

Kayne Anderson MLP Investment CO  
Form N-Q  
October 31, 2005

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
FORM N-Q  
QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED  
MANAGEMENT INVESTMENT COMPANY**

Investment Company Act file number 811-21593

**KAYNE ANDERSON MLP INVESTMENT COMPANY**

(Exact name of registrant as specified in charter)

1800 Avenue of the Stars, Second Floor, Los Angeles, California 90067

(Address of principal executive offices) (Zip code)

David Shladovsky, Esq.

Kayne Anderson Capital Advisors, L.P., 1800 Avenue of the Stars, Second Floor, Los Angeles, California 90067

(Name and address of agent for service)

Registrant's telephone number, including area code: (310) 556-2721

Date of fiscal year end: November 30th

Date of reporting period: June 1, 2005 through August 31, 2005

**Item 1: Schedule of Investments****KAYNE ANDERSON MLP INVESTMENT COMPANY  
SCHEDULE OF INVESTMENTS****AUGUST 31, 2005****(shares/units and \$ amounts in 000 s)****(unaudited)**

<b>Description</b>	<b>No. of Shares/Units</b>	<b>Value</b>
<b>Long-Term Investments 141.7%</b>		
<b>Equity Investments (a) 141.5%</b>		
<b>Pipeline MLP (b) 113.2 %</b>		
Atlas Pipeline Partners, L.P.	155	\$ 7,275
Buckeye Partners, L.P.	146	6,884
Copano Energy, L.L.C.	84	3,329
Copano Energy, L.L.C. Unregistered (c)	471	18,259
Copano Energy, L.L.C. Class B Units, Unregistered (c)	1,656	62,912
Crosstex Energy, L.P.	238	10,035
Crosstex Energy, L.P. Senior Subordinated Units, Unregistered (c)	1,047	40,559
Enbridge Energy Management, L.L.C. (d)	413	22,322
Enbridge Energy Partners, L.P.	1,943	104,816
Energy Transfer Partners, L.P.	4,556	168,532
Enterprise Products Partners L.P.	6,447	156,525
Genesis Energy, L.P.	134	1,425
Hiland Partners, LP	35	1,348
Holly Energy Partners, L.P.	109	4,581
Holly Energy Partners, L.P. Unregistered (c)	32	1,288
Kinder Morgan Management, LLC (d)	2,630	125,139
Magellan Midstream Partners, L.P.	486	16,025
Magellan Midstream Partners, L.P. Subordinated Units (c)	3,478	110,378
MarkWest Energy Partners, L.P.	193	9,636
Northern Border Partners, L.P.	633	30,265
Pacific Energy Partners, L.P.	388	12,704
Plains All American Pipeline, L.P.	921	43,140
Sunoco Logistics Partners L.P.	24	940
TC PipeLines, LP	226	7,804
TEPPCO Partners, L.P.	455	18,806
TransMontaigne Partners L.P.	56	1,448
Valero L.P.	633	36,721
		1,023,096
<b>Propane MLP 14.1%</b>		
Ferrellgas Partners, L.P.	1,776	38,939
Inergy, L.P.	2,983	88,797
		127,736
<b>Shipping MLP 2.6%</b>		

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K-Sea Transportation Partners L.P. (e)	119	4,758
Martin Midstream Partners L.P.	113	3,430
Teekay LNG Partners L.P.	167	5,322
U.S. Shipping Partners L.P.	374	9,640
		23,150
<b>Coal MLP 0.8%</b>		
Penn Virginia Resource Partners, L.P.	151	7,615
<b>MLP Affiliate 4.0%</b>		
Atlas America, Inc. (f)	114	5,274
Crosstex Energy, Inc.	326	20,785
MarkWest Hydrocarbon, Inc. (e)	257	6,412
TransMontaigne Inc.	360	3,407
		35,878
<b>Other 6.8%</b>		
Arlington Tankers Ltd.	144	3,237
Clearwater Natural Resources, LP Unregistered (c)	2,650	53,000
Diana Shipping Inc.	256	3,581
DryShips Inc.	76	1,221
		61,039
<b>Total Equity Investments (Cost \$1,064,866)</b>		1,278,514

**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**AUGUST 31, 2005**  
(shares/units and \$ amounts in 000 s)  
(unaudited)

