

Item 2.02. Results of Operations and Financial Condition

On August 6, 2009, Alnylam Pharmaceuticals, Inc. announced its financial results for the quarter ended June 30, 2009. The full text of the press release issued in connection with the announcement is furnished as Exhibit 99.1 to this Current Report on Form 8-K.

The information in this Form 8-K (including Exhibit 99.1) shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as expressly set forth by specific reference in such a filing.

Item 9.01. Financial Statements and Exhibits

(d) Exhibits

The following exhibit relating to Item 2.02 shall be deemed to be furnished, and not filed:

99.1 Press Release dated August 6, 2009.

SIGNATURE

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: August 6, 2009 **ALNYLAM PHARMACEUTICALS, INC.**

By: /s/ Patricia L. Allen
Patricia L. Allen
Vice President of Finance and Treasurer

EXHIBIT INDEX

Exhibit No. Description

99.1 Press Release dated August 6, 2009