



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-4631

Mail Stop 4631

January 27, 2010

Mr. Paul E. Huck
Senior Vice President and Chief Financial Officer
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195

**RE: Form 10-K for the year ended September 30, 2009
Form 10-Q for the period ended December 31, 2009
File No. 1-4534**

Dear Mr. Huck:

We have reviewed these filings and have the following comments. If you disagree with a comment, 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 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.

FORM 10-K FOR THE YEAR ENDED SEPTEMBER 30, 2009

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.

Item 3 – Legal Proceedings, page 14

Pasadena, Texas Facility, page 14

2. Tell us whether it is reasonably possible that losses related to the violations alleged at this site could be material to your results of operations. If so, please explain the nature of the allegations and whether aside from any fines, you may be required to undertake material remediation, and/or capital expenditures related to this issue.

Item 6 – Selected Financial Data, page 16

3. You have presented your cash provided by operating activities in the Other Data section. While presentation of cash flows from operating activities is useful, this data should be considered in the framework of a statement of cash flows, which reflects management's decision as to the use of these cash flows and the external sources of capital used. The implication of a presentation which shows only the cash flows generated from operations portion of a cash flows statement is that the use of such cash flows is entirely at the discretion of management. Please also present your cash flows from investing and financing activities. See Section 202.03 of the SEC's Codification of Financial Reporting Policies for guidance.

Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations, page 17

Liquidity and Capital Resources, page 30

4. We note your disclosure on page 68 that various debt agreements to which you are a party include certain financial covenants and other restrictions. As such, please disclose here or elsewhere in the filing the specific terms of any material debt covenants in your debt agreements. In addition, if it is reasonably likely that you will not be in compliance with any of your material debt covenants, please disclose the required ratios/amounts as well as the actual ratios/amounts as of each reporting date. This will allow readers to understand how much cushion there is between the required ratios/amounts and the actual ratios/amounts. Please also consider showing the specific computations used to arrive at the actual ratios/amounts with corresponding reconciliations to US GAAP amounts, if necessary. See Sections I.D and IV.C of the SEC Interpretive Release No. 33-8350.

Item 7A – Quantitative and Qualitative Disclosures about Market Risk, page 34

Critical Accounting Policies and Estimates, page 35

Impairment of Long-Lived Assets, page 36

5. To the extent that any of your reporting units have estimated fair values that are not substantially in excess of the carrying value and to the extent that goodwill for these reporting units, in the aggregate or individually, if impaired, could materially impact your operating results or total shareholders' equity, please provide the following disclosures for each of these reporting units in future filings:

- Identify the reporting unit;
- The percentage by which fair value exceeds the carrying value as of the most-recent step-one test;
- The amount of goodwill;
- A description of the assumptions that drive the estimated fair value;
- A discussion of the uncertainty associated with the key assumptions. For example, to the extent that you have included assumptions in your discounted cash flow model that materially deviates from your historical results, please include a discussion of these assumptions;
- A discussion of any potential events and/or circumstances that could have a negative effect to the estimated fair value.

If you have determined that the estimated fair value substantially exceeds the carrying value for all of your reporting units, please disclose this determination in future filings. Please also provide the above disclosures, as applicable, for any long-lived assets or asset groups for which you have determined that fair value is not substantially in excess of the carrying value and to the extent that the asset amounts, in the aggregate or individually, could materially impact your operating results or total shareholders' equity. Please refer to Item 303 of Regulation S-K and Sections 216 and 501.14 of the SEC's Codification of Financial Reporting Policies for guidance.

Loss Contingencies, page 39

6. We note that accounting for loss contingencies is a critical aspect of your accounting policies and estimates.

On pages 7 and 29 you state that “..the Company does not expect that any sum it may have to pay in connection with environmental matters in excess of the amounts recorded or disclosed above would have a materially adverse effect on its financial condition or results of operations in any one year.” On page 74 you state “While the Company does not expect that any sums it may have to pay in

connection with environmental exposures would have a materially adverse effect on its consolidated financial position or net cash flows, a future charge for any damage award could have a significant impact on the Company's net income in the period in which it is recorded." Tell us whether that period could be a year, and if so, please reconcile these two disclosures.

7. We note that the amounts charged to income from continuing operations on an after-tax basis related to environmental matters totaled \$33 million in fiscal 2009, \$31 million in 2008, and \$25 million in 2007. These amounts include an estimate of expenses for compliance with environmental laws, and activities undertaken to meet internal Company standards. It appears that some of these expenses may not have been charged as part of an ongoing remediation liability. Please clarify for us. Tell us why you believe that disclosing these costs on an after-tax basis is meaningful, relative to other cost discussions.
8. Please provide us with a detailed pre-tax roll-forward of your environmental accrual for each year presented and the interim period just prior to your response. Please separately show the beginning balance, expenses, (or reductions of gains on sale) and expenditures for each period. Please provide a narrative analysis of the expenses and expenditures for the year explaining how much of the amount is due to changes in cost estimates, newly discovered sites, or new areas in old sites, or any other relevant information.

Please provide the above type roll-forward and analysis for each of the individual sites you identify as Pace, Piedmont and Paulsboro.

Item 8 – Financial Statements and Supplementary Data, page 41

Note 3 – Global Cost Reduction Plan, page 55

9. Please enhance your disclosure to disclose the total amount of restructuring charges expected to be incurred as well as the cumulative amount of restructuring charges incurred to date for each major type of cost as well as for each reportable segment as required by FASB ASC 420-10-50-1.

Note 16 – Commitments and Contingencies, page 74

Litigation, page 74

10. You disclose that the ultimate outcome of the proceedings or sanctions related to the investigation of your Brazilian subsidiary is not predictable with assurance and that a future charge for regulatory fines or damage awards could have a

significant impact on your net income in the period in which it is recorded. We note that this issue could have a material impact on your net income in the period in which it is recorded. Please provide more detail concerning the background of the investigation and the allegations. Discuss your understanding of the nature and amounts of sanctions involved with these allegations in Brazil. Tell us whether the sanctions in the report were quantified and if so tell us the amounts. It appears there is a reasonable possibility that a loss exceeding amounts already recognized may have been incurred and the amount of that additional loss is material. If there is a reasonable possibility, please disclose the estimated range of loss, or state that such an estimate cannot be made as required by FASB ASC 450-20-50-4.

* * * *

Please respond to these comments within 10 business days, or tell us when you will provide us with a response. Please provide us with a response letter that keys your responses to our comments and provides any requested information. Detailed letters greatly facilitate our review. Please file your supplemental response on EDGAR as a correspondence file. 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 filings reviewed by the staff to be certain that they have provided all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed 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 their filings;
- 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.

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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.

If you have any questions regarding these comments, please direct them to Jeffrey Gordon, Staff Accountant, at (202) 551-3866 or, in his absence, the undersigned at (202) 551-3689.

Sincerely,

John Hartz
Senior Assistant Chief Accountant