



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-7010

October 1, 2009

Room 7010

Anthony S. Loumidis
Chief Financial Officer
Glenrose Instruments, Inc.
45 First Avenue
Waltham, Massachusetts 02451

**Re: Glenrose Instruments, Inc.
Form 10-K for Fiscal Year Ended December 28, 2008
File No. 000-51645**

Dear Mr. Loumidis:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise future filings 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 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 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 for the year ended December 28, 2008

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 16

Critical Accounting Policies, page 17

1. Considering your historical losses, negative free cash flows in the most recent periods and the recent economic events, we suggest that you include a critical accounting policy for property, plant and equipment, in future filings, to provide an investor with sufficient information about management's insights and

assumptions with regard to the recoverability of these asset balances. This disclosure should clarify whether or not an impairment test was actually performed on your long lived assets under SFAS 144 at December 28, 2008. Please disclose the results of those tests, to the extent they were performed and if no test was performed how you considered that one was not necessary under paragraph 8 of SFAS 144. Note for future periods, disclosing whether or not a SFAS 144 analysis was actually performed would clearly inform investors whether the absence of impairment charges is due to management's determination that the SFAS 144 test were not required as a result of no triggering events or because there were triggering events present and managements estimate of cash flow projections exceeded asset carrying values resulting in no impairment charges.

Goodwill, page 19

2. Please revise your policy note for goodwill to disclose the assumptions used, and provide information as to known trends, uncertainties or other factors that will result in, or are reasonably likely to result in, any material impairment charges in future periods. For example, your policy note should quantify the projected cash flows used in your analysis, the growth rate used in projecting cash flows, quantify the discount rate, include terminal value assumptions, and discuss how you assessed your reporting units under paragraph 30 and 31 of SFAS 142. Disclose, in future filings, how much goodwill is allocated to each segment as required in paragraph 45 of SFAS 142. To the extent a significant amount of goodwill has been allocated to your Analytical Laboratories segment, please provide us with your most recent SFAS 142 impairment analysis. Considering this segment's substantial operating losses in the past three years and in the first half of 2009, it is unclear how you determined that any goodwill allocated to this segment would be recoverable. Given the current economic conditions and the impact it has had on your operations, this detailed information will provide the reader with greater insight into the quality and variability of your financial position and operating results. Refer to Release No. 33- 8350 "Interpretation: Commission Guidance Regarding Management's Discussion and Analysis of Financial Condition and Results of Operations." Your policy should also discuss whether or not the current economic conditions, your decrease in sales and margins as well as historical losses and recent negative cash flows from operations, has triggered an interim impairment test under SFAS 142.
3. Your discussion of results of operations addresses multiple factors contributing to year over year changes in line items; however, your discussion should quantify each of the factors. For example, you disclose cost of sales increased due to increased direct labor at DOE sites, increased reimbursable travel costs and subcontract expenses. You also disclose that operating expenses decreased due to staff reductions and other cost controls. However, your disclosure does not

quantify the impact. Please revise, future filings, to quantify each factor that contributes to year over year changes in income statement line items. Refer to FRR No. 36 – 501.04.

4. We note from your segment disclosures and discussion in MD&A that Environmental Services sales and profit have decreased while Analytical Laboratories sales and profit have increased during 2008 and the first two quarters of 2009. The reasons for these increases and decreases that you disclose are brief and don't provide an overall picture of what is happening in each of your segments and how they have contributed and/or will contribute to operations in future periods. Please revise, future filings, to discuss in MD&A the reasons for the specific changes in these reportable segments and whether or not these are trends that you anticipate incurring in future results. This information will enhance a readers understanding of your reportable segments, their contribution to your operations and the impact they could have on future operations.

Liquidity and Capital Resources, page 21

5. You discuss in your risk factor on page 13 the financial markets in 2008 and how your ability to access capital for repayment of debts and for future growth is limited. However, you do not provide similar discussion in your liquidity section. We further note a brief discussion in MD&A on page 16 that only discusses the economic slowdown but does not specifically discuss how the economic slowdown has impacted your operations. Please expand your MD&A discussion, in future filings, to clarify the specific impacts and risks of recent economic events to your business. Explain how the market for your products has been affected and the current and expected future impact on your operations, financial position and liquidity. This disclosure should provide detailed information on your operations, your customers, recent order activity, expected trends, management's response for managing these events, potential future actions by management and other detailed information. Expand your liquidity discussion to address the expected impact to current and future cash flows and how you expect recent economic events, including the credit shortage, may affect other sources of liquidity such as your current debt instruments. In your response to this letter, please provide a detailed description of proposed future disclosure.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please submit all correspondence and supplemental materials on EDGAR as required by Rule 101 of Regulation S-T. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

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 all information required under

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the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Melissa Rocha at (202) 551-3854, Al Pavot at (202) 551-3738 or me at (202) 551-3355.

Sincerely,

Terence O'Brien
Accounting Branch Chief