UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 11-K

ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

☑ ANNUAL REPORT PURSUANT TO SECTION 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2011

Or

☐ TRANSITION REPORT PURSUANT TO SECTION 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from ________ to ________
Commission file number 1-7615

KIRBY 401(k) PLAN

Kirby Corporation
55 Waugh Drive, Suite 1000
Houston, Texas 77007

KIRBY 401(k) PLAN

Index to Financial Statements and Supplemental Schedules

Supplemental schedules, other than those listed above, are omitted because of the absence of the conditions under which they are required.

Report of Independent Registered Public Accounting Firm

The Plan Administrator

Kirby 401(k) Plan:

We have audited the accompanying statements of net assets available for benefits (modified cash basis) of the Kirby 401(k) Plan (the Plan) as of December 31, 2011 and 2010 and the related statements of changes in net assets available for benefits (modified cash basis) for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

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

As described in note 2, these financial statements and supplemental schedules were prepared on a modified cash basis of accounting, which is a comprehensive basis of accounting other than U.S. generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Kirby 401 (k) Plan as of December 31, 2011 and 2010 and the changes in net assets available for benefits for the years then ended, on the basis of accounting described in note 2.

Our audits were performed for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule H, line 4a – schedule of delinquent participant contributions (modified cash basis) for the year ended December 31, 2011 and supplemental schedule H, line 4i – schedule of assets (held at end of year) (modified cash basis) as of December 31, 2011 are presented for the purpose of additional analysis and are not a required part of the basic financial statements but are supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. The supplemental schedules are the responsibility of the Plan's management. These supplemental schedules have been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, are fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

/s/ KPMG LLP

Houston, Texas
June 27, 2012

KIRBY 401(k) PLAN
Statements of Net Assets Available for Benefits
(Modified Cash Basis)
December 31, 2011 and 2010

	2011	2010
Assets:		
Investments, at fair value	$ 233,547,287	$ 137,496,612
Notes receivable from participants	15,459,669	10,690,989
Other receivables	138,512	26,560
Total assets	249,145,468	148,214,161
Liabilities:		
Other liabilities	180,910	—
Total liabilities	180,910	—
Net assets available for benefits before adjustment	248,964,558	148,214,161
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	(942,690)	—
Net assets available for benefits	$ 248,021,868	$ 148,214,161

See accompanying notes to financial statements.

KIRBY 401(k) PLAN
Statements of Changes in Net Assets Available for Benefits
(Modified Cash Basis)
Years Ended December 31, 2011 and 2010

	2011	2010
Additions to net assets attributed to:		
Contributions from participants	$ 10,261,500	$ 9,848,784
Contributions from employer	4,694,794	4,698,601
Rollover contributions	4,205,199	1,569,670
Dividend income	1,716,084	870,201
Interest income from participants' notes receivable	500,554	504,844
Net appreciation in fair value of investments	14,065,323	14,930,008
Total additions, net	35,443,454	32,422,108
Deductions from net assets attributed to:		
Benefits paid to participants	16,542,777	12,623,386
Investment counselor fees and other	144,298	192,012
Total deductions	16,687,075	12,815,398
Transfer of investments to the plan from the K-Sea Transportation, Inc. 401(k) Savings and Retirement Plan (note 1)	65,847,287	—
Transfer of investments to the plan from the United Engines, LLC 401(k) Plan (note 1)	11,212,961	—
Transfer of notes receivables from participants to the plan from the K-Sea Transportation, Inc. 401(k) Savings and Retirement Plan and United Engines, LLC 401(k) Plan (note 1)	3,991,080	—
Net increase	99,807,707	19,606,710
Net assets available for benefits, beginning of year	148,214,161	128,607,451
Net assets available for benefits, end of year	$ 248,021,868	$ 148,214,161

See accompanying notes to financial statements.

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

(1) Description of Plan

(a) General

The Kirby 401(k) Plan (the Plan) is a defined contribution 401(k) plan for the benefit of employees of Kirby Corporation (the Company) and certain subsidiaries. Each employee is eligible to join the Plan as of the first pay period following completion of three months of service and the attainment of age 18. Employees covered by collective bargaining agreements, the terms of which do not provide for participation in the Plan, are not eligible. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended (ERISA). Further information relating to the Plan's provisions is available in the Plan Document.

