

SENT VIA EDGAR

March 23, 2009

United States Securities and Exchange Commission
Division of Corporate Finance
100 F Street, N.E.
Mail Stop 6010
Washington, D.C. 20549

Attention: James Rosenberg, Senior Assistant Chief Accountant
Mary Mast, Senior Staff Accountant
Vanessa Robertson, Staff Accountant

Re: ADVENTRX Pharmaceuticals, Inc.
File Number: 001-32157
Form 10-K for the Fiscal Year Ended December 31, 2007
Filed March 17, 2008

Dear Mr. Rosenberg, Ms. Mast and Ms. Robertson:

We submit to you the following information in response to an oral comment we received on March 16, 2009. For your convenience, we have transcribed the oral comment below and set forth our response immediately after the transcription.

Transcription:

Tell us whether you have reconsidered, in accordance with Items 307 and 308 of Regulation S-K, the adequacy of your previous assertions in the December 31, 2007 Form 10-K regarding disclosure controls and procedures and assessment of internal controls over financial reporting?

Company Response:

In light of our determination that it was not correct in connection with our adoption on January 1, 2007 of Financial Accounting Standards Board Staff Position No. EITF 00-19-2, "Accounting for Registration Payment Arrangements," ("FSP EITF 00-19-2") to retrospectively apply FSP EITF 00-19-2 to the years ended December 31, 2005 and December 31, 2006, we have reconsidered, in accordance with Items 307 and 308 of Regulation S-K, the adequacy of our previous assertions in our Form 10-K for the year ended December 31, 2007 (the "2007 10-K") regarding our disclosure controls and procedures and our assessment of our internal controls over financial reporting.

Following such reconsideration, we have concluded that the Company did not correctly apply FSP EITF 00-19-2 because its accounting staff did not have adequate training or expertise on the proper application of FSP EITF 00-19-2 at the time the financial statements contained in the 2007 10-K were prepared and filed. As a result of this inadequacy, we have further concluded that there was a material weakness in our internal control over financial reporting with respect to the application of generally accepted accounting principles as they related to accounting for warrant liability under FSP EITF 00-19-2 and, as a result, our disclosure controls and procedures and our internal control over financial reporting were not effective as of December 31, 2007. However, we have concluded that the lack of training or expertise of our accounting staff was limited to application of FSP EITF 00-19-2 and the material weakness in our internal control over financial reporting and related inadequacy of our disclosure controls and procedures did not otherwise affect the preparation of our financial statements in accordance with generally accepted accounting principles. In addition, because we did not identify the above-described material weakness until the fourth quarter of 2008, we have concluded that our disclosure controls and procedures were not effective in the periods covered by, and as asserted in, our quarterly reports on Form 10-Q for the periods ended, March 31, June 30, and September 30, 2007 and March 31, June 30, and September 30, 2008.

During 2008, the Company made a number of improvements to its internal accounting resources and retained outside accounting experts in an effort to minimize financial reporting deficiencies in the future. Therefore, our management, including our principal executive officer and principal financial officer, have determined that the material weakness in our internal control over financial reporting and the related inadequacy in our disclosure controls and procedures were remedied as of December 31, 2008.

We intend to include the following disclosure in Item 9A(T) of our annual report on Form 10-K for the year ended December 31, 2008, which we anticipate filing during the week of March 23, 2009:

Item 9A(T). Controls and Procedures

Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports under the Securities Exchange Act of 1934, as amended, or the Exchange Act, is recorded, processed, summarized and reported within the timelines specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can only provide reasonable assurance of achieving the desired control objectives, and in reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we have evaluated the effectiveness of our disclosure controls and procedures (as defined under Exchange Act Rule 13a-15(e)), as of December 31, 2008. Based on that evaluation, our principal executive officer and principal financial officer have concluded that these disclosure controls and procedures were effective as of December 31, 2008.

As discussed in Note 3, "Change in Accounting Principle for Registration Payment Arrangements and Correction of an Error," to the Notes to Consolidated Financial Statements contained herein, we have restated our financial statements for the year ended December 31, 2007 and for the quarters ended March 31, June 30 and September 30, 2007 and March 31, June 30 and September 30, 2008 to reflect an error in the application of Financial Accounting Standards Board Staff Position No. EITF 00-19-2, "Accounting for Registration Payment Arrangements," ("FSP EITF 00-19-2"). In light of our determination that it was not correct in connection with our adoption on January 1, 2007 of FSP EITF 00-19-2 to retrospectively apply FSP EITF 00-19-2 to the years ended December 31, 2005 and December 31, 2006, we have reconsidered, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, the adequacy of our assertions concerning the effectiveness of our disclosure controls and procedures in our annual report on Form 10-K for the year ended December 31, 2007 and our quarterly reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2007 and March 31, June 30 and September 30, 2008.

