
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, 2009

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

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

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Report of Independent Registered Public Accounting Firm

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, 2009 and 2008 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, 2009 and 2008 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, 2009 and supplemental schedule H, line 4i – schedule of assets (held at end of year) (modified cash basis) as of December 31, 2009 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 21, 2010

KIRBY 401(k) PLAN
Statements of Net Assets Available for Benefits
(Modified Cash Basis)
December 31, 2009 and 2008

	<u>2009</u>	<u>2008</u>
Assets:		
Investments, at fair value	\$ 118,753,705	\$ 87,843,289
Participant loans	9,278,934	8,437,935
Other receivables	37,582	5,694
Total assets	<u>128,070,221</u>	<u>96,286,918</u>
Liabilities:		
Other liabilities	—	298,527
Total liabilities	<u>—</u>	<u>298,527</u>
Net assets available for benefits before adjustment	128,070,221	95,988,391
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	<u>537,230</u>	<u>1,060,706</u>
Net assets available for benefits	<u>\$ 128,607,451</u>	<u>\$ 97,049,097</u>

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, 2009 and 2008

	<u>2009</u>	<u>2008</u>
Additions to net assets attributed to:		
Contributions from participants	\$ 10,537,794	\$ 10,682,531
Contributions from employer	5,009,237	4,606,000
Rollover contributions	2,191,456	2,252,507
Interest and dividend income	1,347,321	2,097,213
Net appreciation (depreciation) in fair value of investments	23,671,234	(38,772,137)
Total additions, net	<u>42,757,042</u>	<u>(19,133,886)</u>
Deductions from net assets attributed to:		
Benefits paid to participants	11,048,760	7,788,848
Investment counselor fees and other	149,928	103,653
Total deductions	<u>11,198,688</u>	<u>7,892,501</u>
Net increase (decrease)	31,558,354	(27,026,387)
Net assets available for benefits, beginning of year	97,049,097	124,075,484
Net assets available for benefits, end of year	<u>\$ 128,607,451</u>	<u>\$ 97,049,097</u>

See accompanying notes to financial statements.

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(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 Global Power Systems, L.L.C. (GPS) Profit Sharing Plan (GPS Plan) was merged into the Plan, and all GPS balances were transferred to the Plan effective December 31, 2006. Commencing January 1, 2007, former GPS Plan participants are subject to the same plan provisions as the Plan participants. In connection with the plan merger, the Plan was amended on December 31, 2006 to include GPS employees.

(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. Merrill Lynch Trust Co. (Merrill Lynch) is the trustee of the Plan.

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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(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 2009 and \$5,000 in 2008). The Company contributes matching employer contributions equal to 100% of basic employee pretax contributions. The Plan allows the use of forfeited amounts to offset future matching 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.

All employees hired or rehired are automatically enrolled at a 3% 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.

(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 9.25% at December 31, 2009. Loans outstanding at December 31, 2009 mature from January 15, 2010 through December 30, 2014. 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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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(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 \$107,448 and \$11,032 as of December 31, 2009 and 2008, respectively, were available to offset future employer contributions or plan administrative expenses at the discretion of the Company.

Employer contributions made to the prior GPS Plan are subject to a three-year vesting schedule based on the participant's GPS service date. Forfeitures of nonvested participants are credited to the accounts of former GPS Plan participants employed at year-end based on a formula that considers the total compensation, as defined, of all former GPS Plan participants for that plan year. Forfeitures in the amount of \$82,025 and \$71,883 as of December 31, 2009 and 2008, respectively, were available for allocation to former GPS Plan participants and the Company is in the process of completing the allocation.

(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, 2009 and 2008

(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, 2009, \$174,141 of employee contributions and \$80,219 of employer contributions for the 2009 Plan year had not been remitted to the trust. As of December 31, 2008, \$188,388 of employee contributions and \$89,996 of employer contributions for the 2008 Plan year had not been remitted to the trust. As of December 31, 2009 and 2008, excess deferrals of \$29,930 and \$387,571, 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.