The United Engines, LLC (United) 401(k) Plan (the United Plan) and the K-Sea Transportation, Inc. (KTI) 401(k) Savings and Retirement Plan (the KTI Plan) were merged into the Plan, and all balances were transferred to the Plan effective December 21, 2011. Commencing December 21, 2011, former United and KTI Plan participants are subject to the same plan provisions as the Plan participants, except as noted below.

The prior KTI Plan covered all eligible employees of K-Sea Transportation Partners LP (K-Sea) and subsidiaries. On April 17, 2012, the Company changed the name of K-Sea to Kirby Offshore Marine, LLC ("KOM").

(b) Administration of the Plan

The general administration of the Plan is the responsibility of the Company (the plan administrator). The plan administrator has broad powers regarding the operation and administration of the Plan and receives no compensation for service to the Plan. All administrative expenses, unless paid by the Company at its discretion, are paid by the Plan. Bank of America, N.A. (Bank of America) is the trustee of the Plan.

(Continued)

(c) Contributions

The Plan provides for basic employee pretax contributions to the Plan of up to 3% of covered compensation as defined, and for additional employee pretax contributions to the Plan of up to 14% of covered compensation subject to the provisions of the Internal Revenue Code of 1986, as amended (the Code). Participants age 50 or older during the Plan year may also elect to make a "catch-up" contribution, subject to certain Internal Revenue Service (IRS) limits ($5,500 in 2011 and 2010). The Company contributes matching employer contributions equal to 100% of basic employee pretax contributions. The Company does not match the additional employee pretax or catch-up contributions. Each participant directs his or her contributions and the Company's matching contributions between the investment funds offered by the Plan, including Company common stock.

Effective December 21, 2011, vessel based KOM employees whose employment is covered by a collective bargaining agreement receive a non-discretionary employer match of 100% of the first 2% of covered compensation, as defined by the Plan.

The Plan expects to adopt a provision that will be effective January 1, 2012 to allow the employer, at its discretion, to make an additional discretionary employer contribution for eligible employees equal to 5% of the employees covered compensation, as defined by the Plan. Eligible employees are employees of United and employees of KOM assigned the classification of Vessel Employee, Truck Driver or Shoreside Tankerman.

On March 13, 2012, the Company made a required contribution of $3,090,298 to the Plan for eligible former employees of K-Sea under the provisions of the prior KTI Plan. The Company expects to make an additional required contribution of $1,586,355 to the Plan in 2012 for eligible former employees of K-Sea to complete its required contributions under the prior KTI Plan. The prior United Plan has no provisions for future required contributions.

The Plan allows the use of forfeited amounts to offset future employer matching contributions. Forfeitures from non-vested accounts of $291,918 were used to reduce the Plan's matching contributions in 2011. No forfeitures were used to offset employer contributions in 2010.

All employees hired or rehired, except employees covered by a collective bargaining agreement, are automatically enrolled at a 3% pretax contribution rate, unless otherwise elected by the participant. Employees covered by a collective bargaining agreement are automatically enrolled at a 2% pretax contribution rate, unless otherwise elected by the participant.

In addition, participants may contribute amounts representing rollovers from other qualified plans or from an individual retirement account.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

(d) Benefits

Benefits payments are made to participants upon retirement or termination of employment (or to the beneficiary in the event of death) and are in the form of lump sum distribution payments. A participant may request a loan for up to the lesser of 50% of the participant's vested interest or $50,000, less the participant's highest outstanding loan balance during the preceding 12 months. Loans are typically repaid over a five-year period and bear interest at prime rate plus 1%. Interest rates ranged from 4.25% to 10.76% at December 31, 2011. Loans outstanding at December 31, 2011 mature from January 2, 2012 through September 18, 2035. Loans outstanding upon a participant's termination of employment are considered deemed distributions if not repaid and are deducted from the participant's account balance prior to distribution. These amounts are taxed to the participant in the year of the participant's termination. Former participants of a plan assumed during an acquisition in 1999 are eligible to receive in service withdrawals from their vested contributions made prior to December 31, 1999 after attaining 59 ½ years of age.

