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

DIVISION OF
CORPORATION FINANCE

September 9, 2013

Via E-mail
Vicente Anido, Jr., PhD
Chief Executive Officer
Aerie Pharmaceuticals, Inc.
135 US Highway 206, Suite 15
Bedminster, New Jersey 07921

Re: Aerie Pharmaceuticals, Inc.
Amendment No. 1 to Draft Registration Statement on Form S-1
Submitted August 22, 2013
CIK No. 0001337553

Dear Dr. Anido:

We have reviewed your amended draft registration statement and have the following comments. In some of these comments, we may ask you to provide us with information so we may better understand your revised disclosure.

Please respond to this letter by providing the requested information and either submitting another amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe a further amendment is appropriate, please tell us why in a response.

After reviewing the information you provide in response to these comments and your next amended draft registration statement or filed registration statement, we may have additional comments.

Prospectus Summary
Our Product Pipeline, page 3

1. We note your response to prior comment 3 and the substantial revisions you have made to your disclosure since your prior submission. Please include in your Prospectus Summary and in the Business section of your draft registration statement a discussion of your prior efforts to develop AR-12286 and PG286, the results of your recent Phase 2b trial and the decision, in light of the failure to meet primary clinical endpoints, to discontinue development of AR-12286 and PG286. In your discussion, please also describe the mechanism of action of these discontinued products and compare this to your current product candidates.

Risk Factors Associated with Our Business, page 6

2. Please cite the failure to meet desired efficacy results for AR-12286 and PG286 in the second bullet point on page 6.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Financial Overview
Research and Development Expenses, page 58

3. You disclose three product candidates on page 3. Please revise the disclosure on page 58 to separately disclose the costs for each product candidate or state why separate disclosure has not been made.

4. Please refer to your response to comment 12. Please address the following:

    - Once you can reasonably estimate the IPO price, qualitatively and quantitatively discuss each significant factor contributing to the difference between each valuation and the estimated IPO price;

    - Disclose the intrinsic value of the outstanding vested and unvested options based on the estimated IPO price as of the most recent balance sheet date presented in the registration statement;

    - Continue to update your disclosure for all equity related transactions, including any options, warrants, or convertible note or preferred stock issuances, through the effective date of the registration statement; and

    - Refer to your response to the fifth bullet point of comment 12. You state that there are conversion option features that were not required to be recorded as a derivative but have been analyzed to determine if a beneficial conversion feature is required to be recorded. You determined that any beneficial conversion feature would not be recorded until a triggering event occurs. Please disclose any anticipated beneficial conversion feature that will be recorded upon the IPO, if the IPO is considered a triggering event. Also, please address this issue for the convertible notes issued in May and August 2013.

Business
Our Product Pipeline, page 77

5. In your discussion of the AR-13324 Phase 2 efficacy results, beginning on page 79, please disclose the primary endpoints of the Phase 2a and Phase 2b studies referenced, the results of the studies relative to the endpoints, and any conclusions reached about statistical significance.

6. In your discussion of PG324, please clarify whether you have filed an Investigational New Drug Application with the FDA covering trials of this product candidate and, if so, when. In addition, please provide the basis for your statement that you plan to advance PG324 directly from preclinical studies to a Phase 2b clinical trial. In this regard, please clarify whether there have been discussions with the FDA regarding the possibility of advancing directly to a late-stage clinical study and if so, disclose the advice or guidance the FDA communicated as to how this could occur.

Second-Generation, Dual-Action AR-13533, page 86

7. Please clarify the "distinct properties" of AR-13533 that may provide an additional IOP-lowering effect.

Notes to the Financial Statements
Note 10. Stock Purchase Warrants, page F-19

8. You disclose that you issued 1,022,727 warrants on May 23, 2013 and 681,816 warrants on March 28, 2013 with exercise prices of $.01 per share which are recorded as derivatives. Please clarify the assumption used for the fair value of your common stock and provide us an analysis of the difference between the fair value used and the IPO price. Also, please address this issue for the 1,022,727 warrants issued in August 2013 as disclosed in Note 15.

Note 11. Stock-based Compensation, page F-20

9. You state that "This peer group of companies utilized in 2013 remained consistent with that of 2012." Your disclosure which states that "The expected stock price volatility changed as a result of a change in this group of representative companies, due to the fact that some of member companies in the historical group ceased to exist" appears to conflict with that statement. Please revise to clarify.

10. You issued 1,855,170 shares of restricted stock and recorded compensation. Please tell us how the fair market value used to record compensation compares to the IPO price. To the extent there is a material difference, please provide additional disclosure in Management's Discussion and Analysis to explain the difference.

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm.

Please keep in mind that we may publicly post filing review correspondence in accordance with our December 1, 2011 policy (http://www.sec.gov/divisions/corpfin/cfannouncements/edgarcorrespondence.htm). If you intend to use Rule 83 (17 CFR 200.83) to request confidential treatment of information in the correspondence you submit on EDGAR, please properly mark that information in each of your confidential submissions to us so we do not repeat or refer to that information in our comment letters to you.

You may contact Christine Allen at (202) 551-3652 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Scot Foley at (202) 551-3383, Daniel Greenspan at (202) 551-3623 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey P. Riedler
Assistant Director

cc: Andrew B. Barkan, Esq.
Steven G. Scheinfeld, Esq.
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