Description	Interest Rate	Maturity Date	Principal Amount (in 000 s)	Value
<b>Fixed Income Investment</b> 0.2%				
<b>MLP Affiliate</b> 0.2%				
TransMontaigne Inc. (Cost \$2,024)	9.125%	06/01/10	\$ 2,000	\$ 2,100
<b>Total Long-Term Investments (Cost \$1,066,890)</b>				1,280,614
<b>Short-Term Investment</b> 4.4%				
<b>Repurchase Agreement</b> 4.4%				
Bear, Stearns & Co. Inc. (Agreement dated 8/31/05 to be repurchased at \$39,353), collateralized by \$40,493 in U.S. Government and Agency Securities (Cost \$39,349)	3.530	09/01/05	39,349	39,349
<b>Total Investments (Cost \$1,106,239)</b>				1,319,963
			<b>No. of Shares/Units</b>	
<b>Liabilities</b>				
<b>Securities Sold Short</b>				
<b>Equity Investment</b>				
<b>Coal MLP</b>				
Alliance Resource Partners, L.P.			15	(1,358)
			<b>Principal Amount (in 000 s)</b>	
<b>Fixed Income Investment</b>				
<b>Pipeline MLP</b>				
Enterprise Products Partners L.P.	4.950	06/01/10	\$ 5,350	(5,359)
<b>Total Securities Sold Short (Cash proceeds received \$6,415)</b>				(6,717)
<b>Auction Rate Senior Notes</b>				(260,000)
<b>Unrealized Depreciation on Interest Rate Swap Contracts</b>				(2,613)
<b>Deferred Taxes</b>				(81,114)
<b>Current Taxes</b>				(2,250)

<b>Other Liabilities</b>	(3,193)
<b>Total Liabilities</b>	(355,887)
<b>Other Assets</b>	14,311
<b>Total Liabilities in Excess of Other Assets</b>	(341,576)
<b>Preferred Stock at Redemption Value</b>	(75,000)
<b>Net Assets Applicable to Common Stockholders</b>	\$ 903,387

(a) Unless otherwise noted, equity investments are common units/common shares.

(b) Includes Limited Liability Companies or L.L.C.s.

(c) Fair valued security. These securities are restricted from public sale. The Company negotiates certain aspects of the method and timing of the disposition of these investments, including registration rights and related costs.

(d) Distributions made are paid in-kind.

(e) Security or a portion thereof is segregated as collateral on interest rate swap contracts and securities

sold short.

- (f) Security is non-income producing.

Certain of the Company's investments are restricted as to resale and are valued as determined in accordance with procedures established by the Board of Directors. The table below shows the number of units held, the acquisition dates, aggregate costs, fair value as of August 31, 2005, value per unit of such securities, percent of net assets and total assets which the securities comprise. Unless otherwise noted, the security is a common unit.

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Security	Number of Units (in 000 s)	Acquisition Date	Cost (in 000 s)	Fair Value (in 000 s)	Value Per Unit	Percent	Percent
						of Net Assets	of Total Assets
Clearwater Natural Resources, LP Unregistered	2,650	08/01/05	\$ 53,000	\$ 53,000	\$ 20.00	5.9%	4.0%
Copano Energy, L.L.C. Unregistered	471	08/01/05	13,543	18,259	38.80	2.0	1.4
Copano Energy, L.L.C. Class B Units, Unregistered	1,656	08/01/05	46,458	62,912	37.98	7.0	4.7
Crosstex Energy, L.P. Senior Subordinated Units, Unregistered	1,047	06/24/05	35,011	40,559	38.75	4.5	3.0
Holly Energy Partners, L.P. Unregistered	32	07/08/05	1,316	1,288	40.12	0.1	0.1
Magellan Midstream Partners, L.P. Subordinated Units	3,478	04/13/05	100,021	110,378	31.73	12.2	8.3
			\$ 249,349	\$ 286,396		31.7%	21.5%

At August 31, 2005, the cost basis of investments for Federal income tax purposes was \$1,106,239. At August 31, 2005, gross unrealized appreciation and depreciation of investments for Federal income tax purposes were as follows:

Gross unrealized appreciation (including securities sold short)	\$ 214,811
Gross unrealized depreciation (including securities sold short)	(1,388)
Net unrealized appreciation	\$ 213,423

Securities valuation policies and other investment related disclosures are hereby incorporated by reference to the Company's semi-annual report previously filed with the Securities and Exchange Commission on Form N-CSR on August 9, 2005, with a file number 811-21593.

Other information regarding the Company is available in the Company's most recent semi-annual report. This information is also available on the Company's website at <http://www.kaynemlp.com>; or on the website of the Securities and Exchange Commission, <http://www.sec.gov>.

### Item 2: Controls and Procedures

(a) As of a date within 90 days from the filing date of this report, the principal executive officer and principal financial officer concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940 (the Act)), were effective based on their evaluation of the disclosure controls and procedures required by Rule 30a-3(b) under the Act and Rules 13a-15(b) or 15d-15(b) under the Securities and Exchange Act of 1934.

(b) There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the Act) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

### Item 3: Exhibits

1. The certifications of the registrant as required by Rule 30a-2(a) under the Act are exhibits to this report.

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

KAYNE ANDERSON MLP INVESTMENT  
COMPANY

/s/ Kevin S. McCarthy  
Name: Kevin S. McCarthy  
Title: Chief Executive Officer  
Date: October 31, 2005

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

/s/ Kevin S. McCarthy  
Name: Kevin S. McCarthy  
Title: Chief Executive Officer  
Date: October 31, 2005

/s/ Ralph Collins Walter  
Name: Ralph Collins Walter  
Title: Chief Financial Officer  
Date: October 31, 2005