



DIVISION OF
CORPORATION FINANCE

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

September 8, 2011

Via E-mail

Dennis McGrath
Chief Executive Officer and President
PhotoMedex, Inc.
147 Keystone Drive
Montgomeryville, PA 18936

**Re: PhotoMedex, Inc.
Registration Statement on Form S-4
Filed August 12, 2011
File No. 333-176295**

**Form 10-K for the Fiscal Year ended December 31, 2010
Filed March 31, 2011
File No. 000-11635**

Dear Mr. McGrath:

We have reviewed your filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your filings and providing the requested information. If 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 filings and the information you provide in response to these comments, we may have additional comments.

General

1. When the company updates the financial information, please show us how you calculate the pro forma book value per common share as of June 30, 2011.
2. Please identify or tell us the nature of the holdings of the parties who have entered into the Radiance Voting Support and Lock-Up agreements.

Prospectus Cover Page

3. Please limit your cover to one page. In addition, in light of the significant bold and capitalized text, your reference to the risk factors section is no longer effectively highlighted. Please revise.

Questions and Answers about the Merger..., page 1

4. Please treat your question and answer and summary disclosures as a single section and eliminate redundancy.

I hold options and warrants, page 6

5. Please explain why you have included the phrase “and preferably prior to” in the first sentence. Are you attempting to limit warrant-holder rights?

Opinion of Photomedex’s Financial Advisor, page 10

6. Because this disclosure document is intended for both Radiancy and Photomedex’s shareholders, please provide your analysis of why Radiancy shareholders should not be entitled to rely on the fairness opinion disclosure.

Interests of Radiancy Directors..., page 11

7. Please revise this section and the next to individually enumerate and quantify, as applicable, each interest of each affiliated party in the transaction.

United States federal Income Tax Consequences, page 11

8. Please provide some context around the requirement that Radiancy provide the tax certificate discussed. Specifically, is this merely a formality and, if not, briefly explain any factors that might prevent delivery of the certificate.

Voting by PhotoMedex..., page 17

9. Please reconcile your disclosure on page 17 which indicates that the record date has occurred and your disclosure on page 3 which suggests that the record date has not been established.

Risk Factors, page 24

10. To the extent that Radiancy's management resides outside of the United States and/or a significant portion of its assets are located in foreign jurisdictions, please include appropriate risk factor disclosure concerning the ability of shareholders to enforce their legal rights under United States securities laws.

The Merger, page 40

11. We note your italicized disclosure preceding the description of the merger agreement on pages 40 - 41. Because the representations in your agreements constitute public disclosure, if there are more recent, material developments that the company is aware of, you must disclose them. Please revise as appropriate.

Background of the Merger..., page 41

12. Please revise to specifically identify the individuals who you reference in this section. For example, please identify the "significant stockholder" referenced in the first paragraph as well as the "representatives," "principals" and "significant investors" that you reference throughout this section.
13. Please describe the other two business combination candidates referenced in the final paragraph on page 41 and explain why you determined not to pursue further discussions with them.
14. With respect to Messrs. McGrath's and Stewart's compensation arrangements, please disclose which payments would be made in the event of a change in control and which ones would not and the number of restricted shares that were awarded individuals.
15. Please revise to disclose in greater detail the negotiations concerning the equity split. Please disclose when the parties decided on the 75/25 ownership percentage target referenced and discuss whether the parties considered other equity split targets. Please also revise the second full paragraph on page 44 to describe why it was necessary to "resolve issues relating to an issuance of preferred stock to Radiancy."
16. Please revise to disclose, as applicable, any material events that occurred following execution of the merger agreement. In this regard, please revise to discuss the negotiations concerning the employment agreement with Mr. Rafaeli and its subsequent amendment on August 9, 2011.

PhotoMedex Board of Directors' Recommendation, page 44

17. Please revise the first bullet point on page 45 to describe in greater detail the "certain resources and technologies" that will be assimilated into the business models of the respective businesses.

