



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

Mail Stop 3720

August 24, 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 July 31, 2009

Form 10-Q for the quarter ended June 30, 2009
Filed August 14, 2009

File No. 1-16381

Dear Ms. Schena:

We have reviewed your response dated July 31, 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 three from our letter dated June 30, 2009. Please clarify whether your disclosure that the oral agreement means that “[a]ll

- prior agreements are now null and void” refers only to the prior oral agreement or if it pertains to all written agreements governing the debt as well. In this regard, clarify whether the oral agreement constitutes a formal waiver of any prior and future defaults on the debt or whether the debt holders would still be able to declare an event of default and would have rights and remedies under the written debt agreements.
2. In addition, please revise your disclosure to clarify that not all of your predecessor or convertible debt is governed by the oral agreement (including, for example, the note payable to Dorn & Associates and the convertible notes due to a former officer and shareholder of the company). Please further revise your disclosure in this section to explain the impact of the company’s default with respect to the debt instruments that are not governed by the oral agreement, including, for example, the application of higher interest rates on the outstanding principal amounts of such notes.
 3. You disclose in subpart (d) of your disclosure about the oral agreement that, “2,926,787 pre-split, (926,572 post-split) series A preferred shares will be surrendered for cancellation by each of the participants.” Please explain how you arrived at the number of post-split shares when the ratio of the reverse stock split was one series A preferred shares for every 30 series A preferred shares. Revise your disclosure as appropriate.
 4. We note your statement that you issued 2,712,500 shares of common stock as a partial liquidation of “the debt” after the fiscal year end. Please disclose when the exchange of stock for debt occurred. Identify the relevant debt and indicate what portion of such debt was liquidated pursuant to this transaction. Disclose how the exchange ratio was determined.

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

5. We note your response to comment 19 from our letter dated June 30, 2009 and your reference to a lack of “effective controls over financial statement disclosure.” Please note that Item 307 of Regulation S-K requires disclosure of 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, based on the evaluation of these controls and procedures required by paragraph (b) of Rule 13a-15 under the Exchange Act. Please revise your Form 10-K to include this disclosure.

Forms 10-Q, as Amended, for Fiscal Quarters Ended March 31, 2009 and June 30, 2009

Management's Discussion and Analysis

Results of Operation

6. We note your response to comment 24 from our letter dated June 30, 2009. Please expand your disclosure in each Form 10-Q to include the terms of the "debt settlement." Such disclosure should clearly identify which warrants and debt, if applicable, were eliminated pursuant to this settlement. Please also disclose what portion, if any, of your outstanding debt was converted into common shares on March 13, 2009 and March 16, 2009. In addition, tell us the portion of this debt that was still outstanding as of the end of each fiscal quarter. We note that the debt underlying your oral agreements is not reflected in Note 6 to the financial statements of either Form 10-Q.

Liquidity and Capital Resources

7. We note your response to comment 25 from our letter dated June 30, 2009, but we cannot locate the "enhanced" disclosure you reference in your response letter dated July 30, 2009. Please revise this section in each Form 10-Q to reflect the disclosure we previously requested.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

8. We note your response to comment 26 from our letter dated June 30, 2009. Please further revise your disclosure in each Form 10-Q to identify the persons to whom the securities were sold and indicate the aggregate amount of debt that was converted into common shares pursuant to this transaction. Please also indicate which exemption from registration the company claimed for this transaction and state briefly the facts the company relied upon to utilize such exemption. See Item 701 of Regulation S-K.

* * * *

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

Ms. Rene Schena
Arrayit Corporation
August 24, 2009
Page 4

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-Adviser, 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