The Plan requires automatic distribution of participant accounts upon termination without the participant's consent of amounts less than $5,000 and greater than $1,000. If the participant does not elect to have the amount paid directly to an eligible retirement plan or receive a distribution directly, then the Plan will pay the distribution to an individual retirement plan designated by the Plan administrator. Amounts less than $1,000 are paid directly to participants upon termination.

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(e) Vesting

Participants are 100% vested in their participant contributions and rollovers, if any. Effective January 1, 2008, employer contributions for all employees hired on or after January 1, 2008 are subject to a six-year vesting schedule. Participants in the Plan hired on or prior to December 31, 2007 have an immediate and fully vested interest in the portion of the account relating to employer contributions and may, upon resignation from or discharge by the employer, withdraw their entire account balance. Forfeitures in the amount of $552,521 and $202,594 as of December 31, 2011 and 2010, respectively, were available to offset future employer contributions or plan administrative expenses at the discretion of the Company.

Employer contributions made to the prior United Plan are subject to a six-year vesting schedule based on the participant’s United service date. Forfeitures of non-vested participants will be used to reduce the Company’s matching contributions. As of December 31, 2011, forfeitures in the amount of $78,868 were available for reducing future Company matching contributions.

Employer contributions made to the prior KTI Plan are subject to a four or five-year vesting schedule, depending on the nature of the contribution, based on the participant’s KTI service date. Forfeitures of non-vested participants will be used to reduce the Company’s matching contributions. As of December 31, 2011, forfeitures in the amount of $356,451 were available for reducing future Company matching contributions.

(f) Plan Termination

Although it has not expressed any intent to do so, the Company has the right under the Plan to terminate the Plan subject to the provisions of ERISA. In the event of termination, the amounts credited to the accounts of participants will be distributed to the participants after payment of expenses for distribution and liquidation.

(g) Participant Accounts

Under the Plan, each participant’s account is credited with the participant’s contribution, the Company’s matching contribution and an allocation of investment income (loss), net of administrative expenses. Investment income (loss) is allocated daily to participants. The benefit to which a participant is entitled is the benefit that can be provided from the participant’s vested account.

(h) Administrative Expenses

All administrative expenses, unless paid by the Company at its discretion, are paid by the Plan.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

(2) Summary of Significant Accounting Policies

(a) Basis of Presentation

The accompanying financial statements have been prepared on the modified cash basis, which is a comprehensive basis of accounting other than U.S. generally accepted accounting principles, and is an acceptable method of reporting under Department of Labor regulations. The modified cash basis of accounting utilizes the cash basis of accounting while carrying investments at fair value and recording investment income (loss) on the accrual basis. Consequently, contributions are recognized when received rather than when earned, and expenses are recognized when paid rather than when the obligation is incurred. As of December 31, 2011, $163,027 of employee contributions had not been remitted to the trust and all of the employer contributions had been remitted to the trust for the 2011 Plan year. As of December 31, 2010, all employee and employer contributions for the 2010 Plan year had been remitted to the trust. As of December 31, 2011 and 2010, excess deferrals of $2,116 and $1,338, respectively, were held by the trust and distributed to participants subsequent to year end. Under U.S. generally accepted accounting principles, these amounts would have been reflected as accounts receivable and accounts payable, respectively.

(b) Use of Estimates

The preparation of financial statements requires Plan management to make estimates and assumptions that affect the reported amounts of assets, liabilities, and disclosure of contingent assets and liabilities, and changes therein. Actual results could differ from those estimates.

(c) Investment Valuation and Income Recognition

Investments in mutual funds and Company common stock are stated at fair value based on quoted market prices. Investments in common trust funds are stated at fair market value based upon quoted market prices of the underlying assets. Purchases and sales of investments are recorded on a trade date basis. Net appreciation (depreciation) in fair value of investments includes realized gains and losses on investments sold during the year as well as net appreciation (depreciation) of the investments held at the end of the year. Interest and dividend income is accrued in the period earned.