Opinion of PhotoMedex Inc.'s Financial Advisor..., page 47

18. We refer to the fourth bullet point on page 50 which indicates that Fairmount performed an historical share price and trading volume analysis. Please revise to describe this analysis.
19. We note your disclosure in the second and sixth bullet points on page 48 indicating that Fairmount reviewed forecasts of Radiancy on a stand-alone basis. Please revise to disclose whether Fairmount calculated Radiancy's value on a stand-alone basis. To the extent that Fairmount did not prepare any analysis of Radiancy's value on a stand-alone basis, please revise to explain the reasons why Fairmount determined that this analysis was not appropriate in the context of rendering the fairness opinion.
20. We note your references on pages 43 and 44 to multiple presentations that Fairmount made to PhotoMedex's board about the proposed transaction. Each presentation, discussion, or report held with or presented by an outside party that is materially related to the transaction, whether oral or written, is a separate report that requires a reasonably detailed description meeting the requirements of Item 1015(b) of Regulation M-A. This requirement applies to both preliminary and final reports. Revise to summarize in greater detail the presentations referenced on pages 43-44, pursuant to Item 4(b) of Form S-4 and Item 1015(b) of Regulation M-A. To the extent that the information contained in this presentation is substantially similar to the disclosure already provided in the summary of the advisor's final opinion dated July 4, 2011, then provide a statement to this effect and summarize any differences in the information presented. Alternatively, advise us why the preliminary presentation is not materially related to the transaction.
21. In addition, please provide us copies of the materials that Fairmount prepared in connection with its fairness opinion or otherwise provided to PhotoMedex's board of directors in connection with this transaction, including, among other things, any "board books," drafts of fairness opinions provided to the board, and summaries of all oral presentations made to the board. After reviewing these materials, we may have additional comment concerning your disclosures concerning Fairmount's analyses.
22. For each of the analyses, please revise to disclose the assumptions used by Fairmount to calculate the implied equity value per share figures from the implied enterprise valuations.

23. Please revise to explain why a 15% discount was applied to the PhotoMedex Standalone Basis Public Comparable Analysis and Precedent Transaction Analysis.

Public Comparables Analysis...., page 51

24. Please revise to clarify the meaning of the final sentence in this section and the similar statement on page 52. Were additional financial analyses performed using EBITDA? As applicable, please explain why analyses using LTM EBITDA were deemed “not meaningful” while analyses using LTM Revenue were deemed “meaningful”?

Conclusion, page 55

25. Because the structure of the merger and consideration do not clearly convey the per share value attributed to PhotoMedex stock, please revise here and in the analyses to explain how they supported Fairmount’s fairness conclusion.

Certain Projected Financial Information, page 57

26. We note your disclosure on page 50 that projections were provided to Fairmount for PhotoMedex, Radiancy and the combined company. Accordingly, please revise to include the projections and other financial metrics given to Fairmount for PhotoMedex and for Radiancy on stand-alone bases.
27. We refer to the carryover paragraph at the top of page 58. You may not disclaim responsibility for the accuracy of your disclosure. Accordingly, please revise the penultimate sentence of this paragraph to remove the disclaimer.

Interests of PhotoMedex Directors....., page 59

28. Please provide a table illustrating the total dollar interest of each individual PhotoMedex executive officer and director. Please also include this table in the Summary on page 11.

Ownership of Common Stock, page 61

29. We note your references on page 45 and elsewhere to a targeted ownership split of 75/25. Please revise your disclosure on pages 61 and 62 to illustrate the number of outstanding shares and convertible securities expected to be held by PhotoMedex and Radiancy shareholders following the merger. Please disclose any material assumptions used in the calculation and, if applicable, provide a range of potential post-merger holdings. Please also revise here and on page 9 of the summary to state, if true, that PhotoMedex stockholders will need to exercise warrants in order to hold a 25% share and that the exercise price of these warrants is significantly higher than PhotoMedex’s current and historical stock price.

United States Federal Income Tax Consequences..., page 66

30. We note that your exhibit index indicates that you will be filing an opinion with respect to tax matters. Accordingly, please revise this section, as applicable, to identify counsel and disclose which portions of the disclosure constitute counsel's opinion.
31. We refer to the final paragraph on page 70. Counsel must opine on all material tax consequences not just "certain" ones. It is also inappropriate to disclaim responsibility for your disclosure by disclosing that it is "for general information only." Please revise accordingly.

U.S. Income Tax Consequences to PhotoMedex Stockholders, page 68

32. We note the disclosure concerning the "unclear" tax treatment of the warrants and the escrowed shares. Whenever possible, you must state unequivocally the tax consequences of the transaction, not merely what the consequences "should" be. In each circumstance where your counsel is not able to opine on a material tax matter, please say so directly and disclose why you are not able to provide the disclosure. If, however, counsel is able to opine on a matter but doubt exists because of a lack of relevant authority or otherwise, you should explain the reasons for the doubt and the degree of uncertainty. Please note that this comment also applies to your disclosure in the penultimate paragraph on page 70 concerning U.S tax consequences to PhotoMedex shareholders as a result of the merger.

