit cost and other changes in plan assets and benefit obligations recognized in other comprehensive income for the Company's defined benefit plans for the years ended December 31, 2019, 2018 and 2017 were as follows (in thousands):

	Pension Benefits					
	Pension Plan			SERP		
	2019	2018	2017	2019	2018	2017
Components of net periodic benefit cost						
Service cost	\$ 7,364	\$ 7,622	\$ 10,677	\$ —	\$ —	\$ —
Interest cost	16,493	15,499	13,729	52	49	58
Expected return on plan assets	(20,956)	(22,406)	(18,195)	—	—	—
Amortization:						
Actuarial loss	1,438	2,890	4,400	28	23	28
Prior service credit	—	—	—	—	—	—
Net periodic benefit cost	<u>4,339</u>	<u>3,605</u>	<u>10,611</u>	<u>80</u>	<u>72</u>	<u>86</u>
Other changes in plan assets and benefit obligations recognized in other comprehensive income						
Current year actuarial loss (gain)	6,497	(7,396)	7,562	73	(70)	42
Recognition of actuarial loss	(1,438)	(2,890)	(37,833)	(28)	(23)	(28)
Recognition of prior service credit	—	—	—	—	—	—
Total recognized in other comprehensive income	<u>5,059</u>	<u>(10,286)</u>	<u>(30,271)</u>	<u>45</u>	<u>(93)</u>	<u>14</u>
Total recognized in net periodic benefit cost and other comprehensive income	<u>\$ 9,398</u>	<u>\$ (6,681)</u>	<u>\$ (19,660)</u>	<u>\$ 125</u>	<u>\$ (21)</u>	<u>\$ 100</u>
Weighted average assumptions used to determine net periodic benefit cost						
Discount rate (a)	4.4%	3.7%	4.2/4.0%	4.4%	3.7%	4.2%
Expected long-term rate of return on plan assets	7.0%	7.0%	7.0%	—	—	—
Rate of compensation increase	Service- based table	Service- based table	Service- based table	—	—	—

(a) The 2018 discount rate for benefit cost for the Higman pension plan was changed from 4.13% as of February 14, 2018 and 4.02% as of March 31, 2018 to 4.40% as of December 31, 2018. In 2017, benefit cost for the pension plan was determined using a discount rate of 4.2% for the period beginning January 1, 2017 and ending April 11, 2017 and 4.0% for the period beginning April 12, 2017 and ending December 31, 2017.

The estimated amounts that will be amortized from accumulated other comprehensive income into net periodic benefit cost in 2020 are as follows (in thousands):

	Pension Benefits	
	Pension Plan	SERP
Actuarial loss	\$ 929	\$ 35
Prior service credit	—	—
	<u>\$ 929</u>	<u>\$ 35</u>

The components of net periodic benefit cost and other changes in benefit obligations recognized in other comprehensive income for the Company's postretirement benefit plan for the years ended December 31, 2019, 2018 and 2017 were as follows (in thousands):

	Other Postretirement Benefits		
	Postretirement Welfare Plan		
	2019	2018	2017
Components of net periodic benefit cost			
Service cost	\$ —	\$ —	\$ —
Interest cost	31	24	27
Amortization:			
Actuarial gain	(540)	(596)	(668)
Prior service cost	—	—	—
Net periodic benefit cost	<u>(509)</u>	<u>(572)</u>	<u>(641)</u>
Other changes in benefit obligations recognized in other comprehensive income			
Current year actuarial loss (gain)	(22)	144	52
Recognition of actuarial gain	540	596	668
Recognition of prior service cost	—	—	—
Total recognized in other comprehensive income	<u>518</u>	<u>740</u>	<u>720</u>
Total recognized in net periodic benefit cost and other comprehensive income	<u>\$ 9</u>	<u>\$ 168</u>	<u>\$ 79</u>
Weighted average assumptions used to determine net periodic benefit cost			
Discount rate	4.4%	3.7%	4.2%
Health care cost trend rate:			
Initial rate	7.0%	7.0%	7.0%
Ultimate rate	5.0%	5.0%	5.0%
Years to ultimate	2025	2022	2021
Effect of one-percentage-point change in assumed health care cost trend rate on aggregate service and interest cost			
Increase	\$ 3	\$ 3	\$ 3
Decrease	(3)	(2)	(3)

The estimated amounts that will be amortized from accumulated other comprehensive income into net periodic benefit cost in 2020 are as follows (in thousands):

	Other Postretirement Benefits Postretirement Welfare Plan
Actuarial gain	\$ (522)
Prior service cost	—
	<u>\$ (522)</u>

The Company also contributes to a multiemployer pension plan pursuant to a collective bargaining agreement which covers certain vessel crew members of its coastal operations and expires on April 30, 2022. The Company began participation in the Seafarers Pension Trust (“SPT”) with the Penn Maritime, Inc. acquisition on December 14, 2012.

Contributions to the SPT are made currently based on a per day worked basis and charged to expense as incurred and included in costs of sales and operating expenses in the consolidated statement of earnings. During 2019 and 2018, the Company made contributions of \$665,000 and \$671,000, respectively, to the SPT. The Company’s contributions to the SPT exceeded 5% of total contributions to the SPT in 2018. Total contributions for 2019 are not yet available. The Company did not pay any material surcharges in 2019 or 2018.

The federal identification number of the SPT is 13-6100329 and the Certified Zone Status is Green at December 31, 2018. The Company’s future minimum contribution requirements under the SPT are unavailable because actuarial reports for the 2019 plan year are not yet complete and such contributions are subject to negotiations between the employers and the unions. The SPT was not in endangered or critical status for the 2018 plan year, the latest period for which a report is available, as the funded status was in excess of 100%. Based on an actuarial valuation performed as of December 31, 2018, there would be no withdrawal liability if the Company chose to withdraw from the SPT although the Company currently has no intention of terminating its participation in the SPT.

The Company also contributes to a multiemployer pension plan pursuant to a collective bargaining agreement which covers certain employees of its distribution and services segment in New Jersey and expires on October 8, 2023. The Company began participation in the Central Pension Fund of the International Union of Operating Engineers and Participating Employers (“CPF”) with the S&S acquisition on September 13, 2017.

Contributions to the CPF are made currently based on a fixed hourly rate for each hour worked or paid basis (in some cases contributions are made as a percentage of gross pay) and charged to expense as incurred and included in costs of sales and operating expenses in the consolidated statement of earnings. During 2019 and 2018, the Company made contributions of \$693,000 and \$736,000, respectively, to the CPF. Total contributions for the 2019 plan year are not yet available. The Company did not pay any material surcharges in 2019 or 2018.

The federal identification number of the CPF is 36-6052390 and the Certified Zone Status is Green at January 31, 2019. The Company’s future minimum contribution requirements under the CPF are unavailable because actuarial reports for the 2019 plan year, which ended January 31, 2020, are not yet complete and such contributions are subject to negotiations between the employers and the unions. The CPF was not in endangered or critical status for the 2018 plan year, the latest period for which a report is available, as the funded status was 95%. Based on an actuarial valuation performed as of January 31, 2019, there would be no withdrawal liability if the Company chose to withdraw from the CPF although the Company currently has no intention of terminating its participation in the CPF.

