

August 31, 2005

Zip+4 Code: 20549

Via Fax & U.S. Mail

Mr. Thomas C. Dearmin
Chief Executive Officer and Chief Financial Officer
Ionatron, Inc.
3590 East Columbia Street
Tucson, AZ 85714

**RE: Ionatron, Inc. (the “Company”)
Form 10-K for the year ended December 31, 2004
File No. 1-14015**

Dear Mr. Dearmin:

Based upon an examination restricted solely to considerations of the Financial Statements, Management’s Discussion and Analysis, and Selected Financial Data, the staff has the following comments on the above-referenced document. We think you should revise all 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 response. In some of our comments, we may ask you to provide us with supplemental 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.

Please respond within 15 business days to confirm that such comments will be complied with, or, if certain of the comments are deemed inappropriate by the Company, advise the staff of the reason thereof.

Pursuant to Rule 101(a)(3) of Regulation S-T, your response should be submitted in electronic form, under the label “corresp” with a copy to the staff.

Management’s Discussion and Analysis

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Results of Operations, page 12

1. Please revise to disclose results of operations for each reportable segment and the company as a whole. Refer to Item 303(a) of Regulation S-K.

Note 1-Summary of Significant Accounting Policies

Goodwill and Indefinite Life Intangible Assets, page F-12

2. You state that you believe that the North Star Trade name is an indefinite life intangible asset. Supplementally advise us and expand your disclosure regarding your basis and assumptions that enabled you to reach this conclusion. As part of your response, specifically discuss your consideration of North Star's financial performance, and any assumptions used in anticipated cash flows that will result from this trade name over its indefinite life. We may have further comment upon reviewing your response.

Note 12- Commitments and Contingencies

Operating Leases, page F-23

3. We note that your operating leases contain escalation clauses. It is not apparent from the disclosures whether the Company's policy is to straight-line rental expense in accordance with paragraph 15 of SFAS 13. Expand the footnote to specifically disclose, if true, this accounting treatment in view of the lease terms.

Other

4. We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors 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.

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 filings;
- staff comments or changes to disclosure in response to staff comments in the filings reviewed by the staff do not foreclose the Commission from taking any action with respect to the filing; and

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- 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 Effie Simpson at (202) 551-3346 or, in her absence, Lyn Shenk, at (202) 551-3380, or the undersigned, at (202) 551-3813 if you have questions regarding comments on the financial statements and related matters. Please contact Max Webb, Assistant Director, at (202) 551-3818 with any other questions.

Sincerely,

Linda Cvrkel
Branch Chief

Via facsimile: Stephen A. McCommon, CAO
(520) 622-3835