



DIVISION OF
CORPORATION FINANCE
Mail Stop 3030

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

April 6, 2009

Via Fax (978) 787-4090 and U.S. Mail

Ms. Lynette Fallon
Axcelis Technologies, Inc.
Secretary and General Counsel
108 Cherry Hill Drive
Beverly, MA 01915

**Re: Axcelis Technologies, Inc.
Preliminary Proxy Statement on Schedule 14A
Filed February 20, 2009
File No. 000-30941**

Dear Ms. Fallon:

We have completed our limited review of your Preliminary Proxy Statement and have no further comments at this time. If you have any questions, please contact Geoffrey D. Kruczek at (202) 551-3641.

Sincerely,

Russell Mancuso
Branch Chief