In addition to the defined benefit plans, the Company sponsors various defined contribution plans for substantially all employees. The aggregate contributions to the plans were \$25,409,000, \$22,392,000 and \$17,247,000 in 2019, 2018 and 2017, respectively.

(12) Other Comprehensive Income

The Company's changes in other comprehensive income for the years ended December 31, 2019, 2018 and 2017 were as follows (in thousands):

	2019			2018			2017		
	Gross Amount	Income Tax (Provision) Benefit	Net Amount	Gross Amount	Income Tax (Provision) Benefit	Net Amount	Gross Amount	Income Tax (Provision) Benefit	Net Amount
Pension and postretirement benefits (a):									
Amortization of net actuarial loss	\$ 926	\$ (236)	\$ 690	\$ 2,317	\$ (585)	\$ 1,732	\$ 3,760	\$ (1,417)	\$ 2,343
Actuarial gains (losses)	(6,548)	1,655	(4,893)	7,322	(1,416)	5,906	25,776	(9,371)	16,405
Adoption of ASU 2018-02 – reclassification to retained earnings	—	—	—	—	(7,925)	(7,925)	—	—	—
Foreign currency translation adjustments	(85)	—	(85)	(819)	—	(819)	(146)	—	(146)
Total	\$ (5,707)	\$ 1,419	\$ (4,288)	\$ 8,820	\$ (9,926)	\$ (1,106)	\$ 29,390	\$ (10,788)	\$ 18,602

(a) Actuarial gains (losses) are amortized into other income (expense). (See Note 11 – Retirement Plans)

(13) Earnings Per Share

The following table presents the components of basic and diluted earnings per share for the years ended December 31, 2019, 2018 and 2017 (in thousands, except per share amounts):

	2019	2018	2017
Net earnings attributable to Kirby	\$ 142,347	\$ 78,452	\$ 313,187
Undistributed earnings allocated to restricted shares	(369)	(324)	(2,213)
Income available to Kirby common stockholders — basic	141,978	78,128	310,974
Undistributed earnings allocated to restricted shares	369	324	2,213
Undistributed earnings reallocated to restricted shares	(369)	(323)	(2,211)
Income available to Kirby common stockholders — diluted	\$ 141,978	\$ 78,129	\$ 310,976
Shares outstanding:			
Weighted average common stock issued and outstanding	59,905	59,804	55,702
Weighted average unvested restricted stock	(155)	(247)	(394)
Weighted average common stock outstanding — basic	59,750	59,557	55,308
Dilutive effect of stock options and restricted stock units	159	132	53
Weighted average common stock outstanding — diluted	59,909	59,689	55,361
Net earnings per share attributable to Kirby common stockholders:			
Basic	\$ 2.38	\$ 1.31	\$ 5.62
Diluted	\$ 2.37	\$ 1.31	\$ 5.62

Certain outstanding options to purchase approximately 187,000, 384,000 and 472,000 shares of common stock were excluded in the computation of diluted earnings per share as of December 31, 2019, 2018 and 2017, respectively, as such stock options would have been antidilutive. No RSUs were antidilutive at December 31, 2019.

(14) Quarterly Results (Unaudited)

The unaudited quarterly results for the year ended December 31, 2019 were as follows (in thousands, except per share amounts):

	Three Months Ended			
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
Revenues	\$ 744,621	\$ 771,042	\$ 666,809	\$ 655,927
Costs and expenses	674,672	698,317	588,534	643,001
Gain (loss) on disposition of assets	2,157	3,118	(374)	3,251
Operating income	72,106	75,843	77,901	16,177
Other income (expense)	(568)	2,381	864	1,110
Interest expense	(13,201)	(15,515)	(14,310)	(12,968)
Earnings before taxes on income	58,337	62,709	64,455	4,319
Provision for taxes on income	(13,880)	(15,269)	(16,305)	(1,347)
Net earnings	44,457	47,440	48,150	2,972
Less: Net earnings attributable to noncontrolling interests	(161)	(153)	(163)	(195)
Net earnings attributable to Kirby	<u>\$ 44,296</u>	<u>\$ 47,287</u>	<u>\$ 47,987</u>	<u>\$ 2,777</u>
Net earnings per share attributable to Kirby common stockholders:				
Basic	<u>\$ 0.74</u>	<u>\$ 0.79</u>	<u>\$ 0.80</u>	<u>\$ 0.05</u>
Diluted	<u>\$ 0.74</u>	<u>\$ 0.79</u>	<u>\$ 0.80</u>	<u>\$ 0.05</u>

The unaudited quarterly results for the year ended December 31, 2018 were as follows (in thousands, except per share amounts):

	Three Months Ended			
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
Revenues	\$ 741,688	\$ 802,671	\$ 704,845	\$ 721,493
Costs and expenses	692,866	747,260	636,906	740,344
Gain (loss) on disposition of assets	1,898	442	18	(390)
Operating income (loss)	50,720	55,853	67,957	(19,241)
Other income	1,591	1,541	1,454	1,140
Interest expense	(9,780)	(12,540)	(12,345)	(12,191)
Earnings (loss) before taxes on income	42,531	44,854	57,066	(30,292)
Benefit (provision) for taxes on income	(9,865)	(16,061)	(15,116)	5,961
Net earnings (loss)	32,666	28,793	41,950	(24,331)
Less: Net earnings attributable to noncontrolling interests	(195)	(191)	(134)	(106)
Net earnings (loss) attributable to Kirby	<u>\$ 32,471</u>	<u>\$ 28,602</u>	<u>\$ 41,816</u>	<u>\$ (24,437)</u>
Net earnings (loss) per share attributable to Kirby common stockholders:				
Basic	<u>\$ 0.54</u>	<u>\$ 0.48</u>	<u>\$ 0.70</u>	<u>\$ (0.41)</u>
Diluted	<u>\$ 0.54</u>	<u>\$ 0.48</u>	<u>\$ 0.70</u>	<u>\$ (0.41)</u>

Quarterly basic and diluted earnings per share may not total to the full year per share amounts, as the weighted average number of shares outstanding for each quarter fluctuates as a result of the assumed exercise of stock options.

(15) Contingencies and Commitments

In 2009, the Company was named by the Environmental Protection Agency (the “EPA”) as a Potentially Responsible Party (“PRP”) in addition to a group of approximately 250 named PRPs under the Comprehensive Environmental Response, Compensation and Liability Act of 1981 (“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.

On February 20, 2015, the Company was served as a defendant in a Complaint originally filed on August 14, 2014, in the U.S. District Court of the Southern District of Texas - Houston Division, *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. The EPA and the PRP Group entered into an Administrative Settlement Agreement and Order for Remedial Investigation Study (“Study”) in May 2015. The Study has not been completed by EPA to date. The Company joined as a member of the PRP Group companies at its pro-rata allocated share.