(Continued)

The accounting literature requires investment contracts held by a defined contribution plan to be reported at fair value. However, contract value (cost plus accrued interest) is the relevant measurement attribute for that portion of the net assets available for benefits of a defined contribution plan attributable to fully benefit-responsive investment contracts because contract value is the amount that participants would receive if they were to initiate permitted transactions under the terms of the Plan. Therefore, the statement of net assets available for benefits presents the fair value of the investment contracts as well as the adjustment of the fully benefit-responsive investment contracts from fair value to contract value. The statement of changes in net assets available for benefits is prepared on a contract value basis.

The Plan invests in investment contracts through The Invesco Stable Value Retirement Fund and The Merrill Lynch Retirement Preservation Trust Fund which are common trust funds that primarily invest in guaranteed investments contracts (“GICs”) and synthetic GICs and are presented at fair value as of December 31, 2011 and 2010. No adjustment from fair value to contract value was required at December 31, 2010 as no investment contracts were outstanding at December 31, 2010. Effective February 19, 2011, the Plan transferred all balances in The Merrill Lynch Retirement Preservation Trust Fund to the Federated Capital Preservation Fund, a collective trust.

(d) Notes Receivable from Participants

Notes receivable from participants represent loans that are recorded at their unpaid principal balance plus any accrued but unpaid interest.

(e) Benefit Payments

Payments to participants are recorded as the benefits are paid.

(f) Accounting Pronouncements

In September 2010, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2010-25, “Reporting Loans to Participants by Defined Contribution Pension Plans” (“ASU 2010-25”). ASU 2010-25 requires participant loans to be measured at their unpaid principal balance plus any accrued but unpaid interest and to be classified as notes receivable from participants. The Update should be applied retrospectively to all prior periods presented, effective for fiscal years ending after December 15, 2010. The Plan applied the provisions of this standard to its financial statements and disclosures beginning in the annual reporting period ending December 31, 2010. Interest income related to participant loans has been reclassified to interest income from participants’ notes receivable.

(Continued)

In January 2010, the FASB issued ASU 2010-06, “Improving Disclosures about Fair Value Measurements” (“ASU 2010-06”). ASU 2010-06 requires additional disclosures about fair value measurements including transfers in and out of Levels 1 and 2 as well as the reasons for the transfers and a greater level of disaggregation for each class of assets and liabilities. For the reconciliation of Level 3 fair value measurements, information about purchases, sales, issuances and settlements are presented separately rather than one net number. This standard is effective for interim and annual reporting periods beginning after December 15, 2009. The Plan applied the provisions of this standard to its financial statement disclosures beginning in annual reporting period ending December 31, 2010.

(3) Investments and Investment Options

Each participant has the right to direct his or her contributions and the Company’s matching contributions, once remitted, between the investment funds offered by the Plan. Descriptions of the Plan’s investment fund options are included in the summary plan description provided to all eligible employees.

Participants may direct their investment contributions to the following investment funds: Invesco Stable Value Retirement Fund, Merrill Lynch Equity Index Trust Fund, American Beacon Small Cap Value Fund, American Funds Bond Fund of America, Blackrock FFI Treasury Fund, ING Global Real Estate Fund, Northern Emerging Markets Equity Fund, Northern Trust Aggregate Bond Index Fund, Northern Trust Collective All Country World ex-US Index Fund, Prudential Jennison Large Cap Growth Fund, TCW Small Cap Growth Fund, Thornburg International Value Fund, T. Rowe Price Equity Income Fund, T. Rowe Price Retirement 2010 Fund, T. Rowe Price Retirement 2015 Fund, T. Rowe Price Retirement 2020 Fund, T. Rowe Price Retirement 2025 Fund, T. Rowe Price Retirement 2030 Fund, T. Rowe Price Retirement 2035 Fund, T. Rowe Price Retirement 2040 Fund, T. Rowe Price Retirement 2045 Fund, T. Rowe Price Retirement 2050 Fund, T. Rowe Price Retirement 2055 Fund and Company common stock.

