



DIVISION OF
CORPORATION FINANCE

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

October 17, 2012

Via E-mail

Mr. Robert M. McLaughlin
Chief Financial Officer
Airgas, Inc.
259 North Radnor-Chester Road, Suite 100
Radnor, Pennsylvania 19087

**Re: Airgas, Inc.
Form 10-K for the Year Ended March 31, 2012
Filed May 29, 2012
Response dated October 10, 2012
File No. 1-9344**

Dear Mr. McLaughlin:

We have reviewed your response letter dated October 10, 2012 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 within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to these comments, we may have additional comments.

Form 10-K for the Year Ended March 31, 2012

General

1. Where a comment below requests additional disclosures or other revisions to be made, please show us in your supplemental response what the revisions will look like. These revisions should be included in your future filings, including your interim filings, if applicable.

Management's Discussion and Analysis

Results of Operations, page 18

2. We note your response to comment two in our letter dated September 12, 2012. We continue to have difficulty understanding how your current presentation of same-store sales is

appropriate. For example, it is unclear how you determined that the inclusion of acquired sales for periods prior to the actual acquisition is appropriate. In this regard, please remove this measure. Alternatively, you may present pro forma sales information pursuant to Article 11 of Regulation S-X. If you decide to present pro forma sales information, please ensure that you clearly show how you arrived at these pro forma amounts by reconciling these amounts to historical amounts and clearly showing how you calculated each of the pro forma adjustment amounts.

Note 21. Summary by Business Segment, page F-43

3. We note your response to comment three in our letter dated September 12, 2012. The financial information provided including the analysis of year over year changes in sales, sales (adjusted for the impact of acquisitions and divestitures), gross margin dollars, and operating margin dollars in Exhibit C indicates that certain regional distribution operating segments may exhibit different economic characteristics and financial trends from other regional distribution operating segments. In this regard, please address the following differences when comparing each of the following regional distribution operating segments to other regional distribution operating segments. Please also address why these differences would not be considered an indication of differences in economic characteristics between the regional distribution operating segment compared to other regional distribution operating segments and your basis for concluding that each difference was only temporary:
 - Please address the higher average gross margin percentages presented in Appendix A as well as sales (adjusted for impact of acquisitions and divestitures), gross margin dollars, and operating margin dollars trends for the NCN regional distribution operating segment compared to other regional distribution operating segments;
 - Please address the higher average operating margin percentages presented in Appendix A for the Mid-America and Great Lakes regional distribution operating segments compared to other regional distribution operating segments;
 - Please address the lower average operating margin percentages presented in Appendix A as well as sales (adjusted for impact of acquisitions and divestitures), gross margin dollars, and operating margin dollars trends for the South regional distribution operating segment compared to other regional distribution operating segments;
 - Please address sales (adjusted for impact of acquisitions and divestitures) and gross margin dollars trends for the Great Lakes regional distribution operating segment compared to other regional distribution operating segments;
 - Please address the lower average operating margin percentages presented in Appendix A as well as the gross margin and operating margin dollars trends for the Nor Pac regional distribution operating segment compared to other regional distribution operating segments; and
 - Please address operating margin dollars trends for the West regional distribution operating segment compared to other regional distribution operating segments.
4. In Exhibit A of your letter dated September 6, 2012, you provided sales, gross margin, and operating margin amounts for each operating segment included in the Distribution reportable

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segment. For each of the three years ended March 31, 2012, please provide us with a reconciliation between the total of these sales, gross margin, and operating margin amounts presented in Exhibit A to the amounts reported in your note to the financial statement for the Distribution reportable segment. Please explain to us how you have reflected intercompany transactions that occur entirely within the Distribution reportable segment as well as intercompany transactions that occur between the Distribution reportable segment and parts of the registrant outside of this reportable segment in the amounts shown in your segment footnote for each period presented. If you do not eliminate intercompany transactions that occur entirely within the Distribution reportable segment in arriving at the amounts presented in the segment footnote for that reportable segment, please also explain to us your basis for not eliminating them.

5. In Appendix E, you have compared your reportable segments based on (1) the presentation in your Form 10-K for the year ended March 31, 2012 and (2) a modified presentation in which the amounts for the six supporting distribution operating segments are included in All Other Operations. You believe that the Distribution reportable segment would not be materially different than its current presentation if you were to remove the ancillary distribution operating segments. Appendix E provides this analysis only for the year ended March 31, 2012. Please provide us with a similar analysis for each of the three years ended March 31, 2011 as well as the six months ended September 30, 2012 and tell us what consideration you gave as to whether there were material differences in these periods as well. Please also address your consideration as to whether there are material differences in looking at the modified amounts year over year.

If you have any questions regarding these comments, please direct them to Nudrat Salik, Staff Accountant, at (202) 551-3692 or, in her absence, to the undersigned at (202) 551-3769.

Sincerely,

/s/ Rufus Decker

Rufus Decker
Accounting Branch Chief