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 23, 2008

Axcelis Technologies, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware (State or other jurisdiction of incorporation

000-30941 (Commission File Number)

34-1818596 (IRS Employer Identification No.)

108 Cherry Hill Drive Beverly, Massachusetts (Address of principal executive offices)

01915

(Zip Code)

Registrant's Telephone Number, Including Area Code: (978) 787-4000

(Former name or former address, if changed since last report)

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):

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

Item 1.01 Entry into a Material Definitive Agreement

On April 23, 2008, Axcelis Technologies, Inc. ("Axcelis") and its wholly owned subsidiary, Axcelis Technologies CCS Corporation ("Axcelis CCS"), entered into a revolving credit facility with Silicon Valley Bank. The revolving credit facility provides for borrowings up to the lesser of \$50 million or a percentage of the amount of qualifying accounts receivable and inventory. Axcelis expects to use the credit facility for working capital and for general corporate purposes.

The obligations under the credit facility are guaranteed by certain of Axcelis' domestic subsidiaries and are secured by (i) substantially all of the personal property of Axcelis, excluding Axcelis' interest in SEN Corporation, an SHI and Axcelis Company, (ii) all of the capital stock of certain of Axcelis' domestic subsidiaries and 65% of the capital stock of certain of its foreign subsidiaries, and (iii) substantially all of the other assets of Axcelis CCS and certain domestic subsidiaries. Axcelis did not draw on the credit facility at the effective date.

Interest rates for the credit facility are determined at the option of Axcelis and would range from (a) 3.25% to 3.75% above the LIBOR Rate for LIBOR-based borrowings or (b) 0.50% to 1.00% above the defined prime rate for prime rate borrowings, in each case based on the amount of Axcelis' unrestricted cash plus cash equivalents at Silicon Valley Bank.

A monthly unused revolving line facility fee on the unused portion of the total commitment is required. The unused revolving line facility fee would range from 0.70% to 0.95% based on the amount of Axcelis' unrestricted cash plus cash equivalents at Silicon Valley Bank.

The credit facility limits Axcelis and certain of its subsidiaries' ability to, among other things, dispose of assets, make acquisitions, incur additional indebtedness, incur liens, pay dividends and make other distributions, make investments, make payments on subordinated debt and engage in transactions with affiliates, except on an arms-length basis.

In addition, under the credit facility, Axcelis must comply with the following financial covenants:

(a) Liquidity. (i) At all times until Axcelis has achieved net income of at least \$1 for two consecutive fiscal quarters, Axcelis shall maintain (x) unrestricted cash and cash equivalents at Silicon Valley Bank plus (y) unused availability under the credit facility equal to the greater of (A) \$50 million or (B) two times

the amount of all outstanding credit extensions and (ii) at all times thereafter, Axcelis shall maintain (A) unrestricted cash and cash equivalents at Silicon Valley Bank plus (B) unused availability under the credit facility of at least \$40 million;

- (b) Maximum Losses. As of the last day of the respective fiscal quarter, Axcelis shall not suffer any loss on a consolidated basis in excess of: (i) \$17.5 million for the fiscal quarter ended March 31, 2008; (ii) \$7.5 million for the fiscal quarter ended June 30, 2008; and (iii) \$2.5 million for the fiscal quarter ended September 30, 2008; and
- (c) Profitability. Axcelis shall have a positive net income on a consolidated basis of at least \$1 for each fiscal quarter following the fiscal quarter ended September 30, 2008.

Any failure to comply with the financial or operating covenants of the credit facility would not only prevent Axcelis from being able to borrow additional funds, but would constitute a default, resulting in, among other things, the amounts outstanding, including all accrued interest and unpaid fees, becoming immediately due and payable.

2

A change in control of Axcelis also constitutes an event of default, permitting Silicon Valley Bank to accelerate the indebtedness and terminate the credit facility.

As a condition precedent to the initial borrowing under the credit facility, Axcelis must provide evidence to Silicon Valley Bank that the proceeds of the initial borrowing, together with other available resources, will be sufficient to pay the amounts due on Axcelis' 4.25% Senior Subordinated Notes due 2009.

In connection with the credit facility, Axcelis and Axcelis CCS also entered into a receivables purchase facility with Silicon Valley Bank. Silicon Valley Bank may purchase up to \$20 million of receivables from Axcelis and Axcelis CCS; provided that the total amount outstanding under the receivables purchase facility and credit facility does not exceed \$50 million. The receivables purchase facility is secured by the same collateral as the credit facility. Axcelis expects to use the receivables purchase facility for working capital and for general corporate purposes.

The credit facility matures on April 23, 2010, when all amounts will be due and payable in full. If the credit facility is terminated by Axcelis or Silicon Valley Bank after the occurrence and continuance of an event of default, then Axcelis shall owe a termination fee in an amount equal to 2.00% of the total commitment if such termination occurs on or prior to the first anniversary of the effective date or 1.00% of the total commitment if such termination occurs after the first anniversary of the effective date but prior to the second anniversary of the effective date. The receivables purchase facility also terminates on April 23, 2010.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant

The discussion under Item 1.01 above is incorporated herein by reference.

3

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 hereunto duly authorized.

Date: April 28, 2008 Axcelis Technologies, Inc.

By: /s/ STEPHEN G. BASSETT

Stephen G. Bassett Executive Vice President and Chief Financial Officer