The Invesco Stable Value Retirement Fund, American Beacon Small Cap Value Fund, Northern Emerging Markets Equity Fund, Northern Trust Aggregate Bond Index Fund, Northern Trust Collective All Country World ex-US Index Fund, Prudential Jennison Large Cap Growth Fund, TCW Small Cap Growth Fund, T. Rowe Price Equity Income Fund and T. Rowe Price Retirement 2055 Fund were added in 2011.

The Merrill Lynch International Index Trust Fund, Merrill Lynch Retirement Preservation Trust Fund, Pioneer Emerging Markets Equity Fund, Prudential Jennison 20/20 Focus Fund and Oppenheimer Main Street Small Cap Fund were removed in 2011.

Effective May 18, 2012, the Northern Multi-Manager Emerging Markets Equity Fund was added and the Northern Emerging Markets Equity Fund was removed from the Plan with all funds in the Northern Emerging Markets Equity Fund being transferred to the Northern Multi-Manager Emerging Markets Equity Fund.

Allocation to Company common stock is limited to fifty percent of each participant’s portfolio. The limit is applied when participants direct the investment of future contributions and rebalance their entire portfolio.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

The following presents investments that represent 5% or more of the Plan's net assets as of December 31:

2011:	
Invesco Stable Value Retirement Fund (contract value of $31,423,002)	$ 32,365,692
Prudential Jennison Large Cap Growth Fund	25,267,577
T. Rowe Price Equity Income Fund	22,132,370
Thornburg International Value Fund	18,492,372
American Funds Bond Fund of America	16,407,393
Blackrock FFI Treasury Fund	14,898,599
Merrill Lynch Equity Index Trust Fund	13,916,595
Company common stock	51,068,389
2010:	
Prudential Jennison 20/20 Focus Fund	$ 23,027,435
Blackrock FFI Treasury Fund	15,518,892
T. Rowe Price Retirement 2020 Fund	9,943,115
Merrill Lynch Retirement Preservation Trust Fund	9,941,923
Merrill Lynch Equity Index Trust Fund	9,411,685
Thornburg International Value Fund	8,829,940
Company common stock	35,635,956

The Plan's investments (including realized gains and losses on investments bought and sold, as well as unrealized gains and losses on investments held during the year) appreciated in value as follows for the years ended December 31:

	2011	2010
Common trust funds	$ (53,703)	$ 1,285,011
Mutual funds	(3,304,644)	6,012,761
Company common stock	17,423,670	7,632,236
	$ 14,065,323	$ 14,930,008

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

(4) Concentration of Investments

The Plan's investment in shares of Company common stock represents 21% and 24% of total assets as of December 31, 2011 and 2010, respectively. The Company is engaged in marine transportation and diesel engine services.

(5) Voting Rights

Each shareholder is entitled to exercise voting rights attributable to the shares of Company common stock allocated to his or her account and is notified by the trustee prior to the time that such rights are to be exercised. The trustee is not permitted to vote any shares for which instructions have not been given by the participant. During 2011 and 2010, the Plan purchased all shares of Company common stock in the open market.

(6) Risk and Uncertainties

The Plan may invest in common trust funds, mutual funds and Company common stock. Investment securities are exposed to various risks, such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is probable that changes in the value of investment securities will occur in the near term.

The Plan may invest in securities with contractual cash flows, such as asset backed securities, collateralized mortgage obligations and commercial mortgage backed securities, including securities backed by subprime mortgage loans. The value, liquidity and related income of those securities are sensitive to changes in economic conditions, including real estate value, delinquencies or defaults, or both, and may be adversely affected by shifts in the market's perception of the issuers and changes in interest rates.

(Continued)

(7) Related Party Transactions

Certain Plan investment options include shares of Company common stock and common trust funds managed by Bank of America. The Company is the plan sponsor and Bank of America is the trustee as defined by the Plan. Therefore, these transactions qualify as party-in-interest transactions. These transactions are covered by an exemption from the “prohibited transaction” provisions of ERISA and the Code.

