



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-3030

Mail Stop 3030

January 27, 2010

Mr. O. Joe Caldarelli
Chief Executive Officer
CPI International, Inc.
811 Hansen Way
Palo Alto CA 94303

**Re: CPI International, Inc.
Form 10-K for Fiscal Year Ended October 2, 2009
Filed December 10, 2009
File No. 000-51928**

Dear Mr. Caldarelli:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comments are 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 Fiscal Year Ended October 2, 2009

Executive Compensation, page 67

1. We refer to your executive compensation disclosure incorporated by reference from your proxy statement. In future filings, please include a more detailed discussion of how you determined each element of compensation awarded to each named executive officer. For example, it should be clear how you determined the appropriate level of stock option awards to each named executive officer and how target payouts under the Management Incentive Plan and stock option awards for each named executive officer are related to the data from the peer companies you have analyzed. Refer to your response to comment 4 to our comment letter dated September 30, 2008, regarding your Form 10-K for the fiscal year ended

September 28, 2007. Additionally, please provide us with supplemental draft disclosure to be included in future filings.

Exhibits

2. We note that the credit agreement amended and restated as of November 29, 2004, filed as exhibit 10.1 to your Form 10-K for fiscal year ended October 1, 2004, does not appear to include all of the schedules or exhibits to the agreement. Please explain why these attachments were not filed pursuant to Item 601(b)(10) of Regulation S-K, or refile the agreement with all attachments. Also, please ensure that you have filed the final version of your agreements as exhibits. We note that you have not signed, or have not included conformed signatures to this exhibit.

* * *

As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. 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 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.

Mr. O. Joe Caldarelli
CPI International, Inc.
January 27, 2010
Page 3

Please contact Louis Rambo at (202) 551-3289 or me at (202) 551-3637 with any questions.

Sincerely,

Jay Mumford
Senior Attorney