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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

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 Merrill Lynch Retirement Preservation Trust Fund which is a common trust fund that primarily invests in guaranteed investments contracts ("GICs") and synthetic GICs and is presented at fair value as well as the adjustment from fair value to contract value.

(d) Participant Loans

Participant loans are recorded at amortized cost.

(e) Benefit Payments

Payments to participants are recorded as the benefits are paid.

(f) Fair Value of Financial Instruments

The Plan's financial instruments consist of investments and participant loans. Investments are recorded at fair value and the recorded amount of participant loans approximate fair value.

(g) Accounting Pronouncements

In June 2009, the Financial Accounting Standards Board ("FASB") issued FASB No. 168, "The FASB Accounting Standards Codification and the Hierarchy of Generally Accepted Accounting Principles, a replacement of FASB Statement No. 162" ("SFAS No. 168"). SFAS No. 168 was effective for interim and annual periods ending after September 15, 2009. Under SFAS No. 168, the FASB Accounting Standards Codification (the "Codification" or "ASC") became the source of authoritative U.S. generally accepted accounting principles ("GAAP") recognized by the FASB to be applied by nongovernmental entities. Rules and interpretive releases of the Securities and Exchange Commission ("SEC") under authority of federal securities laws are also sources of authoritative GAAP for SEC registrants. The Codification superseded all existing non-SEC accounting and reporting standards at September 15, 2009. All other nongrandfathered non-SEC accounting literature not included in the Codification has become nonauthoritative. SFAS No. 168 has been incorporated in ASC 105, "Generally Accepted Accounting Principles". The Plan adopted SFAS No. 168 in 2009 with no effect on the Plan's financial statements except for the change in the referencing of financial accounting standards.

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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

The Plan adopted a new accounting standard included in ASC 855, “Subsequent Events” which establishes general standards of accounting for and disclosure of events that occur after the balance sheet date but before financial statements are issued or are available to be issued. The Plan adopted this standard in 2009 and has evaluated subsequent events through June 21, 2010, the time of filing of these financial statements with the SEC.

In September 2009, the FASB issued Accounting Standards Update (“ASU”) 2009-12, “Fair Value Measurements and Disclosures (Topic 820) – Investments in Certain Entities that Calculate Net Asset Value per Share (or Its Equivalent)”. This update provides guidance on estimating the fair value of an entity’s investments in investment companies when the investment does not have a readily determinable fair value. It permits the use of the investment’s net asset value as a practical expedient to determine fair value. This guidance is effective for periods ending after December 15, 2009. The adoption did not have a material impact on the Plan’s financial statements and all applicable disclosures are included in these financial statements.

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 with the exception of revised Level 3 disclosure requirements which are effective for interim and annual reporting periods beginning after December 15, 2010. The Plan will apply 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 could direct their investment contributions to the following investment funds during 2009 and 2008: Blackrock FFI Treasury Fund, Merrill Lynch Equity Index Trust Fund, Merrill Lynch International Index Trust Fund, Merrill Lynch Retirement Preservation Trust Fund, Pioneer Emerging Markets Fund, Jennison 20/20 Focus Fund, ING Global Real Estate Fund, American Funds Bond Fund of America, Oppenheimer Main Street Small Cap Fund, Thornburg International Value 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 and Company common stock.

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

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.

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

2009:	
Jennison 20/20 Focus Fund	\$ 22,911,066
Blackrock FFI Treasury Fund	16,072,400
T. Rowe Price Retirement 2020 Fund	8,585,273
Merrill Lynch Retirement Preservation Trust Fund (contract value of \$7,785,947)	7,248,717
Merrill Lynch Equity Index Trust Fund	7,278,822
Thornburg International Value Fund	7,117,214
Company common stock	29,047,777
Participant loans	9,278,934
2008:	
Blackrock FFI Treasury Fund	\$ 16,641,032
Jennison 20/20 Focus Fund	14,818,201
Merrill Lynch Retirement Preservation Trust Fund (contract value of \$7,630,975)	6,570,269
T. Rowe Price Retirement 2020 Fund	6,210,599
Merrill Lynch Equity Index Trust Fund	5,035,905
Company common stock	22,507,266
Participant loans	8,437,935

