



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

Mail Stop 3720

October 9, 2009

Rene Schena  
Chairman and Chief Executive Officer  
Arrayit Corporation  
524 East Weddell Drive  
Sunnyvale, CA 94089

**Re: Arrayit Corporation**  
**Form 10-K/A for the fiscal year ended December 31, 2008**  
**Form 10-Q/A for the quarter ended March 31, 2009**  
**Filed September 17, 2009**  
**File No. 1-16381**

Dear Ms. Schena:

We have reviewed your response letter dated September 2, 2009 (and submitted on September 17, 2009). We have limited our review of your filings to those issues we have addressed in our comments. Where indicated, we think you should revise your documents in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K/A for the Fiscal Year Ended December 31, 2008

Debt Obligations, page 14

1. We note your response to comment four from our letter dated August 24, 2009 and your revised disclosure on page 13. Please disclose how the exchange ratio was determined for the conversions on March 13, 2009 and March 16, 2009. We note that the settlement of debt in each transaction was 6.76% and 16.13% respectively, of the total amount of debt governed by the oral agreements. However, the number of shares issued in such transactions was not equal to

6.76% and 16.13% of the aggregate number of shares to be issued pursuant to such agreements. We also note your statement that after the conversions, the oral agreement participants “continued to hold 77.11% of the debt, i.e. \$1,235,474 of debt convertible into 7,527,774 shares.” Based on your disclosure regarding the total amount of debt governed by the oral agreements and the amount of shares debt holders will receive upon conversion of such debt, it appears that \$2,736,700 of the debt convertible into 9,765,857 shares would remain outstanding after the conversions. Revise your disclosure as appropriate.

Item 9A(T) Controls and Procedures, page 37

2. We note your response to comment five from our letter dated August 24, 2009. Please note that your disclosure does not contain the conclusions of your principal executive and principal financial officers regarding the effectiveness of the company’s disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of the end of the period covered by the report. See Item 307 of Regulation S-K. Please revise your Form 10-K to include this disclosure.

Form 10-Q, as Amended, for Fiscal Quarter Ended March 31, 2009

General

3. We note that your amendment does not include revisions to Item 2 of Part I (Management’s Discussion and Analysis) or Item 2 of Part II (Unregistered Sales of Equity Securities...). Please file an amendment to your Form 10-Q which contains these sections with revised disclosure in response to comments six, seven and eight from our comment letter dated August 24, 2009.

Notes to Condensed Consolidated Unaudited Statements

4. Please add a note to your financial statements describing how the \$12.8 million loss recorded in the quarter ended March 31, 2009 was calculated. Also, describe in your notes the different components included in the derivative liability balance line item in the balance sheet.

\* \* \* \*

Please amend your Form 10-K and Form 10-Q and respond to these comments through correspondence over EDGAR within 10 business days or tell us when you will provide us with a response. Please furnish a letter that keys your responses to our comments and provides any requested information. Detailed letters greatly facilitate our

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review. Please understand that we may have additional comments after reviewing your responses to our comments.

You may contact Kenya Wright Gumbs, Staff Accountant, at (202) 551-3373 or Joseph M. Kempf, Senior Staff Accountant, at (202) 551-3352 if you have questions regarding comments on the financial statements and related matters. Please contact Jessica Plowgian, Attorney-Advisor, at (202) 551-3367, Kathleen Krebs, Special Counsel, at (202) 551-3810 or me at (202) 551-3810 with any other questions.

Sincerely,

Larry Spigel  
Assistant Director

cc: Sonfield & Sonfield  
via facsimile: (713) 877-1547