

SENT VIA EDGAR

April 3, 2009

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

Attention: Tabatha Akins, Staff Accountant

Re: ADVENTRX Pharmaceuticals, Inc.
File Number: 001-33537
Item 4.02 Form 8-K
Filed March 25, 2009

Dear Ms. Akins:

We received your comment letter of March 27, 2009 (the "Comment Letter") to our Item 4.02 Form 8-K filed March 25, 2009 (the "Form 8-K"). We submit the following information in response to the Comment Letter. We have repeated each comment and set forth our response immediately after each comment.

1. **Please disclose the circumstances that led to the discovery of the "erroneous application of generally accepted accounting principles related to accounting for warrant liability" as disclosed in your Form 8-K.**

Response:

The Company first became aware of misstatements in financial statements contained in the Company's Annual Report on Form 10-K for the year ended December 31, 2007 (the "2007 10-K") and the Company's 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") in November 2008 following receipt of a comment letter from SEC Division of Corporate Finance staff (the "Staff") related to the 2007 10-K. In this letter, we refer to the November 2008 letter from the Staff and all subsequent correspondence with the Staff relating to their review of the 2007 10-K as the "Prior Correspondence".

2. **Elaborate on any internal control deficiencies that allowed the misapplication of FSP EITF 00-19-2 to prevail over time and explain whether these amounted to a material weakness.**

Response:

As described in the Prior Correspondence and in our Annual Report on Form 10-K for the year ended December 31, 2008, which we filed with the SEC on March 27, 2009 (the "2008 10-K"), we have concluded that the Company did not correctly apply Financial Accounting Standards Board Staff Position No. EITF 00-19-2, "Accounting for Registration Payment Arrangements" ("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 adequate training or expertise of our accounting staff was limited to the 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, the 2007 and 2008 10-Qs.

During 2008, we made a number of improvements to our internal accounting resources by retaining new personnel and outside experts in an effort to minimize future financial reporting deficiencies. As a result, our management, including our principal executive officer and principal financial officer, 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 note that the misapplication of FSP EITF 00-19-2 to prior periods and the resulting errors in the financial statements presented in our 2007 10-K and 2007 and 2008 10-Qs had no impact on our current assets (e.g., cash and cash equivalents and short-term investments) or our operating expenses in 2007 or 2008 and did not affect any loan covenants or other contractual requirements.

3. Please amend your filing to quantify the errors for all periods affected. If you are unable to do so, please tell us and amend your filing to explain why you are unable to provide that information.

Response:

As noted in the Form 8-K and in the Prior Correspondence, we corrected 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 2008 10-K, which was filed with the SEC on March 27, 2009.

We believe that the Form 8-K, as filed on March 25, 2009, complies with the requirements of Item 4.02 of Form 8-K. In addition, we believe the reference in the Form 8-K to the 2008 10-K provides clear information as to where and when investors may find corrections of the misstatements that caused our management to conclude that the identified financial statements should no longer be relied upon. In Note 3 to the Notes to Consolidated Financial Statements in the 2008 10-K (pages F-12 through F-14), we set forth by line item amounts previously reported, amounts as restated and the effect of the restatements, quantifying the errors for all periods affected. Accordingly, we believe amending the Form 8-K to provide the same information as provided in Note 3 to the Notes to Consolidated Financial Statements in the 2008 10-K would create confusion for investors.

4. Please revise your disclosure to specify whether you have reconsidered, in accordance with Item 307 of Regulation S-K, the adequacy of your previous assertions and disclosures regarding disclosure controls and procedures, specific to all of the applicable periods affected by your decision to restate, particularly in light of the restatement issue that you have described in this 8-K.

Response:

As described in the Prior Correspondence, 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, in accordance with Items 307 and 308 of Regulation S-K, the adequacy of our previous assertions and disclosures in our 2007 10-K regarding our disclosure controls and procedures and our assessment of our internal control over financial reporting.

As described in the Prior Correspondence, following such reconsideration, we 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 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 also concluded that the lack of adequate training or expertise of our accounting staff was limited to the 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 concluded that our disclosure controls and procedures were not effective in the periods covered by, and as asserted in, the 2007 and 2008 10-Qs.

Under Item 9A(T) of our 2008 10-K, we disclosed the fact that we reconsidered the adequacy of our assertions concerning the effectiveness of our disclosure controls and procedures in the 2007 10-K and the 2007 and 2008 10-Qs and the adequacy of our assertion concerning the effectiveness of our internal control over financial reporting in our 2007 10-K and 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. We also disclosed that because we did not identify the above-described material weakness until the fourth quarter of 2008, we concluded that our disclosure controls and procedures were not effective in the periods covered by, and as asserted in, the 2007 and 2008 10-Qs.

We believe that the Form 8-K, as filed on March 25, 2009, complies with the requirements of Item 4.02 of Form 8-K. In addition, we believe that our disclosure in Item 9A(T) of the 2008 10-K regarding our reconsideration of the adequacy of our previous assertions and disclosures regarding our disclosure controls and procedures and internal control over financial reporting and our subsequent conclusions with respect to the same communicates to investors the information requested by comments #4 and #5 of the Comment Letter.

5. **Similarly, please revise your disclosure to specify whether you have reconsidered, in accordance with Item 308(T) of Regulation S-K, the adequacy of your previous assertions and disclosures regarding internal controls over financial reporting, for the year ended December 31, 2007, particularly in light of the restatement issue that you have described in this 8-K.**

Response:

Please see our response to comment #4 of the Comment Letter above.

As requested in the 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, principal executive officer
Mark N.K. Bagnall, principal financial and accounting officer
Priscilla Lewis, interim Vice President, Finance