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

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 12, 2004

MERCURY COMPUTER SYSTEMS, INC.

(Exact Name of Registrant as Specified in Charter)

Massachusetts
(State or Other Jurisdiction
of Incorporation)

000-23599
(Commission File Number)

04-2741391
(IRS Employer
Identification No.)

199 Riverneck Road, Chelmsford, Massachusetts
(Address of Principal Executive Offices)

01824
(Zip Code)

Registrant's telephone number, including area code (978) 256-1300

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

ITEM 5. OTHER EVENTS

On April 12, 2004 Mercury Computer Systems, Inc. announced it has signed an agreement to purchase the TGS Group for approximately \$18.5 million, consisting of \$6.0 million in Mercury common stock and the remainder in cash, subject to closing adjustments. TGS is a leading supplier of three-dimensional (3-D) image processing and visualization software to diverse end markets including life sciences (medical imaging and biotechnology), geoscience (earth sciences including oil and gas exploration), and simulation (commercial and defense). The company is headquartered in Bordeaux, France and has operations in Berlin, Germany and San Diego, California. This transaction remains subject to closing conditions.

SIGNATURES

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

MERCURY COMPUTER SYSTEMS, INC.

Dated: April 12, 2004

By: /s/ Joseph M. Hartnett

Name: Joseph M. Hartnett
Title: Vice President, Controller and Chief Accounting Officer