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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

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**FORM 8-K**

**CURRENT REPORT**  
**Pursuant To Section 13 or 15(d) of the**  
**Securities Exchange Act of 1934**

**Date of report (Date of earliest event reported): April 11, 2006**

**KLA-TENCOR CORPORATION**

(Exact Name of Registrant  
as Specified in Charter)

Delaware  
(State or Other Jurisdiction of  
Incorporation)

000-09992  
(Commission File Number)

04-2564110  
(IRS Employer Identification No.)

160 Rio Robles  
San Jose, California 95134  
(Address of Principal Executive Offices)

Registrant's telephone number, including area code: (408) 875-3000

N/A  
(Former Name or Former Address, if Changed Since Last Report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 8.01 Other Events**

As previously disclosed in the preliminary merger proxy filed by KLA-Tencor Corporation and ADE Corporation, both KLA-Tencor and ADE filed Notification and Report Forms with the Federal Trade Commission and the Antitrust Division of the Department of Justice, or the Antitrust Division, pursuant to the Hart-Scott-Rodino Antitrust Improvement Act of 1976, or the HSR Act, by March 8, 2006. As a result, the waiting period under the HSR Act with respect to the merger between KLA-Tencor and ADE was scheduled to expire on April 7, 2006. However, prior to that date, following the submission of materials relating to the transaction to the Antitrust Division staff and consultation with the staff, KLA-Tencor voluntarily withdrew its Notification and Report Form and re-filed the form today. KLA-Tencor's re-filing gives the Antitrust Division staff more time to review the information submitted by the parties and to complete its initial investigation before the staff must determine whether to issue a formal request for additional information. The effect of this re-filing is to extend the waiting period under the HSR Act to May 11, 2006.

**Additional Information and Where to Find It**

This document may be deemed to be solicitation material in respect of the proposed business combination of KLA-Tencor and ADE. In connection with the proposed transaction, a registration statement on Form S-4 has been filed by KLA-Tencor with the SEC. STOCKHOLDERS OF ADE ARE ENCOURAGED TO READ THE REGISTRATION STATEMENT AND ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC, INCLUDING THE PROXY STATEMENT/PROSPECTUS THAT IS PART OF THE REGISTRATION STATEMENT, BECAUSE THEY CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION. The final proxy statement/prospectus will be mailed to stockholders of ADE. Investors and security holders will be able to obtain the documents free of charge at the SEC's website, [www.sec.gov](http://www.sec.gov), from KLA-Tencor Corporation, 160 Rio Robles, San Jose, California, 95134, Attention: Investor Relations, or from ADE Corporation, 80 Wilson Way, Westwood, Massachusetts 02090, Attention: Investor Relations.

KLA-Tencor, ADE and their respective directors and executive officers and other members of management and employees may be deemed to participate in the solicitation of proxies in respect of the proposed transactions. Information regarding KLA-Tencor's directors and executive officers is available in KLA-Tencor's proxy statement for its 2005 annual meeting of shareholders, which was filed with the SEC on October 13, 2005, and information regarding ADE's directors and executive officers is available in ADE's annual report on Form 10-K for the year ended April 30, 2005, and its proxy statement for its 2005 annual meeting of stockholders, which were filed with the SEC on July 26 and August 19, 2005, respectively. Additional information regarding the interests of such potential participants will be included in the proxy statement/prospectus and the other relevant documents filed with the SEC when they become available.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**KLA-TENCOR CORPORATION**

Date: April 11, 2006

By: /s/ Stuart J. Nichols  
Name: Stuart J. Nichols  
Title: Vice President and General Counsel