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 (depreciated) in value as follows for the years ended December 31:

	<u>2009</u>	<u>2008</u>
Common trust funds	\$ 2,297,811	\$ (2,662,675)
Mutual funds	15,087,028	(21,261,225)
Company common stock	6,286,395	(14,848,237)
	<u>\$ 23,671,234</u>	<u>\$ (38,772,137)</u>

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(4) Concentration of Investments

The Plan's investment in shares of Company common stock represents 23% of total assets as of December 31, 2009 and 2008. 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 2009 and 2008, 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)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(7) Related Party Transactions

Certain Plan investment options include shares of Company common stock, common trust funds and mutual funds managed by Merrill Lynch. The Company is the plan sponsor, and Merrill Lynch 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 June 4, 2002 has been received by Merrill Lynch 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. Therefore, the plan administrator believes the Plan was qualified and the related trust was tax exempt as of December 31, 2009 and 2008.

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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(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	
	2009	2008
Net assets available for benefits per the financial statements	\$ 128,607,451	\$ 97,049,097
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	(537,230)	(1,060,706)
Net assets available for benefits per the Form 5500	<u>\$ 128,070,221</u>	<u>\$ 95,988,391</u>

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

	Years ended December 31	
	2009	2008
Net investment income (loss) in fair value of investments per the financial statements	\$ 25,018,555	\$ (36,674,924)
Adjustment from fair value to contract value for fully benefit-responsive investment contracts as of end of year	523,476	(1,060,706)
Net investment income (loss) in fair value of investments per the Form 5500	<u>\$ 25,542,031</u>	<u>\$ (37,735,630)</u>

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

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KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

(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 public 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, 2009 and 2008

The following table summarizes the Plan's investment assets measured at fair value on a recurring basis at December 31, 2009:

	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	\$ 21,585,951	\$ -	\$ -	\$ 21,585,951
Balanced	15,646,252	-	-	15,646,252
Equity	26,319,867	-	-	26,319,867
Real estate	568,451	-	-	568,451
International equity	9,458,011	-	-	9,458,011
Total mutual funds	<u>73,578,532</u>	<u>-</u>	<u>-</u>	<u>73,578,532</u>
Company common stock	<u>29,047,777</u>	<u>-</u>	<u>-</u>	<u>29,047,777</u>
Common trust funds:				
Fixed income	-	7,248,717	-	7,248,717
Equity index	-	7,278,822	-	7,278,822
International equity index	-	1,599,857	-	1,599,857
Total common trust funds	<u>-</u>	<u>16,127,396</u>	<u>-</u>	<u>16,127,396</u>
	<u>\$ 102,626,309</u>	<u>\$ 16,127,396</u>	<u>\$ -</u>	<u>\$ 118,753,705</u>

(Continued)

KIRBY 401(k) PLAN
Notes to Financial Statements
(Modified Cash Basis)
December 31, 2009 and 2008

The following table summarizes the Plan's investment assets measured at fair value on a recurring basis at December 31, 2008:

	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	\$ 20,960,582	\$ -	\$ -	\$ 20,960,582
Balanced	10,407,347	-	-	10,407,347
Equity	16,115,676	-	-	16,115,676
Real estate	214,516	-	-	214,516
International equity	5,202,863	-	-	5,202,863
Total mutual funds	<u>52,900,984</u>	<u>-</u>	<u>-</u>	<u>52,900,984</u>
Company common stock	<u>22,507,266</u>	<u>-</u>	<u>-</u>	<u>22,507,266</u>
Common trust funds:				
Fixed income	-	6,570,269	-	6,570,269
Equity index	-	5,035,905	-	5,035,905
International equity index	-	828,865	-	828,865
Total common trust funds	<u>-</u>	<u>12,435,039</u>	<u>-</u>	<u>12,435,039</u>
	<u>\$ 75,408,250</u>	<u>\$ 12,435,039</u>	<u>\$ -</u>	<u>\$ 87,843,289</u>