Escrow/Indemnification, page 78

33. Please revise to identify the "respective stockholders" and to explain how the shares will be distributed. Would the shares be distributed on a pro rata basis to all pre-merger PhotoMedex or Radiance shareholders? Please also revise to identify the types of indemnification claims covered. In this regard we refer to section 1.3 and 5.18 of the Merger Agreement. Please also file the escrow agreement as an exhibit to the registration statement.

Information about the Companies, page 88

34. Revise throughout to eliminate, state as management's belief, or substantiate qualitative claims about each company's product, services or business.

Distributors, page 95

35. Please revise to identify the key international markets where Radiance is focusing its sales efforts.

Purpose of the PhotoMedex Annual Meeting, page 118

36. Please revise the proxy to include a proposal in accordance with Rule 14a-21.

Information about the Nominees, page 123

37. Please revise your disclosure on pages 124 and 127 concerning Mr. Connelly to indicate the dates of his service at Viasys Healthcare and Rhone Poulenc Rorer. Please also revise your disclosure concerning Mr. Sight on pages 125 and 126 to identify each of the “various other public companies” on whose board he has served during the past five years. Please refer to Item 401(e) of Regulation S-K.

Security Ownership..., page 145

38. Please revise footnotes 12, 13, 14, 15 and 17 to identify the natural person or persons who exercise voting or dispositive control over the securities.
39. Please revise to disclose the information required by Regulation S-K, Item 403 with respect to Radiance. Please refer to Item 18(a)(5)(ii) of Form S-4 and Item 6.d. of Schedule 14A.

Proposal 5..., page 150

40. Please revise your proxy to present the proposals to increase the number of authorized shares, to approve the issuance of blank check preferred stock, to expand your indemnification obligations to your directors and officers, and to not opt out of the provisions of NRS 78.378 and 78.3793 as separate proposals or advise. If any of the proposals are mutually conditioned, revise your proxy accordingly and provide appropriate disclosure in your proxy statement regarding the effect of a negative vote on the related proposals. Refer to Exchange Act Rule 14a-4(a)(3).

Proposal 6..., page 151

41. We note your disclosure on page 149. Please revise the first paragraph on page 151 to explain that Mr. Rafaeli’s employment agreement entitles him to a bonus equal to 1% of combined company sales and that shareholders are asked in the proposal to vote for a second bonus package for Mr. Rafaeli.

Unaudited Pro Forma Condensed Consolidated Financial Statements, page 178

Overview, page 182

42. Please tell us why you calculated the purchase price using the July 5, 2011 market price and not the market price as of the latest available date.
43. Please tell us why you included the repurchase transaction of the Perseus securities as part of the estimate of the purchase price. Refer to ASC 805-10-25-20.

Pro forma adjustments to the balance sheet, page 183

44. Please respond to the following:
 - Since the allocation is preliminary, please identify significant liabilities and tangible and intangible assets likely to be recognized and highlight uncertainties regarding the effects of amortization periods assigned to the assets.
 - Please tell us if you are awaiting additional information that may impact the measurement of a contingency.
 - Please disclose the expected useful lives or amortization periods of significant assets acquired. If the amortization is not straight-line, you should disclose the effect on operating results for the five years following the acquisition, if material.

Pro forma adjustments to the statements of operations, page 184

45. With a view toward disclosure, please tell us how you determined the pro forma adjustments to your income tax expense. Refer to Instruction 7 of Rule 11-02(b) of Regulation S-X.
46. Please show us how you determined that you will issue 14,475,430 shares in the merger. Please also explain how you determined that 234,650 shares will be issued for the exercise of warrants. Please also revise the disclosure to briefly explain how you will determine the number of shares to be issued.

Where you can find more information, page 197

47. Please refer to Item 14 of Form S-4 and explain to us how you concluded that you are eligible to incorporate these or any filings by reference. If you are not eligible to incorporate filings by reference, please revise to provide all required information including the financial statements for PhotoMedex that meet the requirements of Regulation S-X. Please refer to Item 14(e) of Form S-4.

Radiancy, Inc. Consolidated Financial Statements, page F-1

Note 4. Segment Information, page F-7

48. Please tell us why you refer to three reportable segments in the first sentence, but show only two in your disclosures.