On October 13, 2016, the Company, as a successor to Hollywood Marine, Inc. (“Hollywood Marine”), was issued a General Notice under CERCLA by the EPA in which it was named as a PRP for liabilities associated with the SBA Shipyard Site located near Jennings, Louisiana (the “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 PRP Group 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 PRP Group 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 Site under CERCLA authority. The Company, as a successor to Hollywood Marine, joined the PRP Group Companies. The PRP Group Companies have submitted a draft Study work plan to EPA for their review and comment. Higman was named as a PRP in connection with its activities at the Site. Higman is not a participant in the PRP Group Companies.

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 PRPs and the extent to which such costs are recoverable from third parties.

On May 10, 2019, two tank barges and a towboat, the M/V Voyager, owned and operated by Kirby Inland Marine, LP, a wholly owned subsidiary of the Company, were struck by the LPG tanker, the Genesis River, in the Houston Ship Channel. The bow of the Genesis River penetrated the Kirby 30015T and capsized the MMI 3014. The collision penetrated the hull of the Kirby 30015T causing its cargo, reformate, to be discharged into the water. The USCG and the National Transportation Safety Board (“NTSB”) designated the owner and pilot of the Genesis River as well as the subsidiary of the Company as parties of interest in their investigation into the cause of the incident. On June 19, 2019, the Company filed a limitation action in the U.S. District Court of the Southern District of Texas - Galveston Division seeking limitation of liability and asserting the Genesis River and her owner/manager are at fault for damages including removal costs and claims under the Oil Pollution Act of 1990 and maritime law. Multiple claimants have filed claims in the limitation seeking damages under the Oil Pollution Act of 1990. The Company has various insurance policies covering liabilities including pollution, marine and general liability and believes that it has satisfactory insurance coverage for the 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.

On October 13, 2016, the tug Nathan E. Stewart and barge DBL 55, an ATB owned and operated by Kirby Offshore Marine, LLC, a wholly owned subsidiary of the Company, 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 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 investigated the cause of the incident. On October 10, 2018, the Heiltsuk First Nation filed a civil action in the British Columbia Supreme Court against a subsidiary of the Company, the master and pilot of the tug, the vessels and the Canadian government seeking unquantified damages as a result of the incident. On May 1, 2019, the Company filed a limitation action in the Federal Court of Canada seeking limitation of liability relating to the incident as provided under admiralty law. The Heiltsuk First Nation's civil claim has been consolidated into the Federal Court limitation action as of July 26, 2019 and it is expected that the Federal Court of Canada will decide all claims against the Company. The Company is unable to estimate the potential exposure in the civil proceeding. On July 16, 2019, the Company and the Canadian government settled the charges against the subsidiary of the Company. The subsidiary of the Company agreed to pay the Canadian government a fine of approximately \$2,900,000 Canadian dollars (\$2,200,000 U.S. dollars) for violations of the Canadian Fisheries Act, the Migratory Birds Convention Act, the Pilotage Act and the Shipping Act of 2001. 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. 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.

On March 22, 2014, two tank barges and a towboat, the M/V Miss Susan, owned by Kirby Inland Marine, 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. While all legal action to date involving the Company has been resolved, the Company is participating in the natural resource damage assessment and restoration process with federal and state government natural resource trustees. 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.

Certain Significant Risks and Uncertainties. 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 and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. However, in the opinion of management, the amounts would be immaterial.

The customer base of the marine transportation segment includes major industrial petrochemical and chemical manufacturers, refining companies and agricultural chemical manufacturers operating in the United States. During 2019, approximately 65% of marine transportation's inland revenues were from movements of such products under term contracts, typically ranging from one year to three years, some with renewal options. During 2019, approximately 80% of the marine transportation's coastal revenues were under term contracts. While the manufacturing and refining companies have generally been customers of the Company for numerous years (some as long as 40 years) and management anticipates a continuing relationship, there is no assurance that any individual contract will be renewed. No single customer of the marine transportation segment accounted for 10% or more of the Company's revenues in 2019, 2018 and 2017.

Major customers of the distribution and services segment include oilfield service companies, oil and gas operators and producers, inland and offshore barge operators, offshore fishing companies, on-highway transportation companies, construction companies, the United States government, and power generation, nuclear and industrial companies.

The results of the distribution and services segment are largely tied to the industries it serves and, therefore, can be influenced by the cycles of such industries. No single customer of the distribution and services segment accounted for 10% or more of the Company's revenues in 2019, 2018 and 2017.

United Holdings LLC ("United") has maintained continuous exclusive distribution rights for MTU and Allison Transmission products since 1946. United is one of MTU's top five distributors of MTU off-highway engines in North America with exclusive distribution rights in Oklahoma, Arkansas, Louisiana and Mississippi. In addition, as a distributor of Allison Transmission products, United has distribution rights in Oklahoma, Arkansas and Louisiana. Finally, United is also the distributor for parts service and warranty on Daimler Truck North America ("DTNA") engines and related equipment in Oklahoma, Arkansas and Louisiana.

S&S is also one of MTU's top five distributors for off-highway engines with exclusive distribution rights in multiple states. S&S also has authorized exclusive distribution rights for Allison Transmission, Detroit Diesel, Deutz, DTNA, EMD, Rolls Royce Power and Volvo Penta diesel engines in multiple key growth states, primarily through the Central, South and Eastern parts of the United States and strategically located near major oil and gas fields, marine waterways and on-highway transportation routes. In addition, S&S has long-term relationships with numerous smaller suppliers including Donaldson, Freightliner, Generac and John Deere.

Kirby Engine Systems LLC, through Marine Systems, Inc. and Engine Systems, Inc. ("Engine Systems"), operates as an authorized EMD distributor throughout the United States. Engine Systems is also the authorized EMD distributor for nuclear power applications worldwide. The relationship with EMD has been maintained for over 50 years. The segment also operates factory-authorized full service marine distributorship/dealerships for Cummins, Detroit Diesel and John Deere high-speed diesel engines and Falk, Lufkin and Twin Disc marine gears, as well as an authorized marine dealer for Caterpillar diesel engine in multiple states.

Weather can be a major factor in the day-to-day operations of the marine transportation segment. Adverse weather conditions, such as high or low water, tropical storms, hurricanes, tsunamis, fog and ice, can impair the operating efficiencies of the marine fleet. Shipments of products can be delayed or postponed by weather conditions, which are totally beyond the control of the Company. Adverse water conditions are also factors which impair the efficiency of the fleet and can result in delays, diversions and limitations on night passages, and dictate horsepower requirements and size of tows. Additionally, much of the inland waterway system is controlled by a series of 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. Maintenance and operation of the navigable inland waterway infrastructure is a government function handled by the Army Corps of Engineers with costs shared by industry. Significant changes in governmental policies or appropriations with respect to maintenance and operation of the infrastructure could adversely affect the Company.

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 Company believes that additional safety, environmental and occupational health regulations may be imposed on the marine industry. There can be no assurance that any such new regulations or requirements, or any discharge of pollutants by the Company, will not have an adverse effect on the Company.