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KIRBY 401(k) PLAN

Schedule H, Line 4a – Schedule of Delinquent Participant Contributions
(Modified Cash Basis)
Year ended December 31, 2009

Participant Contributions Transferred Late to Plan	Total that Constitute Non exempt Prohibited Transactions			Total Fully Corrected Under VFCP and PTE 2002-51
	Contributions Not Corrected	Contributions Corrected Outside VFCP	Contributions Pending Correction in VFCP	
Check here if Late Participant Loan Repayments are included: <input checked="" type="checkbox"/>				
\$3,989,795	\$ 965,867	\$ 3,023,928	-	-

On November 18, 2009, the Company reimbursed the Plan for lost interest in the amount of \$2,341 and expects to reimburse the Plan for lost interest in the amount of \$357 on June 23, 2010.

See accompanying report of independent registered public accounting firm.

(Continued)

KIRBY 401(k) PLAN
Schedule H, Line 4i – Schedule of Assets (Held at End of Year)
(Modified Cash Basis)
December 31, 2009

Identity of issue, borrower, lessor, or similar party	Description of asset	Current value
Common trust funds:		
*Merrill Lynch	Merrill Lynch Equity Index Trust Fund	\$ 7,278,822
*Merrill Lynch	Merrill Lynch International Index Trust Fund	1,599,857
*Merrill Lynch	Merrill Lynch Retirement Preservation Trust Fund	7,248,717
Total common trust funds		<u>16,127,396</u>
Mutual Funds:		
Blackrock	Blackrock FFI Treasury Fund	16,072,400
Pioneer Investments	Pioneer Emerging Markets Fund	2,340,797
JennisonDryden	Jennison 20/20 Focus Fund	22,911,066
ING Funds	ING Global Real Estate Fund	568,451
American Funds	American Funds Bond Fund of America	5,513,551
Oppenheimer Funds	Oppenheimer Main Street Small Cap Fund	3,408,801
Thornburg	Thornburg International Value Fund	7,117,214
T. Rowe Price	T. Rowe Price Retirement 2010 Fund	1,830,113
T. Rowe Price	T. Rowe Price Retirement 2015 Fund	479,856
T. Rowe Price	T. Rowe Price Retirement 2020 Fund	8,585,273
T. Rowe Price	T. Rowe Price Retirement 2025 Fund	67,863
T. Rowe Price	T. Rowe Price Retirement 2030 Fund	2,141,979
T. Rowe Price	T. Rowe Price Retirement 2035 Fund	90,461
T. Rowe Price	T. Rowe Price Retirement 2040 Fund	2,398,627
T. Rowe Price	T. Rowe Price Retirement 2045 Fund	22,424
T. Rowe Price	T. Rowe Price Retirement 2050 Fund	29,656
Total mutual funds		<u>73,578,532</u>
Common stock:		
*Kirby Corporation	Common stock	29,047,777
*Participant loans	Interest rates ranging from 4.25% to 9.25% and maturity dates from January 15, 2010 to December 30, 2014	<u>9,278,934</u>
Total assets (held at end of year)		<u>\$ 128,032,639</u>

*Parties in interest to the Plan.

See accompanying report of independent registered public accounting firm.

(Continued)

SIGNATURES

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 21, 2010

BY: /s/ Joseph H. Reniers

JOSEPH H. RENIERS

Vice President - Human Resources of Kirby Corporation and member of the Benefit Plan Administrative Committee

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The following documents are filed as part of this report.

Exhibit number	Description
23	Consent of Independent Registered Public Accounting Firm

Consent of Independent Registered Public Accounting Firm

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 21, 2010, with respect to the statements of net assets available for benefits (modified cash basis) of the Kirby 401(k) Plan as of December 31, 2009 and 2008, 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, 2009 and the supplemental schedule H, line 4i – schedule of assets (held at end of year) (modified cash basis) as of December 31, 2009, which report appears in the December 31, 2009 Annual Report on Form 11-K of the Kirby 401(k) Plan.

/s/ KPMG LLP

Houston, Texas
June 21, 2010
