

Kayne Anderson MLP Investment CO
 Form 4
 November 27, 2007

FORM 4 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
 Washington, D.C. 20549

OMB APPROVAL
 OMB Number: 3235-0287
 Expires: January 31, 2005
 Estimated average burden hours per response... 0.5

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STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *
 McCarthy Kevin S

2. Issuer Name and Ticker or Trading Symbol
 Kayne Anderson MLP Investment CO [KYN]

5. Relationship of Reporting Person(s) to Issuer
 (Check all applicable)
 Director 10% Owner
 Officer (give title below) Other (specify below)
 Chairman, President and CFO

(Last) (First) (Middle)
 C/O KAYNE ANDERSON
 CAPITAL ADVISORS, LP, 1800
 AVENUE OF THE STARS,
 SECOND FLOOR
 (Street)
 LOS ANGELES, CA 90067
 (City) (State) (Zip)

3. Date of Earliest Transaction
 (Month/Day/Year)
 11/26/2007

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)
 Form filed by One Reporting Person
 Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|-----------------------------------|
| | | | | (A) or (D) Code V Amount (D) Price | | | |
| Common Stock | 11/26/2007 | | P | 3,000 A \$ 26.84 | 31,000 | D | |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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