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, owned and operated by United States citizens. The Jones Act cabotage provisions occasionally come under attack by interests seeking to facilitate foreign flag competition in trades reserved for domestic companies and vessels under the Jones Act. The Company believes that continued efforts will be made to modify or eliminate the cabotage provisions of the Jones Act. If such efforts are successful, certain elements could have an adverse effect on the Company. However, the Company believes that it is unlikely that the current cabotage provisions of the Jones Act would be eliminated or significantly modified in a way that has a material adverse impact on the Company in the foreseeable future.

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 \$22,804,000 at December 31, 2019, including \$11,240,000 in letters of credit and \$11,564,000 in performance bonds. All of these instruments have an expiration date within two 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.

(16) Segment Data

The Company's operations are aggregated into two reportable business segments as follows:

Marine Transportation — Provide marine transportation principally by United States flag vessels of liquid cargoes throughout the United States inland waterway system, along all three United States coasts, in Alaska and Hawaii and, to a lesser extent, in United States coastal transportation of dry-bulk cargoes. The principal products transported include petrochemicals, black oil, refined petroleum products and agricultural chemicals.

Distribution and Services — Provides after-market services and parts for engines, transmissions, reduction gears and related equipment used in oilfield service, marine, power generation, on-highway, and other industrial applications. The Company also rents equipment including generators, industrial compressors, railcar movers, and high capacity lift trucks for use in a variety of industrial markets, and manufactures and remanufactures oilfield service equipment, including pressure pumping units, for land-based oilfield service customers.

The Company's two reportable business segments are managed separately based on fundamental differences in their operations. The Company's accounting policies for the business segments are the same as those described in Note 1, Summary of Significant Accounting Policies. The Company evaluates the performance of its segments based on the contributions to operating income of the respective segments, and before income taxes, interest, gains or losses on disposition of assets, other nonoperating income, noncontrolling interests, accounting changes, and nonrecurring items. Intersegment revenues, based on market-based pricing, of the distribution and services segment from the marine transportation segment of \$27,441,000, \$29,363,000 and \$20,717,000 in 2019, 2018 and 2017, respectively, as well as the related intersegment profit of \$2,744,000, \$2,936,000 and \$2,072,000 in 2019, 2018 and 2017, respectively, have been eliminated from the tables below.

The following table sets forth by reportable segment the revenues, profit or loss, total assets, depreciation and amortization, and capital expenditures attributable to the principal activities of the Company for the years ended December 31, 2019, 2018 and 2017 (in thousands):

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Revenues:			
Marine transportation	\$ 1,587,082	\$ 1,483,143	\$ 1,324,106
Distribution and services	1,251,317	1,487,554	890,312
	<u>\$ 2,838,399</u>	<u>\$ 2,970,697</u>	<u>\$ 2,214,418</u>
Segment profit (loss):			
Marine transportation	\$ 215,842	\$ 147,416	\$ 135,547
Distribution and services	67,201	129,305	86,479
Other	(93,223)	(162,562)	(149,012)
	<u>\$ 189,820</u>	<u>\$ 114,159</u>	<u>\$ 73,014</u>
Total assets:			
Marine transportation	\$ 4,536,368	\$ 4,145,294	\$ 3,485,099
Distribution and services	1,422,394	1,653,636	1,567,085
Other	120,335	72,664	75,243
	<u>\$ 6,079,097</u>	<u>\$ 5,871,594</u>	<u>\$ 5,127,427</u>
Depreciation and amortization:			
Marine transportation	\$ 179,742	\$ 182,307	\$ 178,898
Distribution and services	35,998	39,349	20,387
Other	3,892	3,316	3,596
	<u>\$ 219,632</u>	<u>\$ 224,972</u>	<u>\$ 202,881</u>
Capital expenditures:			
Marine transportation	\$ 217,364	\$ 284,953	\$ 165,421
Distribution and services	18,284	10,742	5,086
Other	12,516	6,166	6,715
	<u>\$ 248,164</u>	<u>\$ 301,861</u>	<u>\$ 177,222</u>

The following table presents the details of “Other” segment profit (loss) for the years ended December 31, 2019, 2018 and 2017 (in thousands):

	<u>2019</u>	<u>2018</u>	<u>2017</u>
General corporate expenses	\$ (13,643)	\$ (35,590)	\$ (18,202)
Interest expense	(55,994)	(46,856)	(21,472)
Inventory write-down	(35,525)	—	—
Impairment of long-lived assets	—	(82,705)	(105,712)
Impairment of goodwill	—	(2,702)	—
Lease cancellation costs	—	(2,403)	—
Gain (loss) on disposition of assets	8,152	1,968	(4,487)
Other income (expense)	3,787	5,726	861
	<u>\$ (93,223)</u>	<u>\$ (162,562)</u>	<u>\$ (149,012)</u>

The following table presents the details of “Other” total assets as of December 31, 2019, 2018 and 2017 (in thousands):

	<u>2019</u>	<u>2018</u>	<u>2017</u>
General corporate assets	\$ 118,310	\$ 70,169	\$ 73,353
Investment in affiliates	2,025	2,495	1,890
	<u>\$ 120,335</u>	<u>\$ 72,664</u>	<u>\$ 75,243</u>

(17) Related Party Transactions

The Company is a 50% owner of The Hollywood Camp, L.L.C. (“The Hollywood Camp”), a company that owns and operates a hunting and fishing facility used by the Company primarily for customer entertainment. The Hollywood Camp allocates lease and lodging expenses to its members based on their usage of the facilities. The Company paid The Hollywood Camp \$5,110,000 in 2019, \$4,523,000 in 2018 and \$3,634,000 in 2017 for its share of facility expenses.

The Company is a 50% owner of Bolivar Terminal Co., Inc. (“Bolivar”), a company that provides barge fleet services (temporary barge storage facilities) in the Houston, Texas area. The Company paid Bolivar \$459,000 in 2019, \$461,000 in 2018 and \$581,000 in 2017 for barge fleet services. Such services were in the ordinary course of business of the Company.

David W. Grzebinski, President and Chief Executive Officer of the Company, is a member of the board of directors for ABS, a not-for-profit that provides global classification services to the marine, offshore and gas industries. The Company paid ABS \$1,774,000 in 2019, \$1,162,000 in 2018, and \$1,081,000 in 2017 to perform audits and surveys of the Company’s vessels in the ordinary course of business of the Company.

In January 2019, Amy D. Husted, Vice President, General Counsel and Secretary of the Company, became a member of the board of directors of Signal Mutual Indemnity Association Ltd (“Signal”), a group self-insurance not-for-profit organization authorized by the U.S. Department of Labor as a longshore worker’s compensation insurance provider. The Company has been a member of Signal since it was established in 1986. The Company paid Signal \$1,391,000 in 2019 in the ordinary course of business of the Company.

The husband of Ms. Husted is a partner in the law firm of Clark Hill Strasburger. The Company paid the law firm \$1,278,000 in 2019, \$2,019,000 in 2018 and \$830,000 in 2017 for legal services in connection with matters in the ordinary course of business of the Company.

