



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

DIVISION OF
CORPORATION FINANCE

March 27, 2014

Via E-mail

Craig Dionne
President and Chief Executive Officer
Genspera, Inc.
2511 N Loop 1604 W, Suite 204
San Antonio, TX 78258

**Re: Genspera, Inc.
Registration Statement on Form S-1
Filed March 19, 2014
File No. 333-194687**

Dear Dr. Dionne:

We have limited our review of your registration statement to those issues we have addressed in our comments below.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Cover Pages

1. Please revise your fee table to include all securities to be registered in the offering including:
 - units consisting of common stock and warrants;
 - common stock underlying units;
 - warrants underlying units; and
 - common stock issuable upon exercise of warrants underlying units.
2. Prior to going effective, please file an amendment to your registration statement to specify the following:
 - the total number of units to be offered;
 - the number of shares of common stock per unit;

- the number of warrants per unit; and
- the expiration date of the warrants.

Although Rule 430A of the Securities Act of 1933 permits registrants to omit certain pricing-related information from a registration statement that is declared effective, your filing must include the amount of securities to be offered, as well as other material information not related to pricing, in a pre-effective amendment. For further guidance, refer to Question 227.02 of the Securities Act Rules Compliance & Disclosure Interpretations.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Craig Dionne
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Please contact Austin Stephenson at (202) 551-3192, Bryan Pitko at (202) 551-3203, or me at (202) 551-3715 with any questions.

Sincerely,

/s/ Bryan J. Pitko for

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Joseph A. Smith, Esq.
Ellenoff Grossman & Schole LLP