

SCHEDULE 13G
(Rule 13d-102)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO RULES 13d-1(b), (c), AND (d) AND AMENDMENTS THERETO FILED
PURSUANT TO RULE 13d-2(b)
(Amendment No. 5)¹

Axcelis Technologies, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

054540109

(CUSIP Number)

8/31/2004

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

1 The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act, but shall be subject to all other provisions of the Act (however, see the Notes.)

(Continued on following pages)

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CUSIP No. 054540109

Schedule 13G

Page 2 of 7 Pages

1. NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY)
Wellington Management Company, LLP
04-2683227

2. CHECK THE APPROPRIATE BOX IF THE MEMBER OF A GROUP*

(a)
(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION
Massachusetts

5. SOLE VOTING POWER
NUMBER OF SHARES BENEFICIALLY 0

6. SHARED VOTING POWER

OWNED BY 7,158,647
EACH -----
REPORTING 7. SOLE DISPOTIVE POWER
PERSON 0
WITH -----
8. SHARED DISPOTIVE POWER
10,022,947

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
10,022,947

10. CHECK BOX IF AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN
SHARES* []

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9
10.028%

12. TYPE OF REPORTING PERSON
HC, IA

Item 1(a). Name of Issuer:

Axcelis Technologies, Inc.

Item 1(b). Address of Issuer's Principal Executive Offices:

55 Cherry Hill Drive
Beverly, MA 01915

Item 2(a). Name of Person Filing:

Wellington Management Company, LLP(''WMC'')

Item 2(b). Address of Principal Business Office or, if None,
Residence:

75 State St
Boston, MA 02109

Item 2(c). Citizenship:

Massachusetts

Item 2(d). Title of Class of Securities:

Common Stock

Item 2(e). CUSIP Number:

054540109

Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or
13d-2(b) or (c), Check Whether the Person Filing is a:

- (a) Broker or dealer registered under Section 15 of the Act.
- (b) Bank as defined in Section 3(a)(6) of the Act.
- (c) Insurance Company as defined in Section 3(a)(19) of
the Act.

- (d) Investment Company registered under Section 8 of the Investment Company Act.
- (e) An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F);
- (g) A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G); see item 7;
- (h) A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act;
- (i) A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (j) Group, in accordance with Rule 13d-1(b)(1)(ii)(J).

If this statement is filed pursuant to Rule 13d-1(c), check this box

Item 4. Ownership.

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount Beneficially Owned: WMC, in its capacity as investment adviser, may be deemed to beneficially own 10,022,947 shares of the Issuer which are held of record by clients of WMC.
- (b) Percent of Class: 10.028%
- (c) Number of shares as to which such person has:
- | | | | |
|-------|---|------------|-------|
| (i) | sole power to vote or to direct the vote | 0 | ----- |
| (ii) | shared power to vote or to direct the vote | 7,158,647 | ----- |
| (iii) | sole power to dispose or to direct the disposition of | 0 | ----- |
| (iv) | shared power to dispose or to direct the disposition of | 10,022,947 | ----- |

Item 5. Ownership of Five Percent or Less of Class.
If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following

[]

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

The securities as to which this Schedule is filed by WMC, in its capacity as investment adviser, are owned of record by clients of WMC. Those clients have the right to receive, or the power to direct the receipt of, dividends from, or the proceeds from the sale of, such securities. No such client is known to have such right or power with respect to more than five percent of this class of securities, except as follows:

None

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.

See Exhibit A

Item 8. Identification and Classification of Members of the Group.

Not Applicable. This schedule is not being filed pursuant to Rule 13d-1(b)(1)(ii)(J) or Rule 13d-1(d).

Item 9. Notice of Dissolution of Group.

Not Applicable

Item 10. Certification.

(a) The following certification shall be included if the statement is filed pursuant to Rule 13d-1(b):

"By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the

effect of changing or influencing the control of the issuer of
the securities and were not acquired and are not held in
connection with or as a participant in any transaction
having that purpose or effect. "

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief,
I certify that the information set forth in this statement is true,
complete and correct.

By: --//Julie A. Jenkins//--

Name: Julie A. Jenkins
Title: Vice President
Date: September 10, 2004

**Signed pursuant to a Power of Attorney dated March 3, 2004 and filed with the
SEC on March 10, 2004.

Exhibit A

Pursuant to the instructions in Item 7 of this Schedule 13G, the identity and the Item 3 classification of the relevant subsidiary are: Wellington Trust Company, NA, 75 State Street, Boston MA 02109, a wholly-owned subsidiary of Wellington Management Company, LLP and a bank as defined in Section 3(a)(6) of the Securities Exchange Act of 1934.