(18) Subsequent Events

On January 29, 2020, the Company signed a definitive agreement to acquire the inland tank barge fleet of Savage Inland Marine, LLC (“Savage”) for approximately \$278,000,000 in cash, subject to certain closing adjustments. Savage’s tank barge fleet consists of 90 inland tank barges with approximately 2.5 million barrels of capacity and 46 inland towboats. Savage primarily moves petrochemicals, refined products, and crude oil on the Mississippi River, its tributaries, and the Gulf Intracoastal Waterway. Savage also operates a significant ship bunkering business as well as barge fleet services along the Gulf Coast. The closing of the acquisition is expected to occur late in the first quarter of 2020 and is subject to customary closing conditions, including regulatory approvals under the Hart-Scott-Rodino Act. The purchase will be financed through additional borrowings.

On January 3, 2020, the Company completed the acquisition of substantially all the assets of Convoy Servicing Company and Agility Fleet Services, LLC (collectively “Convoy”) for approximately \$40,000,000 in cash, before post-closing adjustments. Convoy is an authorized dealer for Thermo King refrigeration systems for trucks, railroad cars and other land transportation markets for North and East Texas as well as in Colorado.

PART IV

Item 15. Exhibits and Financial Statement Schedules

1. Financial Statements

Included in Part III of this report:

Report of Independent Registered Public Accounting Firm.

Report of Independent Registered Public Accounting Firm.

Consolidated Balance Sheets, December 31, 2019 and 2018.

Consolidated Statements of Earnings, for the years ended December 31, 2019, 2018 and 2017.

Consolidated Statements of Comprehensive Income, for the years ended December 31, 2019, 2018 and 2017.

Consolidated Statements of Cash Flows, for the years ended December 31, 2019, 2018 and 2017.

Consolidated Statements of Stockholders' Equity, for the years ended December 31, 2019, 2018 and 2017.

Notes to Consolidated Financial Statements, for the years ended December 31, 2019, 2018 and 2017.

2. Financial Statement Schedules

All schedules are omitted as the required information is inapplicable or the information is presented in the consolidated financial statements or related notes.

3. Exhibits

EXHIBIT INDEX

Exhibit Number	Description of Exhibit
2.1	— Securities Purchase Agreement among Kirby Corporation, Higman Marine, Inc. and the parties named therein dated February 4, 2018 (incorporated by reference to Exhibit 2.5 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2017).
3.1	— Restated Articles of Incorporation of the Company with all amendments to date (incorporated by reference to Exhibit 3.1 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2014).
3.2	— Bylaws of the Company, as amended to date (incorporated by reference to Exhibit 3.2 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2014).
4.1	See Exhibits 3.1 and 3.2 hereof for provisions of our Restated Articles of Incorporation of the Company with all amendments to date and the Bylaws of the Company, as amended to date (incorporated by reference to Exhibit 3.1 and 3.2, respectively, to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2014).
4.2	Long-term debt instruments are omitted pursuant to Item 601(b)(4) of Regulation S-K. The Registrant will furnish copies of such instruments to the Commission upon request.
10.1	— Credit Agreement dated as of April 30, 2015 among Kirby Corporation, JP Morgan Chase Bank, N.A., as Administrative Agent, and the banks named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on May 5, 2015).
10.2	— First Amendment to Credit Agreement dated as of June 26, 2017 among Kirby Corporation, JP Morgan Chase Bank, N.A., as Administrative Agent, and the banks named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on June 28, 2017).
10.3	— Amended and Restated Credit Agreement dated as of March 27, 2019 among Kirby Corporation, JPMorgan Chase Bank, N.A., as Administrative Agent, and the banks named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on April 2, 2019).
10.4†	— Deferred Compensation Plan for Key Employees (incorporated by reference to Exhibit 10.7 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2005).

- [10.5†](#) — Annual Incentive Plan Guidelines for 2019 (incorporated by reference to Exhibit 10.5 to the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2018).
- [10.6†*](#) — Annual Incentive Plan Guidelines for 2020.
- [10.7†](#) — 2000 Nonemployee Director Stock Plan (incorporated by reference to Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016).
- [10.8†](#) — 2005 Stock and Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2019).
- [10.9](#) — Nonemployee Director Compensation Program (incorporated by reference to Exhibit 10.2 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2018).
- [21.1*](#) — Consolidated Subsidiaries of the Registrant.
- [23.1*](#) — Consent of Independent Registered Public Accounting Firm.
- [31.1*](#) — Certification of Chief Executive Officer Pursuant to Rule 13a-14(a).
- [31.2*](#) — Certification of Chief Financial Officer Pursuant to Rule 13a-14(a).
- [32*](#) — Certification Pursuant to 18 U.S.C. Section 1350 (As adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002).

101.INS*	— Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH*	— Inline XBRL Taxonomy Extension Schema Document
101.CAL*	— Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	— Inline XBRL Taxonomy Extension Definitions Linkbase Document
101.LAB*	— Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	— Inline XBRL Taxonomy Extension Presentation Linkbase Document
104*	— Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.

† Management contract, compensatory plan or arrangement.

ANNUAL INCENTIVE PLAN

2020 Plan Year

Guidelines

KIRBY CORPORATION

January 2020

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Introduction

Kirby Corporation (together with its subsidiaries, "Kirby" or the "Company") established the 2020 Annual Incentive Plan (the "Plan") to focus employees of the Company on identifying and achieving business strategies that lead to increased stockholder value. The Plan is also intended to reward superior performance by employees and their contribution to achieving Kirby's objectives.

Certain aspects of this Plan are complex. Although these Guidelines establish rules for Plan operation, those rules may not work in all circumstances. Therefore, the Compensation Committee of the Kirby Board of Directors has discretion to interpret these Guidelines to assure the awards are consistent with the Plan's purposes and the Company's interests. All decisions by the Compensation Committee shall be final and binding.

Unless resolutions of the Compensation Committee expressly provide otherwise, awards granted under the Plan shall constitute performance awards granted under Article IV of the Kirby Corporation 2005 Stock and Incentive Plan and are subject to the terms and provisions of such Plan that apply to performance awards.

The Plan may be amended, modified or terminated at any time without prior notice by written authorization of the Compensation Committee or the Board of Directors of Kirby Corporation.

The 2020 Annual Incentive Plan

Each award granted under the Plan is an award for Company performance or a combination of Company and Business Group performance. Awards are generally based on achieving the Company Performance Goal as well as additional Company, Business Group and individual performance measures and objectives. Once the Company Performance Goal is reached, participants in the Plan become eligible for an incentive bonus payment.

All amounts paid to participants pursuant to the Plan shall be subject to any policy relating to the recovery of erroneously awarded incentive compensation that may hereafter be adopted by the Company in order to comply with Securities and Exchange Commission rules or New York Stock Exchange listing standards.

Plan Objectives

The key objectives of the Plan are:

- Provide an annual incentive plan that drives performance toward objectives critical to creating stockholder value.
- Offer competitive cash compensation opportunities to key Kirby employees.
- Reward outstanding achievement by employees who directly affect Kirby's results.
- Assist Kirby in attracting and retaining high quality employees.
- Reflect both quantitative and qualitative performance factors in actual bonus payouts.
- Ensure that incentive payments made by the Company are fully deductible by the Company.