The Plan has participant loans outstanding, which are secured solely by a portion of the participant’s vested account balance, in accordance with the Plan Document.

(8) Delinquent Participant Contributions

As reported on Schedule H, Line 4a – Schedule of Delinquent Participant Contributions, certain participant contributions and loan repayments were not remitted to the trust within the time frame specified by the Department of Labor’s Regulation 29 CFR 2510.3-102, thus constituting nonexempt transactions between the Plan and the Company.

(9) Federal Income Tax Status

Management considers the Plan to be in compliance with Section 401(a) of the Code and, accordingly, to be entitled to an exemption from federal income taxes under the provisions of Section 501(a). A letter dated March 31, 2008 has been received by Bank of America stating that the form of the prototype plan adopted by the Plan is acceptable under the Code Section 401 for use by employers for the benefit of their employees. The letter, in effect, states that an employer who adopts the Plan will be considered to be qualified under the Code Section 401(a) provided all terms of the Plan are met and the Plan does not discriminate in favor of key or highly compensated employees. Although the Plan has been amended since receiving the letter, the plan administrator believes the Plan was qualified and the related trust was tax exempt as of December 31, 2011 and 2010.

The Plan is currently open to audit under the statute of limitations by the IRS for the 2008 through 2010 tax years. The Plan has not recognized any assets or liabilities related to uncertain tax positions as of December 31, 2011.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

(10) Reconciliation of Financial Statements to Form 5500

The following is a reconciliation of net assets available for benefits per the financial statements to the Form 5500:

	December 31 2011	December 31 2010
Net assets available for benefits per the financial statements	$ 248,021,868	$ 148,214,161
Adjustment from contract value to fair value for fully benefit-responsive investment contracts	942,690	—
Net assets available for benefits per the Form 5500	$ 248,964,558	$ 148,214,161

The following is a reconciliation of net investment income in fair value of investments per the financial statements to the Form 5500:

	Years ended December 31 2011	Years ended December 31 2010
Net investment income in fair value of investments per the financial statements	$ 15,781,407	$ 15,800,209
Interest income from participants' notes receivable	500,554	504,844
Adjustment from contract value to fair value for fully benefit responsive investment contracts as of end of year	942,690	537,230
Net investment income in fair value of investments per the Form 5500	$ 17,224,651	$ 16,842,283

Fully benefit-responsive investment contracts are recorded on the Form 5500 at fair value but are adjusted to contract value for financial statement presentation.

(Continued)

(11) 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 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 following is a description of the valuation methodologies used for Plan's financial instruments and the classification of such instruments within the valuation hierarchy.

Mutual Funds

These instruments are public investment vehicles valued using the net asset value provided by the administrator of the fund. The net asset value price is quoted on an active market and is classified within level 1 of the valuation hierarchy.

Company Common Stock

Company common stock is valued at the closing price listed by the New York Stock Exchange and is classified within level 1 of the valuation hierarchy.

Common Trust Funds

These instruments are investment vehicles valued using the net asset value provided by the administrator of the fund. The net asset value is classified within level 2 of the valuation hierarchy because the net asset value price is quoted on an inactive private market although the underlying investments are traded on an active market. The net asset value is used as a practical expedient to determine fair value. Each collective trust provides for redemptions by the Plan at reported net asset values per share, with little to no advance notice requirement.

The methods described above may produce a fair value calculation that may not be indicative of net asset value or reflective of future fair values. Furthermore, while the Plan's valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

The following table summarizes the Plan's investment assets measured at fair value on a recurring basis at December 31, 2011:

	Quoted Prices in Active Markets For Identical Asset (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Mutual funds:				
Fixed income	$ 31,305,992	$ -	$ -	$ 31,305,992
Balanced	20,263,474	-	-	20,263,474
Equity	59,242,972	-	-	59,242,972
Real estate	997,896	-	-	997,896
International equity	20,948,252	-	-	20,948,252
Total mutual funds	132,758,586	-	-	132,758,586
Company common stock	51,068,389	-	-	51,068,389
Common trust funds:				
Fixed income	-	33,286,512	-	33,286,512
Equity index	-	13,916,595	-	13,916,595
International equity	-	2,517,205	-	2,517,205
Total common trust funds	-	49,720,312	-	49,720,312
	$ 183,826,975	$ 49,720,312	$ -	$ 233,547,287

