



DIVISION OF
CORPORATION FINANCE

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

September 12, 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 September 6, 2012
File No. 1-9344

Dear Mr. McLaughlin:

We have reviewed your response letter dated September 6, 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 July 27, 2012. You view same-store sales growth to be an important metric to distinguish between acquired sales and

organic sales growth. It appears that the same-store sales growth percentages that you present and discuss include both acquired sales and organic sales growth. Please help us better understand how your inclusion of acquired sales for periods prior to the actual acquisition is appropriate. It appears to us that including sales that are not yours in your same-store sales computations does not accurately convey to readers the actual changes in your same-store sales from period to period. In addition, we do not understand why you are changing your historical sales when there are differences in the number of business days in the periods being compared. Instead, we believe that it would be more appropriate to disclose in your MD&A the differences in the number of days in each period and quantify the extent to which this positively or negatively impacted sales in the current period as compared to the prior period. Please further advise or revise your disclosures accordingly. Please also supplementally tell us what your same-store sales and same-store sales growth would have been if you had made these revisions for each of the three years ended March 31, 2012 as well for each of the quarters ended June 30, 2012 and September 30, 2012 and the comparable periods in the prior year. To the extent that you change your same-store sales computations so that they no longer include sales that are not yours, please also disclose in your MD&A when you first include new and/or acquired stores in your same-store sales computations.

Financial Statements

Notes to the Financial Statements

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

3. We note your response to comment seven in our letter dated July 27, 2012. The operating segments included in the Distribution business segment include twelve regional gas and hardgoods distribution companies, three gas companies that either produce or market gas, two companies that sell or provide safety-related services, and one company engaged in the rental welder business. Please address the following:
 - Based on the descriptions of each of these four categories of companies, it is not clear how you determined that the nature of products and services provided are similar pursuant to ASC 280-10-50-11. For example, it is not clear why safety-related products and services would be similar to gas and hardgood products and services. Please advise; and
 - ASC 280-10-50-11 requires that operating segments must have similar economic characteristics in order to be aggregated into a reportable segment. Your response acknowledges that gross and operating income margins for Airgas Merchant Gases and Airgas Specialty Gases are not consistent with regional distribution companies. Your response also acknowledges that the gross and operating income margins of Airgas Retail Services and Red-D-Arc tend to be different from those of the regional distribution companies and other operating segments in the Distribution business segment. In light of this, it is not clear how you determined it was appropriate to aggregate these operating segments pursuant to ASC 280. Please further advise.

4. The analysis provided for changes in revenues, gross margins, and operating margins from year to year appears to indicate that the financial trends of your operating segments can be sufficiently varied to preclude you from determining that they are all economically similar. You provide explanations for certain differences in economic characteristics and trends for a given operating segment when compared to another operating segment. We have difficulty understanding why these differences would not be considered an indication of differences in economic characteristics between each operating segment and your basis for concluding that each difference was only temporary. You note that though there are differences in year-over-year changes in gross and operating income margins of your regional distribution companies, they tend to be in a fairly narrow band and generally move in the same direction. We have difficulty understanding how you determined that the margins are in a fairly narrow band as well as what consideration you gave to the extent of changes even if they are moving in the same direction in determining that the operating segments are economically similar. Please further advise. Please also provide us with your average gross margin % and operating margin % for each operating segment over the periods shown in Exhibit A.

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