Business Groups

The following Business Groups are designated for purposes of the Plan:

Kirby Corporate Services ("KCS")	Thermo King ("TK") ³
Kirby Inland Marine, LP ("KIM") ¹	Kirby Engine Systems, LLC ("KES")
Kirby Offshore Marine, LLC ("KOM")	Atlantic and Florida ("DDAs")
Kirby Distribution & Services Non-Manufacturing ² ("KDS NM")	Manufacturing ("Mfg")

1 KIM includes Kirby Ocean Transport Company and Osprey Line, LLC. San Jac Marine, LLC will not participate in this incentive plan in 2020.

2 KDS Non-Manufacturing includes (United Engines, LLC, Stewart & Stevenson ("S&S") Domestic Branches, S&S Rentals LLC and the Training Center)

3 TK includes Convoy

Performance Period

Performance is measured on a calendar year basis for the Plan. The Performance Period begins on January 1, 2020 and ends on December 31, 2020. Except as expressly provided in these Guidelines in the case of new employees or termination of employment, incentive compensation payments under the Plan are for the full year 2020 and shall not be reduced for the period between the commencement of the Performance Period and the date on which the Compensation Committee approves these Guidelines and the individual bonus targets for participants in the Plan.

Eligibility

- Generally, managerial employees and KIM wheelhouse employees classified as Captain, Relief Captain or Pilot, are eligible for participation. Selection for participation in the Plan is based upon each position's ability to impact long-term financial results of the Company and designation by management.
- To be eligible to receive an incentive payment under the Plan, participants must be employed on the last day of the Performance Period and on the date bonuses are paid for the Performance Period, unless their termination reason is death or disability or if they meet the requirements of a retirement. For the purposes of the Plan, the definition of retirement is a calculation resulting in either 65 years of age on termination date or age plus service is greater than or equal to 85.
- Participation in the Plan in 2020 does not guarantee participation in similar plans in future years. Participants in the Plan or in similar plans in future years will be notified annually of their selection for participation.

Individual Bonus Targets

Each participant will be assigned a target bonus level defined as a percentage of base salary earned during the Performance Period. This bonus target is based on competitive market practices, as well as the employee's ability to impact long-term Company performance. Market practices will be determined using data from either general industry, the marine transportation industry or the diesel engine services industry, depending upon the individual position being considered.

Aggregate Payment Amount

At the end of the year, a preliminary incentive payment amount will first be calculated for each participant in the Plan to determine the Aggregate Payment Amount for all participants for the year. The preliminary incentive payment amount for each participant will be calculated as of December 31, 2020 based on the target incentive level for such participant and the calculation formulas described in these Guidelines. The Aggregate Payment Amount under the Plan shall equal the sum of all such preliminary incentive payment amounts.

The Company will be obligated to pay out the full Aggregate Payment Amount to eligible participants, subject to the discretion of the Compensation Committee, and the Chief Executive Officer to the extent authorized under these Guidelines, with respect to the allocation of the Aggregate Payment Amount among individual participants. Therefore, the Company's obligation to pay out the Aggregate Payment Amount becomes fixed on the last day of the Performance Period.

The Compensation Committee, and the Chief Executive Officer if applicable, may determine the amount of the bonus paid to any participant based on the performance measures described in the Plan or any other criteria deemed appropriate in its discretion, provided that in no event will the aggregate incentive payments made pursuant to the Plan exceed the Aggregate Payment Amount.

Performance Measures

The performance measures for the Plan are:

- EBITDA (Earnings before interest, taxes, depreciation and amortization)
- Return on total capital (“ROTC”): Earnings before interest and taxes divided by average beginning and ending stockholders' equity plus long-term debt
- Earnings per share
- Strategic Initiatives (SI) – Initiatives related to downturn and ramp up in the oilfield.

Annual performance targets will be established for each measure based on Kirby’s budget for the year and each of the performance measures will have the following weight in calculating the preliminary incentive payment amount for each participant:

Performance Measures for Incentive Payment Calculations					
Division	Business Group		Measure 1	Measure 2	Measure 3
Corporate	Kirby Corporate Services (KCS)	KCS	EBITDA-33.3%3	ROTC-33.3%	EPS-33.3%
Marine	Kirby Inland Marine (KIM)	KIM	EBITDA-50%	ROTC-50%	
Marine	Kirby Offshore Marine (KOM)	KOM	EBITDA-100%		
D&S	Kirby Engine Systems (KES)	KES	EBITDA-100%		
D&S	Thermo King (TK/CON)	TK/CON	EBITDA-100%		
D&S	Detroit Diesel Allison (FDDA/ADDA)	DDA's	EBITDA-100%		
D&S	United Engines (UE)	S&S Non-MFG	EBITDA-100%		
D&S	S&S Rental	S&S Non-MFG	EBITDA-100%		
D&S	S&S Distribution/Training	S&S Non-MFG	EBITDA-100%		
D&S	S&S Manufacturing	S&S MFG	SI - 100%		

Business Group Weighting

Calculation of the preliminary incentive payment amount for Business Group employees will be based primarily on Business Group performance with a defined portion based on Company performance. Calculation of the preliminary incentive payment amount for employees of KCS will be based on Company performance. Kirby Distribution & Services (KDS) includes a weighted average of the performance of the business groups that support it. Specific weightings are set forth in the following table:

Business Group	Corp	KIM	KOM	KDS	KES
KCS	100%				
KIM	30%	70%			
KOM	30%		70%		
Marine President	50%	35%	15%		
Marine Shared	30%	50%	20%		
KES	30%			70%	
KES President	50%				50%
United/S&S	30%			70%	
KDS President	50%			50%	
KDS Shared	30%			70%	
<i>KDS President and Shared = Share of Budgeted Revenue</i>					
<i>KES = 18%</i>					
<i>TK/CON = 10%</i>					
<i>DDA's = 21%</i>					
<i>S&S Non-Mfg. = 34%</i>					
<i>S&S Mfg. = 17%</i>					

Inland Marine and Corporate			
Performance Level	Definition	Relationship to Budget	% of Target Used for Calculation
Below Threshold	Performance did not meet minimum level	less than 80% of budget	0%
Threshold	Minimum acceptable performance for payout	80% of budget	50%
Target	Expected performance at stretch level	100% of budget	100%
Maximum	Outstanding performance	120% of budget	200%

Offshore Marine, Engine Systems, ThermoKing, Detroit Diesel Allison			
Performance Level	Definition	Relationship to Budget	% of Target Used for Calculation
Below Threshold	Performance did not meet minimum level	less than 75% of budget	0%
Threshold	Minimum acceptable performance for payout	75% of budget	50%
Target	Expected performance at stretch level	100% of budget	100%
Maximum	Outstanding performance	125% of budget	200%

S&S Distribution, Rental, United, Training Center			
Performance Level	Definition	Relationship to Budget	% of Target Used for Calculation
Below Threshold	Performance did not meet minimum level	less than 65% of budget	0%
Threshold	Minimum acceptable performance for payout	65% of budget	50%
Target	Expected performance at stretch level	100% of budget	100%
Maximum	Outstanding performance	135% of budget	200%