Following such reconsideration, we have concluded that we did not correctly apply generally accepted accounting principles as they related to accounting for warrant liability under FSP EITF 00-19-2 because our accounting staff did not have adequate training or expertise on the proper application of FSP EITF 00-19-2 at the time the financial statements contained in the 2007 10-K were prepared and filed. As a result of this inadequacy, we have further concluded that there was a material weakness in our internal control over financial reporting with respect to the

application of generally accepted accounting principles as they related to accounting for warrant liability under FSP EITF 00-19-2 and, as a result, our disclosure controls and procedures and our internal control over financial reporting were not effective as of December 31, 2007. However, we have concluded that the lack of training or expertise of our accounting staff was limited to application of FSP EITF 00-19-2 and the material weakness in our internal control over financial reporting and related inadequacy of our disclosure controls and procedures did not otherwise affect the preparation of our financial statements in accordance with generally accepted accounting principles. In addition, because we did not identify the above-described material weakness until the fourth quarter of 2008, we have concluded that our disclosure controls and procedures were not effective in the periods covered by, and as asserted in, our quarterly reports on Form 10-Q for the periods ended March 31, June 30, and September 30, 2007 and March 31, June 30, and September 30, 2008.

During 2008, we made a number of improvements to our internal accounting resources and retained outside accounting experts in an effort to minimize financial reporting deficiencies in the future. Therefore, our management, including our principal executive officer and principal financial officer, have determined that the material weakness in our internal control over financial reporting and the related inadequacy in our disclosure controls and procedures were remedied as of December 31, 2008.

The misapplication of FSP EITF 00-19-2 to prior periods and our correction of this error have had no impact on our current assets (i.e., cash and cash equivalents and short-term investments) or our operating expenses and do not affect any loan covenants or other contractual requirements.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the fiscal quarter ended December 31, 2008 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting, other than the changes described above under "Disclosure Controls and Procedures."

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f). Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework in *Internal Control — Integrated Framework*, our management concluded that our internal control over financial reporting was effective as of December 31, 2008.

Pursuant to temporary rules of the Securities and Exchange Commission, our management's report on internal control over financial reporting is furnished with this annual report and shall not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities of that section, nor shall it be deemed to be incorporated by reference in any filing under the Securities Act of 1933 or Securities Exchange Act of 1934.

This annual report does not include an attestation report of our independent registered public accounting firm regarding our internal control over financial reporting. Management's report on internal control over financial reporting was not subject to attestation by our independent registered public accounting firm pursuant to temporary rules of the Securities and Exchange Commission that permit us to provide only our management's report on internal control over financial reporting in this annual report.

On March 20, 2009, our management concluded that our consolidated financial statements contained in the 2007 10-K and our quarterly reports on Form 10-Q for the periods ended March 31, June 30 and September 30, 2007 and March 31, June 30 and September 30, 2008 (the "2007 and 2008 10-Qs") should not be relied upon as a result of the error of retrospective application of the provisions of FSP EITF 00-19-2 to the years ended December 31, 2005 and December 31, 2006 and the resulting misstatements in the financial statements contained in the 2007 10-K and the 2007 and 2008 10-Qs. Accordingly, we intend to file a current report on Form 8-K containing appropriate disclosure in accordance with Item 4.02. We will correct the misstatements in our consolidated financial statements for the year ended December 31, 2007 and the quarters ended March 31, June 30 and September 30, 2007 and March 31, June 30 and September 30, 2008 in our annual report on Form 10-K for the year ended December 31, 2008, which we anticipate filing during the week of March 23, 2009.

We have determined not to file amendments to the 2007 10-K or the 2007 and 2008 10-Qs following our consideration of all relevant circumstances, quantitative and qualitative, and the significance of the misstatements in the 2007 10-K and the 2007 and 2008 10-Qs to our stockholders and other users of our financial statements. We do not believe that there is a substantial likelihood a reasonable person will consider the misstatements significant to an investment decision in our company. As a development-stage company, our existing and potential investors are interested primarily in our current assets (e.g., cash and cash equivalents and short-term investments) and operating expenses (e.g., research and development and selling, general and administrative). Fundamentally, our existing and potential investors are interested in our cash position and how quickly we spend our cash. The effect of the misstatements related entirely to non-cash line items. In particular, no line items within current assets and no line items within operating expenses were affected.

With respect to non-cash line items, we note that the financial information related to fiscal year 2007 contained in the 2007 10-K, which we believe is most relevant and important to readers of the 2007 10-K, was correct. Further, Note 2 of the Notes to Consolidated Financial Statements contained in the 2007 10-K describes our application of FSP EITF 00-19-02 (including the fact of retrospective application) and discloses prior and adjusted amounts and the effect of adjustments. While retrospective application was incorrect, the actions we had taken, as well as their impact, were clear. Finally, the effect of the misstatement on non-cash line items did not affect any loan covenants or other contractual requirements or have other similar impact on the Company.

We have discussed our determinations above with our independent registered public accounting firm.

As requested in the original comment letter, the Company acknowledges:

- The Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- The Company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

If you have any further questions or wish to discuss the responses we have provided above, please call me at 858-552-0866 at your convenience.

Sincerely,

/s/ Patrick Keran

Patrick Keran
Vice President, Legal

cc: Brian Culley, interim principal executive officer
Mark Bagnall, interim principal financial and accounting officer
Priscilla Lewis, interim Vice President, Finance