



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

Mail Stop 3720

June 30, 2009

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

Re: Arrayit Corporation
Amendment No. 1 to Form 10-K for the Fiscal Year Ended
December 31, 2008
Filed June 4, 2009
Amendment No. 1 to Form 10-Q for the Fiscal Quarter Ended
March 31, 2009
Filed May 22, 2009
File No. 1-16381

Dear Ms. Schena:

We have reviewed the filings listed above and your response letter submitted on June 4, 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.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. 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

Comment Letters Issued by the SEC, page 9

1. We note your response to comment one. We do not believe that our comment related to your application of EITF 00-19 in accounting for your convertible notes has been resolved. To the extent that you choose to provide disclosure related to unresolved staff comments, please revise your disclosure to include discussion of all unresolved SEC comments issued 180 days or more before the end of your fiscal year.

Item 7. Management's Discussion and Analysis or Plan of Operation, page 13

Restatement of Financial Statements, page 13

2. Please revise your disclosure to discuss and explain the increase in your derivative liability and accrued expense balances from those previously recorded for the fiscal year ended December 31, 2007.

Debt Obligations, page 13

3. We note your response to comment two from our letter dated May 6, 2009 as well as your revised disclosure on page 13. Please further revise your disclosure to explain the impact of the company's default with respect to your debt instruments, including, for example, the application of higher interest rates on the outstanding principal amounts of the relevant notes.
4. We note your references to a reverse split in various places in your Form 10-K. For example, you refer to a reverse split that was effective on March 19, 2009 on page 4 and to pre-split and post-split shares on page 13 that will be surrendered for cancellation upon settlement of debt obligations. Please disclose when the reverse stock split occurred, the classes of stock affected, and the ratio. Disclose the reasons for the reverse stock split and whether it resulted in an increase in authorized shares of common stock. Disclose whether the 12,478,357 shares to be issued upon settlement of debt are to be "post-split" shares and, if so, the percentage of outstanding "post-split" shares these shares will represent. If the shares to be issued upon settlement of debt are "pre-split" shares, disclose how many "post-split" shares will be issued and the percentage of outstanding "post-split" shares these shares will represent.
5. In your response letter, and with a view to disclosure, provide the following information with respect to the reverse stock split:
 - Disclose whether shareholder approval was required for the reverse stock split and, if so, how and when you obtained such approval.

- For each class of securities subject to the reverse stock split, disclose in a table the number of issued shares prior to the reverse stock split, the number of authorized but unissued shares that were reserved for specific purposes (disclosing the purposes) prior to the reverse stock split, and the number of authorized but unreserved shares of the company prior to the reverse stock split. In other tables, disclose the number of authorized but unissued shares, reserved shares and authorized but unreserved shares of the company after the reverse stock split.
- Reconcile how the number of outstanding shares of common stock went from 82,079,504 shares as of March 24, 2009 (as disclosed on page 38) to 20,211,762 shares as of June 3, 2009 (as disclosed on the cover page of the Form 10-K/A).

Oral Agreements, page 13

6. We note your disclosure about the oral agreements between the company and the holders of “predecessor debt.” We further note your statement that these agreements pertain to debt in the amount of \$1,993,450 (and estimated penalty and interest of \$1,555,750). However, on page 13 you indicate that there is \$2,047,974 of predecessor debt, of which \$1,830,000 is convertible into shares of common stock.
- Please clarify what portion of the predecessor debt is governed by these oral agreements.
 - Explain why you did not enter into written agreements with the parties.
 - Disclose whether interest is continuing to accrue on this debt and whether the oral agreements contemplate the accrual of additional interest or penalties.
 - Disclose when the participants are permitted to exchange their debt for shares of your common stock and indicate when management anticipates that they will do so.
 - Disclose whether you currently have sufficient shares of unissued, authorized common stock to issue pursuant to these oral agreements.

Results of Operations for the Year Ended December 31, 2008 compared to the Year Ended December 31, 2007, page 13

7. Please update your disclosure to reflect restated loss on derivatives and net loss balances.

Liquidity and Capital Resources, page 13

8. We note your response to comment three from our letter dated May 6, 2009. Please disclose the basis of management's belief that the company's cash needs should not exceed \$200,000 in the next twelve months. Disclose the amount of "mandatory debt repayment" you reference on page 13 and identify which notes such payments pertain to. Also discuss the amount of funding you will need to expand your business as discussed elsewhere in your annual report. For example, discuss and quantify the funds required to develop into commercial products the microarray diagnostic tests identified in your business and risk factors section, including expenses for research and development, regulatory approval, marketing and laboratory facilities. In addition, discuss management's plans to address the ability of the company to continue as a going concern.
9. As requested in comment four in our comment letter dated May 6, 2009, please disclose the material terms of your debt obligations.

Arrayit Corporation, Consolidated Balance Sheets, page 17

10. We note your response to comment five from our letter dated May 6, 2009. Your response implies that your restated derivative liability and accrued interest balances were already reflected in your balance sheet and were simply reclassified from accounts payable. However, your restated balance sheet reflects increases in all three balances, with the offsetting debits being charged to your accumulated deficit. Please advise and/or revise your disclosure to clarify the nature of these restatements.
11. Please disclose the number of common shares issued, authorized, and outstanding, as well as their par or stated values. Further, expand your disclosure on page 31 to include the par or stated values of your Class A and Class C preferred shares along with the number of preferred shares authorized and outstanding.

Note 8 – Accounts Payable and Accrued Liabilities, page 26

12. Your table does not appear to tie to your balance sheet. Please revise or advise. Also, please provide further detail as to the nature of these balances.