KDS Manufacturing

Performance Level	Definition	Measures	% of Target Used for Calculation
Strategic Initiatives	Strategic Initiatives related to management of significant downturn/ramp-up of the oilfield industry segment.	Rapid equalization efforts related to market conditions	0% - to 200%

- Between the threshold and maximum percentages of budget achieved for each performance measure, there is a linear relationship between the percentage of budget achieved and the resulting percentage of the target payout percentage used in calculating payout amounts. As examples, 90% of budget for KIM would result in 75% of target used in the calculation of a preliminary payment amount and 105% of budget would result in 125% of target used for the calculation of a preliminary payment amount.
- For the oilfield related business, we use Strategic Initiatives to drive the business when financial measures/budgets are unpredictable.
- The target amount determined for each performance measure is then multiplied by the weight for the performance measure and the results are added together to produce a total Company or Business Group payout percentage of the target incentive that is applied to each individual participant in order to calculate the Aggregate Payout Amount under the Plan.
- The Compensation Committee and the Chief Executive Officer shall in their discretion allocate the Aggregate Payment Amount among eligible participants; provided that only the Compensation Committee shall have the authority to allocate payment amounts to eligible participants (i) who are “officers” for purposes of Section 16 of the Securities Exchange Act of 1934, (ii) whose bonus target is 50% or more of base salary or (iii) whose base salary is \$250,000 or more (collectively “Specified Participants”). In allocating the Aggregate Payment Amount, the Compensation Committee and the Chief Executive Officer may consider, but shall not be bound by, the preliminary incentive payment amount calculated for each participant.
- The Compensation Committee has discretion to modify the performance measures or adjust the calculation of the preliminary incentive payment amounts to adjust for acquisitions, divestures and other material business events.
- The aggregate amount of incentive payments made to participants in the Plan must equal the Aggregate Payment Amount.
- Notwithstanding the foregoing or any provision of the Plan to the contrary, no participant may receive an amount in excess of 200% of the individual bonus target established for such participant (the “Maximum Payment”).

Administration

Incentive Payments

A participant's final incentive bonus payment is paid out in cash within 90 days following the end of the Company's fiscal year, based on audited financial statements of the Company.

Eligibility Limitation

Participants must be employed by the Company on the last day of the Performance Period and on the date bonuses are paid to receive a bonus, unless otherwise provided for in the Plan.

Special Circumstances

The Compensation Committee will have the sole authority to resolve disputes related to Plan administration. Decisions made by the Compensation Committee will be final and binding on all participants. The Compensation Committee has the sole discretion to determine the bonuses for newly hired, terminated, transferred and promoted employees, but will generally award bonuses based on the following provisions.

New Employees

For employees hired after the beginning of a Performance Period who are selected for participation in the Plan, the preliminary incentive payment will be prorated for the portion of the Performance Period during which they were employees of the Company, subject to the Termination of Employment restrictions.

Termination of Employment

If a participant's employment terminates prior to the last day of the Performance Period or prior to the date bonuses are paid for the Performance Period, for any reason other than death, retirement or disability, the participant will be ineligible to receive a bonus.

If a participant's employment terminates before the end of the full Performance Period or before the date bonuses are paid for the Performance Period as a result of death, retirement or disability, the preliminary incentive payment for the participant (or the participant's heirs) will be prorated at the end of the Performance Period based upon actual performance and base wages earned while employed during the Performance Period.

Transfer

The preliminary incentive payment for a participant who is transferred between Business Groups during the year will be a weighted bonus based upon the time spent at each of the Business Groups. In calculating a weighted bonus, relevant Company and Business Group performance measures will be calculated for the full Performance Period and then a blended bonus will be calculated based on the time spent at each Business Group.

Promotions

The preliminary incentive payment for a participant who is promoted or reassigned during any Performance Period and whose bonus target is subsequently increased or decreased will be a weighted bonus, based on the service before and after the promotion or reassignment.

Compensation Committee

The Plan shall be administered by the Compensation Committee. The Compensation Committee shall have the authority to interpret the provisions of the Plan and these Guidelines, to adopt such rules for carrying out the Plan as it may deem advisable, to decide conclusively all questions arising with respect to the Plan and to make all other determinations and take all other actions necessary or desirable for the administration of the Plan. All decisions and acts of the Compensation Committee shall be final and binding upon all affected parties.

In administering the Plan, the Compensation Committee will:

- Approve the designation of Business Groups within the Company
- Approve the Company Performance Goal
- Approve other performance measures used and the Threshold, Target and Maximum budget performance levels for purposes of calculating preliminary incentive payment amounts and the Aggregate Payment Amount
- Approve linkage for participants to Company and Business Group performance
- Approve the individual bonus targets for all Specified Participants
- Approve the Aggregate Payment Amount to be paid to participants in the Plan
- Determine in its discretion the final incentive payments for participants.

The total amount of the incentive payments made to participants pursuant to the Plan must equal, and may not exceed, the Aggregate Payment Amount.

Chief Executive Officer (CEO)

The CEO has primary responsibility for recommending Plan Guidelines to the Committee and for delegating administrative duties associated with the Plan. The Compensation Committee may delegate additional administrative duties to the CEO or any Company officer. The CEO may make recommendations, subject to Compensation Committee approval, with respect to the incentive payment to any participant.

Chief Financial Officer (CFO)

The CFO is responsible for calculating performance under the Plan. The CFO will:

- Provide annual reports to the Compensation Committee and the CEO on each Business Group's performance at the end of the fiscal year
- Maintain a financial information system that reports results on an estimated quarterly and annual basis
- Coordinate with the Company's auditors to properly recognize any accounting expense associated with incentive payments under the Plan
- Provide the VP – of HR with the performance results of each Business Group as well as overall Company performance

Chief Human Resources Officer (CHRO)

The CHRO has responsibility for administration of the Plan and will:

- Develop and recommend eligible participants and target bonus guidelines
- Coordinate communications with participants, including materials to facilitate understanding the Plan's objectives and goals
- Calculate participants' preliminary incentive payment amounts, using the performance factors provided by the CFO
- Process paperwork approving individual incentive payments

Business Group Presidents and Vice Presidents will:

- Recommend participants in the Plan
- Coordinate with the CFO to determine any significant changes in business conditions for purposes of reviewing the Threshold, Target and Maximum performance objectives
- Assure that participants are informed of the actual incentive payment to be made for the Performance Period