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2011 and 2010

The following table summarizes the Plan's investment assets measured at fair value on a recurring basis at December 31, 2010:

	Quoted Prices in Active Markets For Identical Asset (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value
Mutual funds:				
Fixed income	$ 21,698,870	$ -	$ -	$ 21,698,870
Balanced	19,222,190	-	-	19,222,190
Equity	28,500,406	-	-	28,500,406
Real estate	813,418	-	-	813,418
International equity	10,903,662	-	-	10,903,662
Total mutual funds	81,138,546	-	-	81,138,546
Company common stock	35,635,956	-	-	35,635,956
Common trust funds:				
Fixed income	-	9,941,923	-	9,941,923
Equity index	-	9,411,685	-	9,411,685
International equity index	-	1,368,502	-	1,368,502
Total common trust funds	-	20,722,110	-	20,722,110
	$ 116,774,502	$ 20,722,110	$ -	$ 137,496,612

(Continued)

(12) Investment Contracts

The Plan invests in the Invesco Stable Value Trust ("Stable Value Trust") which is a collective trust that has entered into benefit-responsive guaranteed investment contracts and wrapper contracts with various financial institutions. The financial institutions maintain the contributions in investment contracts. The contracts are credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses.

As described in Note 2, because the guaranteed investment contracts held by the Stable Value Trust are fully benefit-responsive, contract value is the relevant measurement attribute for that portion of the net assets available for benefits attributable to the guaranteed investment contracts. Contract value, as reported to the Plan by the manager of the Stable Value Trust, represents contributions made under the contract, plus earnings, less participant withdrawals and administrative expenses. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value.

There are no reserves against contract value for credit risk of the contract issuers or otherwise. The crediting interest rate is based on a formula agreed upon with the issuers.

The Stable Value Trust has purchased wrapper contracts from the insurance companies. The wrapper contracts amortize the realized and unrealized gains and losses on the underlying fixed income investments, typically over the duration of the investments, through adjustments to the future interest crediting rate (which is the rate earned by participants in the fund for underlying investments). The issuers of the wrapper contracts provide assurance that the adjustments to the interest crediting rate do not result in a future interest crediting rate that is less than zero.

Certain events limit the ability of the Stable Value Trust to transact at contract value with the issuer. These events include termination of the Plan, a material adverse change to the provisions of the Plan, if the Plan elects to withdraw from a wrapper contract in order to switch to a different investment provider, or if the terms of a successor plan (in the event of the spin-off or sale of a division) do not meet the wrapper contract issuer's underwriting criteria for issuance of a clone wrapper contract. The events, described above that could result in the payment of benefits at market value rather than contract value, are not probable of occurring in the foreseeable future.

The wrapper contracts do not permit the issuers to terminate the contracts unless the Plan loses its qualified status, has incurred material breaches of responsibilities, or material and adverse changes occur to the provisions of the Plan.

The average yield earned by the Stable Value Trust was approximately 1.2% at December 31, 2011 and the average yield based on actual interest rates credit to participants was approximately 2.0% at December 31, 2011.

(Continued)

Schedule I

KIRBY 401(k) PLAN
Schedule H, Line 4a – Schedule of Delinquent Participant Contributions
(Modified Cash Basis)
Year ended December 31, 2011

	Total that Constitute Non exempt Prohibited Transactions			
Participant Contributions Transferred Late to Plan	**Contributions Not Corrected**	**Contributions Corrected Outside VFCP**	**Contributions Pending Correction in VFCP**	**Total Fully Corrected Under VFCP and PTE 2002-51**
Check here if Late Participant Loan Repayments are included: ☑				
$ 649	-	$ 649	-	-

On June 20, 2012, the Company reimbursed the Plan for lost interest of $1.

