



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 6010

October 17, 2007

Stephen G. Bassett
Chief Financial Officer
Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, Massachusetts 01915

**RE: Axcelis Technologies, Inc.
Form 10-K for the fiscal year ended December 31, 2006
Filed March 15, 2007
File No. 000-30941**

Dear Mr. Bassett:

We have completed our review of your Form 10-K and related filings and do not, at this time, have any further comments.

Sincerely,

Martin F. James
Senior Assistant Chief Accountant