Note 10 – Debt, page 27

13. We note your disclosure that the discounted convertible notes payable due to SovCap in the amount of \$405,300 have a face interest rate of 18%. However,

the notes included as Exhibit 10.3 appear to have a face interest rate of 12%. Please explain this discrepancy or revise your disclosure accordingly. We further note your disclosure that the notes payable due to SovCap in the amount of \$118,500 bear interest at 6% to 8%. However, certain of these notes included as Exhibit 10.3 appear to have an interest rate of 12%. Please explain this discrepancy or revise your disclosure accordingly.

Derivative Liabilities, page 28

14. You state that as a result of the conversion feature related to your SovCap notes in the amount of \$405,300 being classified as a derivative liability, the company has determined that all existing outstanding convertible notes are also “subject” to EITF 00-19 and SFAS 133. Please clarify whether this means that you are accounting for the conversion feature on all of your outstanding convertible debt as a derivative liability. Specifically address additional \$1,425,000 in convertible notes due to SovCap that are convertible into an indeterminate number of shares. Tell us how you considered the guidance in paragraph 11 of EITF 00-19 in calculating the derivative liability related to the conversion feature on your notes.
15. Also tell us how you considered the guidance in paragraph 19 of EITF 00-19 when evaluating all other convertible instruments subject to that guidance. In that regard, please provide us with a table listing all of your instruments that are convertible into shares of your common stock (i.e., warrants, convertible debt, convertible preferred shares) as of your earliest balance sheet date through present, the date of issuance, earliest conversion date, the number of authorized shares available for issuance at that date, and whether a derivative liability or beneficial conversion feature was recognized as a result of the issuance.
16. Additionally, to help us better understand your disclosure, please provide a roll-forward of your derivative liability balance beginning with the opening balance for your fiscal year ended December 31, 2007. For each adjustment to your balance, please identify to what instrument the adjustment relates.
17. You state that the fair value of your derivative instruments is estimated using the intrinsic value of the conversion feature on the convertible debentures. Please clarify how the intrinsic value was used in the calculation of fair value and confirm that you are recognizing these instruments based on their fair value as opposed to their intrinsic value. Explain your valuation methodology and assumptions used in your calculation in detail and tell us how you determined they were appropriate. Include reference to authoritative literature used as guidance.

Note 15 – Reverse Merger Accounting, page 32

18. It appears, based on your disclosure in this footnote, that 1,250,000 warrants issued to some IMHI noteholders were valued at \$100,000 based on their intrinsic value at the date of issuance. However, your disclosure on page 28, where you discuss warrants, refers to 1,250,000 warrants issued during the same period that were valued in excess of \$1.3 million, based on the Black-Scholes option pricing model. Please reconcile these disclosures and tell us how you determined the appropriate valuation methodology in determining the fair value of these warrants.

Item 9A. Controls and Procedures, page 33

19. We note your response to comment 12 from our letter dated May 6, 2009. Please further amend your Form 10-K to include the disclosure required by Item 307 of Regulation S-K regarding your principal executive officer and principal financial officer's evaluation of disclosure controls and procedures.

Item 15. Exhibits, Financial Statement Schedules, page 39

20. We note your response to comment 14 from our letter dated May 6, 2009. Please explain why you have not filed as exhibits all of the agreements evidencing the material debt obligations reflected in Note 10. For example, we note that you have not filed all of the notes payable to SovCap, the notes payable to Wells Fargo or the notes payable to former TeleChem shareholders. These are just examples.
21. Please include each agreement evidencing your material debt obligations as a separate exhibit to your Form 10-K. Please revise your exhibit index to clearly identify each note filed as an exhibit to your Form 10-K, including a reference to the date of the agreement and the parties to the agreement. Please file these documents as exhibits to your Form 10-K (instead of including them as part of your Form 10-K document).
22. Please correct the reference in your exhibit index to Exhibit 10.2 to refer to the correct exhibit number and filing date with respect to the Form 8-K you incorporate by reference. Please also correct footnotes (2) and (3) on page 39 to disclose the date on which the relevant exhibit was filed.

Form 10-Q/A for the Fiscal Quarter Ended March 31, 2009

Condensed Consolidated Unaudited Balance Sheets, page 4

23. Your balance sheet does not appear to reflect restated balances for the period ended December 31, 2008. Please revise your financial statements to reflect restatements.

Item 2. Management's Discussion and Analysis, page 15

24. We note your statement in Note 7 to the unaudited financial statements that the warrants for 1,250,000 shares of common stock were cancelled subsequent to the "debt settlement." You further disclose in Note 7 and on page 19 under "Results of Operations" that the company recorded a loss on extinguishment of debt of \$12,834,898. Please disclose when the debt settlement occurred and the terms of the settlement. This disclosure should include, but not be limited to, an explanation of whether this settlement fulfills all of the company's obligations under each of the oral agreements the company entered into in February 2009. It should also clearly identify which warrants and debt were eliminated pursuant to this transaction.

Liquidity and Capital Resources, page 19

25. Revise this section to provide full and meaningful disclosure of your liquidity and capital resources as required by Item 303(a)(1) and (2) of Regulation S-K. In your discussion, address the apparent settlement of some of your debt obligations as well as management's plans to address the ability of the company to continue as a going concern. Also discuss the amount of funding you will need to expand your business. For further guidance, refer to Section IV of SEC Release No. 33-8350, Commission Guidance on Management's Discussion and Analysis of Financial Condition and Results of Operations, available on our website at <http://www.sec.gov/rules/interp/33-8350.htm>.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds, page 22

26. Tell us in your response letter why you did not disclose the apparent issuance of over 12 million shares of common stock upon the settlement of debt.

Item 3 – Defaults Upon Senior Securities, page 22

27. Provide the disclosure required by this item of Form 10-Q in this section.

* * * *

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

Ms. Schena
Arrayit Corporation
June 30, 2009
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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-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