See accompanying report of independent registered public accounting firm.

Schedule II

KIRBY 401(k) PLAN
Schedule H, Line 4i – Schedule of Assets (Held at End of Year)
(Modified Cash Basis)
Year ended December 31, 2011

Identity of issue, borrower, lessor, or similar party	Description of asset	Current value
Common trust funds:		
Invesco	Invesco Stable Value Retirement Fund	$ 32,365,692
*Merrill Lynch	Merrill Lynch Equity Index Trust Fund	13,916,595
Northern Trust	Northern Trust Aggregate Bond Index Fund	920,820
Northern Trust	Northern Trust Collective All Country World ex-US Index Fund	2,517,205
Total common trust funds		49,720,312
Mutual Funds:		
American Beacon	American Beacon Small Cap Value Fund	8,186,578
American Funds	American Funds Bond Fund of America	16,407,393
Blackrock	Blackrock FFI Treasury Fund	14,898,599
ING Funds	ING Global Real Estate Fund	997,896
Northern Trust	Northern Emerging Markets Equity Fund	2,455,880
Prudential Jennison	Prudential Jennison Large Cap Growth Fund	25,267,577
TCW	TCW Small Cap Growth Fund	3,656,447
Thornburg	Thornburg International Value Fund	18,492,372
T. Rowe Price	T. Rowe Price Equity Income Fund	22,132,370
T. Rowe Price	T. Rowe Price Retirement 2010 Fund	2,760,863
T. Rowe Price	T. Rowe Price Retirement 2015 Fund	1,357,540
T. Rowe Price	T. Rowe Price Retirement 2020 Fund	9,604,251
T. Rowe Price	T. Rowe Price Retirement 2025 Fund	512,217
T. Rowe Price	T. Rowe Price Retirement 2030 Fund	2,464,538
T. Rowe Price	T. Rowe Price Retirement 2035 Fund	220,436
T. Rowe Price	T. Rowe Price Retirement 2040 Fund	3,159,166
T. Rowe Price	T. Rowe Price Retirement 2045 Fund	42,488
T. Rowe Price	T. Rowe Price Retirement 2050 Fund	141,754
T. Rowe Price	T. Rowe Price Retirement 2055 Fund	221
Total mutual funds		132,758,586
Common stock:		
*Kirby Corporation	Common stock	51,068,389
*Notes receivable from participants	Interest rates ranging from 4.25% to 10.76% and maturity dates from January 2, 2012 to September 18, 2035	15,459,669
Total assets (held at end of year)		$ 249,006,956

*Parties in interest to the Plan.

See accompanying report of independent registered public accounting firm.

Pursuant to the requirements of the Securities Exchange Act of 1934, the Plan administrator, which administers the Plan, has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

Kirby 401(k) Plan

June 27, 2012

BY: /s/ Christian G. O'Neil

CHRISTIAN G. O'NEIL
Vice President - Human Resources of
Kirby Corporation and member of the Benefit Plan
Administrative Committee

The following documents are filed as part of this report.

Exhibit number	Description
23	Consent of Independent Registered Public Accounting Firm

Exhibit 23

Consent of Independent Registered Public Accounting Firm

The Plan Administrator
Kirby 401(k) Plan:

We consent to the incorporation by reference in the Registration Statements (File Nos. 333-129333 and 33-57625) on Form S-8 of Kirby Corporation of our report dated June 27, 2012, with respect to the statements of net assets available for benefits (modified cash basis) of the Kirby 401(k) Plan as of December 31, 2011 and 2010, and the related statements of changes in net assets available for benefits (modified cash basis) for the years then ended and the supplemental schedule H, line 4a – schedule of delinquent participant contributions (modified cash basis) for the year ended December 31, 2011 and the supplemental schedule H, line 4i – schedule of assets (held at end of year) (modified cash basis) as of December 31, 2011, which report appears in the December 31, 2011 Annual Report on Form 11-K of the Kirby 401(k) Plan.

/s/ KPMG LLP

Houston, Texas
June 27, 2012