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

FORM 12b-25

NOTIFICATION OF LATE FILING

SEC FILE NUMBER  
001-37642

CUSIP NUMBER  
29272A206

(Check One):             Form 10-K                       Form 20-F                       Form 11-K                      R Form 10-Q  
                                  Form 10-D                       Form N-SAR                       Form N-CSR

For Period Ended: March 31, 2017

- Transition Report on Form 10-K
- Transition Report on Form 20-F
- Transition Report on Form 11-K
- Transition Report on Form 10-Q
- Transition Report on Form N-SAR

For the Transition Period Ended: \_\_\_\_\_

*Read Instruction (on back page) Before Preparing Form. Please Print or Type.*

**Nothing in this form shall be construed to imply that the Commission has verified any information contained herein.**

If the notification relates to a portion of the filing checked above, identify the Item(s) to which the notification relates: N/A

**PART I—REGISTRANT INFORMATION**

**Ener-Core, Inc.**

Full Name of Registrant

\_\_\_\_\_  
Former Name if Applicable

**8965 Research Drive**

Address of Principal Executive Office (*Street and Number*)

**Irvine, California 92618**

City, State and Zip Code

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**PART II—RULES 12b-25(b) AND (c)**

If the subject report could not be filed without unreasonable effort or expense and the registrant seeks relief pursuant to Rule 12b-25(b), the following should be completed. (Check box if appropriate.)

- (a) The reasons described in reasonable detail in Part III of this form could not be eliminated without unreasonable effort or expense;
- R (b) The subject annual report, semi-annual report, transition report on Form 10-K, Form 20-F, Form 11-K, Form N-SAR or Form N-CSR, or portion thereof, will be filed on or before the fifteenth calendar day following the prescribed due date; or the subject quarterly report or transition report on Form 10-Q or subject distribution report on Form 10-D, or portion thereof, will be filed on or before the fifth calendar day following the prescribed due date; and
- (c) The accountant's statement or other exhibit required by Rule 12b-25(c) has been attached if applicable.

**PART III—NARRATIVE**

State below in reasonable detail why Forms 10-K, 20-F, 11-K, 10-Q, 10-D, N-SAR, N-CSR, or the transition report or portion thereof, could not be filed within the prescribed time period.

(Attach extra Sheets if Needed)

The Registrant was unable to file its Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017 by the prescribed date without unreasonable effort or expense due to delays experienced by the Registrant's independent registered public accounting firm in completing its review of the Registrant's financial statements and related supporting documentation. The Registrant plans to file the Form 10-Q no later than the fifth calendar day following the prescribed due date, as set forth in Rule 12b-25(b) under the Securities Exchange Act of 1934, as amended.

**PART IV—OTHER INFORMATION**

(1) Name and telephone number of person to contact in regard to this notification:

Domonic J. Carney	(949)	732-4400
(Name)	(Area Code)	(Telephone Number)

(2) Have all other periodic reports required under Section 13 or 15(d) of the Securities Exchange Act of 1934 or Section 30 of the Investment Company Act of 1940 during the preceding 12 months or for such shorter period that the registrant was required to file such report(s) been filed? If answer is no, identify report(s). Yes R No

(3) Is it anticipated that any significant change in results of operations from the corresponding period for the last fiscal year will be reflected by the earnings statements to be included in the subject report or portion thereof? Yes R No

If so, attach an explanation of the anticipated change, both narratively and quantitatively, and, if appropriate, state the reasons why a reasonable estimate of the results cannot be made.

Net loss for the three months ended March 31, 2017 was approximately \$3.2 million, primarily from selling, general and administrative expenses of \$1.0 million, research and development costs of \$0.6 million, and other expenses (net) of \$1.8 million consisting primarily of interest expense, including \$1.4 million of non-cash interest expense. Net loss for the three months ended March 31, 2016 was approximately \$3.8 million, primarily from selling, general and administrative expenses of \$1.3 million, research and development costs of \$0.9 million and \$1.6 million of other expenses (net) consisting of \$1.4 million for a debt modification expense, \$0.9 million for interest expense, including \$0.7 million of non-cash interest expense, and offset by a \$0.8 million mark to market gain on derivative liabilities.

Ener-Core, Inc.

(Name of Registrant as Specified in Charter)

has caused this notification to be signed on its behalf by the undersigned hereunto duly authorized.

Date: May 15, 2017

/s/ Domonic J. Carney

By: Domonic J. Carney

Title: Chief Financial Officer