Consolidated Balance Sheets, page F-12

49. We note that you have issued preferred stock that has a preference in involuntary liquidation considerably in excess of the par or stated value of the shares. As such, please disclose, consistent with ASC 505-10-50-4, the liquidation preference of the stock in the equity section of your balance sheet in the aggregate.

Note 9. Commitments and Contingent Liabilities, page F-23

50. Please tell us how you considered the disclosures required by ASC 450-20-50.

Note 10. Shareholders' Equity, page F-23

E. Stock option plans, page F-25

51. Please disclose how you determined the significant assumptions used to estimate the fair value of your option awards. Refer to paragraph 718-10-50-2, sub-paragraph f.2 of the FASB Accounting Standards Codification.
52. We note your disclosure in this section that you had an independent appraisal firm complete an appraisal of the fair value of the target stock. Please describe to us and revise the filing to clarify the nature and extent of the third party appraiser's involvement and management's reliance on the work of the independent appraisers. Please refer to Question 141.02 of the Compliance and Disclosure Interpretations on Securities Act Sections, which can be found at <http://www.sec.gov/divisions/corpfin/guidance/sasinterp.htm>. Further, we also note the disclosure on page F-23 in Note 9 regarding the opinion of your legal counsel. Please similarly address that disclosure.

Note 11. Taxes on Income, page F-27

53. Please disclose the cumulative amount of undistributed earnings of your foreign subsidiaries that are intended to be indefinitely reinvested in those operations in accordance with ASC 740-30-50-2(b).

E. Carryforward Tax Losses, page F-27

54. Please tell us why you recorded a full valuation allowance for your net operating loss carryforward in 2009. We note that you fully utilized the amount in 2010.

Note 12. Supplementary Financial Statement Information, page F-30

55. On page F-30, we note that your allowance for doubtful debts increased \$2,692,000 in 2010. Please reconcile to the amount shown as bad debt expense for 2010 of \$1,496,000 on page F-31.
56. Please tell us why your sales returns allowances increased by \$3,075,000 in 2010.

Note 13. Segment Information, page F-32

B. Geographic information, page F-33

57. Please provide information about revenues attributed to any individual foreign country that is material. Refer to ASC 280-10-50-41.

Undertakings, page II-1

58. Please provide the undertakings required by Regulation S-K Item 512(a)(5)(ii) or advise.

Exhibits

59. Please file Schedule I to Exhibit 9.1.
60. We refer to the first paragraph of Exhibit 9.2 which indicates that the agreement is between PhotoMedex and holders of Radiancy securities. More specifically, we note that each of the securityholder signatories to the agreement are identified on page 146 as PhotoMedex stockholders. Accordingly, please confirm to us that each of these signatories is a stockholder of both PhotoMedex and Radiancy. We may have further comment after reviewing your response.
61. We refer to your disclosure in the sixth and seventh paragraphs on page 95 concerning your exclusive distribution agreement in Japan. Please file your exclusive distribution agreement for the Japanese market and all other material distribution arrangements.

Exhibit 5.1

62. Given the date restriction in the final paragraph of page 2 of the opinion, please confirm our understanding that you intend to file an updated opinion of counsel as of the date that the registration statement is to be declared effective. Please also have counsel provide a

date in the opinion.

Exhibits 23.2 and 23.3

63. To the extent there is a delay in requesting effectiveness of your registration statement, an other than typographical change made to the financial statements, or there have been intervening events since the prior filing that are material to the company, please provide currently dated and signed consents from your independent accountants with your next amendment

Form 10-K for the Fiscal Year Ended December 31, 2010

Note 11. Convertible Debt, page F-23

64. Please tell us how you considered the down-round provisions of the convertible notes in determining how to account for them. Refer to ASC 815-15 and 815-40-55-33 through 55-34.
65. Please tell us how you accounted for the convertible debt modification. Refer to ASC 470-50.

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.

Dennis McGrath
PhotoMedex, Inc.
September 8, 2011
Page 12

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.

You may contact Gary Newberry at (202) 551-3761 or Kaitlin Tillan, Assistant Chief Accountant, at (202) 551-3604 if you have questions regarding comments on the financial statements and related matters. Please contact Joseph McCann at (202) 551-6262 or me at (202) 551-3528 with any other questions.

Sincerely,

/s/ Amanda Ravitz

Amanda Ravitz
Assistant Director

cc (via e-mail): Stephen C. Koval, Esq. - Kaye Scoler LLP