

August 19, 2010

Via Edgar

Mr. Gary Todd  
Division of Corporation Finance  
Securities and Exchange Commission  
100 F Street, N.E.  
Washington, DC 20549

Re: AtriCure, Inc. ("AtriCure")  
Form 10-K for the fiscal year ended December 31, 2009  
Filed March 30, 2010  
Form 10-Q for the quarterly period ended March 31, 2010  
File No. 000-51470

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Dear Mr. Todd:

We are responding to the Staff's comments contained in the letter dated August 3, 2010 to the above-referenced filings. Our counsel spoke with the Staff on August 4, 2010 and requested additional time to respond to the letter dated August 3, 2010, and the Staff has allowed an additional ten business days for our response, which is now due by August 31, 2010.

**Form 10-K for the fiscal year ended December 31, 2009**

**Item 8. Financial Statements and Supplementary Data**

Note 1. Description of Business and Summary of Significant Accounting Policies

Revenue Recognition, page 60

- We refer to your response to prior comment 8. In future filings, please provide a brief description of the integral relationship between the handpieces and the generator and disclose your revenue recognition policy which is based upon the later of delivery of the generator or handpieces.***

In future filings, we will describe the relationship between the handpieces and the generator as well as our revenue recognition policy which is based upon the later of delivery of the generator or handpieces. The revised disclosure included in our most recently filed Form 10-Q for the second quarter ended June 30, 2010 is as follows:

The Company accounts for revenue in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 605, "Revenue Recognition" ("ASC 605"). The Company determines the timing of revenue recognition based upon factors such as passage of title, installation, payment terms and ability to return products. The Company recognizes revenue when all of the following criteria are met: (i) persuasive evidence that an arrangement exists; (ii) delivery of the products and/or services has occurred; (iii) the selling price is fixed or determinable; and (iv) collectability is reasonably assured.

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Revenue is generated from the sale of the Company's surgical devices. Our surgical devices consist primarily of individual disposable handpieces and equipment generators. Our customers need the combination of the generator and the handpieces to have a functional system. The Company believes that the generator and handpiece are considered a single unit of accounting under ASC 605 because neither the generator nor handpiece have value to the customer on a standalone basis. Therefore, because the customer needs both the generator and handpiece to have a functional system, revenue is recognized upon the later of delivery of the generator or handpiece.

Pursuant to the Company's standard terms of sale, revenue is recognized when title to the goods and risk of loss transfers to customers and there are no remaining obligations that will affect the customers' final acceptance of the sale. Generally, the Company's standard terms of sale define the transfer of title and risk of loss to occur upon shipment to the respective customer. The Company generally does not maintain any post-shipping obligations to the recipients of the products. Typically, no installation, calibration or testing of this equipment is performed by the Company subsequent to shipment to the customer in order to render it operational.

Product revenue includes shipping and handling revenue of \$167,454 and \$163,535 for the three months ended June 30, 2010 and 2009, respectively, and \$321,217 and \$332,891 for the six months ended June 30, 2010 and 2009, respectively. Cost of freight for shipments made to customers is included in cost of revenue. Sales and other value-added taxes collected from customers and remitted to governmental authorities are excluded from product revenue. The Company sells its products primarily through a direct sales force and through AtriCure Europe, B.V. Terms of sale are generally consistent for both end-users and distributors except that payment terms are generally net 30 days for end-users and net 60 days for distributors.

Share-Based Employee Compensation, page 63

2. ***Your proposed disclosure in response to prior comment 9 indicates that options granted to non-employees fall outside the scope of FASB Codification Topic 718 once vested. Please tell us why non-employee stock compensation would be accounted for under FASB Codification Topic 718, as opposed to FASB Codification Topic 505-50, the guidance applicable to equity-based payments to non-employees.***
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We account for the options granted to non-employees prior to their vesting date under the guidance in ASC 505-50, *Equity Based Payments to Non-Employees (formerly EITF No. 96-18, Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services)*. The options awarded to non-employees do not contain a performance commitment; therefore, there is no measurement date for these awards until the awards vest. Prior to vesting, we remeasure these options at each reporting date based upon the value at that time with changes in the value of the options recognized as compensation expense in the period of remeasurement.

Although ASC 718 typically governs the accounting for share based payments, we believe that our previous disclosure should be enhanced to include a reference to ASC 505-50. We have appropriately applied the guidance in ASC 505-50 when determining the measurement date and accounting for options granted to non-employees prior to the vesting date; therefore, we believe this disclosure revision will add clarity to the description of our accounting.

The revised disclosure included in our most recently filed Form 10-Q for the second quarter ended June 30, 2010 is as follows:

The Company has historically issued stock options to non-employee consultants as a form of compensation for services provided to the Company. The Company accounts for the options granted to non-employees prior to their vesting date in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees*. Because these options do not contain specific performance provisions, there is no measurement date of fair value until the options vest. Therefore, the fair value of the options granted and outstanding prior to their vesting date is remeasured each reporting period. During the three months ended June 30, 2010 and 2009, \$3,295 and \$8,919, respectively, of compensation expense was recorded as a result of the remeasurement of the fair value of these unvested stock options. During the six months ended June 30, 2010 and 2009, \$6,161 and \$7,097, respectively, of expense was recorded as a result of the remeasurement of the fair value of these unvested stock options.

Because the options require settlement by the Company's delivery of registered shares and because the tax withholding provisions in the awards allow the options to be partially net-cash settled, these options, when vested, are no longer eligible for equity classification and are, thus, subsequently accounted for as derivative liabilities under FASB ASC 815 until the awards are ultimately either exercised or forfeited. Accordingly, the vested nonemployee options are classified as liabilities and remeasured at fair value through earnings at each reporting period.

During the three months ended June 30, 2010 and 2009, \$27,204 and \$75,973, respectively, of expense was recorded as a result of the remeasurement of the fair value of these fully vested stock options. During the six months ended June 30, 2010 and 2009, \$27,494 and \$51,143, respectively, of expense was recorded as a result of the remeasurement of the fair value of these fully vested stock options.

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As of June 30, 2010 and December 31, 2009, respectively, fully vested options to acquire 50,254 and 52,359 shares of common stock held by non-employee consultants remained unexercised and a liability of \$207,782 and \$180,288 was included in accrued liabilities in the Consolidated Balance Sheets as of June 30, 2010 and December 31, 2009, respectively.

If you have any questions or comments, please do not hesitate to contact me.

Sincerely,

ATRICURE, INC.

By: /s/ Julie A. Piton

Julie A. Piton  
Vice President Finance and Administration  
and Chief Financial Officer

cc: Ms. Leigh Ann Schultz, Securities and Exchange Commission  
Mr. Brian Cascio, Securities and Exchange Commission