KIRBY CORPORATION
CONSOLIDATED SUBSIDIARIES OF THE REGISTRANT
AT DECEMBER 31, 2019

	Domicile of Incorporation
KIRBY CORPORATION – PARENT AND REGISTRANT	Nevada
SUBSIDIARIES OF THE PARENT AND REGISTRANT	
Kirby Corporate Services, LLC	Delaware
KIM Holdings, Inc.	Delaware
Kirby Terminals, Inc.	Texas
Sabine Transportation Company	Delaware
AFRAM Carriers, Inc.	Delaware
Kirby Distribution & Services, Inc.	Delaware
Kirby Tankships, Inc.	Delaware
Kirby Ocean Transport Company	Delaware
Kirby Offshore Marine, LLC	Delaware
K Equipment, LLC	Texas
Osprey Line, L.L.C. (66 2/3%)	Texas
CONTROLLED SUBSIDIARIES	
KIM Partners, LLC (Subsidiary of KIM Holdings, Inc.)	Louisiana
Kirby Inland Marine, LP (KIM Holdings, Inc. 1% General Partner, KIM Partners, LLC 99% Limited Partner)	Delaware
Greens Bayou Fleeting, LLC (subsidiary of Kirby Inland Marine, LP)	Texas
Dixie Carriers, Inc. (subsidiary of Kirby Inland Marine, LP)	Texas
San Jac Marine, LLC (subsidiary of Kirby Inland Marine, LP)	Delaware
Diesel Dash LLC (subsidiary of Kirby Distribution & Services, Inc.)	Delaware
Kirby Engine Systems LLC (subsidiary of Kirby Distribution & Services, Inc.)	Delaware
Marine Systems, Inc. (subsidiary of Kirby Engine Systems LLC)	Louisiana
Engine Systems, Inc. (subsidiary of Kirby Engine Systems LLC)	Delaware
United Holdings LLC (subsidiary of Kirby Distribution & Services, Inc.)	Delaware
United Engines LLC (subsidiary of United Holdings LLC)	Colorado
UE Manufacturing LLC (subsidiary of United Holdings LLC)	Colorado
Compression Systems LLC (subsidiary of United Holdings LLC)	Colorado
Thermo King of Houston, LLC (subsidiary of United Holdings LLC)	Texas
Thermo King of Dallas, LLC (subsidiary of United Holdings LLC)	Texas
San Antonio Thermo King, Inc. (subsidiary of Thermo King of Houston, LLC)	Texas
Kirby Offshore Marine Operating, LLC (subsidiary of Kirby Offshore Marine, LLC)	Delaware
Kirby Offshore Marine Hawaii, LLC (subsidiary of Kirby Offshore Marine Operating, LLC)	Delaware
Kirby Offshore Marine Pacific, LLC (subsidiary of Kirby Offshore Marine Operating, LLC)	Delaware
Kirby Offshore Marine, Inc. (subsidiary of Kirby Offshore Marine Operating, LLC)	Delaware
Inversiones Kara Sea SRL (subsidiary of Kirby Offshore Marine Operating, LLC)	Venezuela
K-Sea Canada Holdings, Inc. (subsidiary of Kirby Offshore Marine, Inc.)	Delaware
K-Sea Canada Corp. (subsidiary of K-Sea Canada Holdings, Inc.)	Nova Scotia
Penn Maritime Inc. (subsidiary of Kirby Offshore Marine, LLC)	Delaware
Stewart & Stevenson LLC (subsidiary of Kirby Distribution & Services, Inc.)	Delaware
Stewart & Stevenson Power Products LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Canada Inc. (subsidiary of Stewart & Stevenson LLC)	Canada
Stewart & Stevenson de las Americas Colombia Ltda. (Stewart & Stevenson Petroleum Services LLC 1% General Partner, Stewart & Stevenson LLC 99% Limited Partner)	Colombia

Stewart & Stevenson de Venezuela, S.A. (subsidiary of Stewart & Stevenson LLC)	Venezuela
Stewart & Stevenson Material Handling LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Hunt Power Systems LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Petroleum Services LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Distributor Holdings LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Finance LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Manufacturing Technologies LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Acquisition LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson Rentals LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Stewart & Stevenson FDDA LLC (subsidiary of Stewart & Stevenson LLC)	Delaware
Transmissions Y Embragues, S.A. (subsidiary of Stewart & Stevenson de Venezuela, S.A.)	Venezuela
Stewart & Stevenson Hong Kong Limited (subsidiary of Stewart & Stevenson Petroleum Services LLC)	Hong Kong
Higman Marine, Inc. (subsidiary of Kirby Inland Marine, LP)	Delaware
Higman Barge Lines, Inc. (subsidiary of Higman Marine, Inc.)	Delaware
Higman Marine Services, Inc. (subsidiary of Higman Marine, Inc.)	Delaware
Higman Service Corporation (subsidiary of Higman Marine, Inc.)	Delaware
Alamo Barge Lines, LLC (subsidiary of Kirby Inland Marine, LP)	Delaware
16530 Peninsula Blvd. LLC (subsidiary of Kirby Inland Marine, LP)	Texas
Empty Barge Lines, Inc. (subsidiary of Kirby Inland Marine, LP)	Texas
Empty Barge Lines II, Inc. (subsidiary of Kirby Inland Marine, LP)	Texas
Empty Barge Lines III, Inc. (subsidiary of Kirby Inland Marine, LP)	Texas
EBL Marine I LLC (subsidiary of Kirby Inland Marine, LP)	Texas
EBL Marine II LLC (subsidiary of Kirby Inland Marine, LP)	Texas
EBL Marine III LLC (subsidiary of Kirby Inland Marine, LP)	Texas
Hollywood Chem 107, Ltd (90.8%)	Texas
Hollywood Chem 108, Ltd (93.1%)	Texas

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Kirby Corporation:

We consent to the incorporation by reference in the registration statements (No. 333-57625, No. 333-72592, No. 333-129290, No. 333-129333, No. 333-152565, No. 333-152566, No. 333-184598 and No. 333-184599) on Form S-8 and (No. 333-220974 and No. 333-222858) on Form S-3 of Kirby Corporation of our reports dated February 21, 2020, with respect to the consolidated balance sheets of Kirby Corporation and consolidated subsidiaries as of December 31, 2019 and 2018, the related consolidated statements of earnings, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, and the effectiveness of internal control over financial reporting as of December 31, 2019, which reports appear in the December 31, 2019 annual report on Form 10-K of Kirby Corporation.

Our report dated February 21, 2020 refers to a change to the method of accounting for leases and to the method of accounting for recognizing revenues.

/s/ KPMG LLP

Houston, Texas
February 21, 2020

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

In connection with the filing of the report on Form 10-K for the year ended December 31, 2019 by Kirby Corporation, David W. Grzebinski certifies that:

1. I have reviewed this report on Form 10-K of Kirby Corporation (the “registrant”);

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

/s/ DAVID W. GRZEBINSKI

David W. Grzebinski
President and Chief Executive Officer

Dated: February 21, 2020

CERTIFICATION OF CHIEF FINANCIAL OFFICER

In connection with the filing of the report on Form 10-K for the year ended December 31, 2019 by Kirby Corporation, William G. Harvey certifies that:

1. I have reviewed this report on Form 10-K of Kirby Corporation (the “registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

/s/ WILLIAM G. HARVEY

William G. Harvey
Executive Vice President and
Chief Financial Officer

Dated: February 21, 2020

**Certification Pursuant to Section 18 U.S.C. Section 1350
(As adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002)**

In connection with the filing of the Annual Report on Form 10-K for the year ended December 31, 2019 (the "Report") by Kirby Corporation (the "Company"), each of the undersigned hereby certifies that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ DAVID W. GRZEBINSKI

David W. Grzebinski
President and Chief Executive Officer

/s/ WILLIAM G. HARVEY

William G. Harvey
*Executive Vice President and
Chief Financial Officer*

Dated: February 21, 2020
