

stoichiometric ratio of 1.35 was used in this analysis. We estimate that implementing today's final rule will result in the generation of 1,410 Mg/yr (1,550 tpy) of solid waste from new sources.

C. What Are the Energy Impacts?

Energy impacts consist of the electricity needed to operate the APCD. Electricity requirements are driven primarily by the size of the fan needed in the APCD. We estimate the increase in electricity consumption that will result from implementation of the final rule to be 89 terajoules per year (84 billion British thermal units (Btu) per year) for existing sources.

To project energy impacts for new sources, we assumed that two large model tunnel kilns (equipped with DIFF) and one medium model tunnel kiln (equipped with a DLA) will begin operation at the beginning of the first year following promulgation of the final rule. We estimate the increase in energy consumption that will result from implementation of today's final rule to be 7.8 terajoules per year (7.4 billion Btu per year) for new sources.

D. Are There Any Additional Environmental and Health Impacts?

Reducing HAP emissions under today's final rule will lower occupational HAP exposure levels. The operation of APCD may increase occupational noise levels.

E. What Are the Cost Impacts?

For existing sources, nationwide total capital costs to implement today's final rule are estimated at \$63 million, with total annualized costs of \$24 million. The capital costs include the purchase and installation of DLA and monitoring equipment on 89 existing large tunnel kilns. The annualized costs include annualized capital costs of the control and monitoring equipment, operation and maintenance expenses, emission testing costs, and recordkeeping and reporting costs associated with installing and operating these 89 DLA, as well as the monitoring, recordkeeping and reporting, and emission testing costs on 20 additional APCD that currently are installed on existing large tunnel kilns.

To project costs for new sources, we assumed that two large model tunnel kilns (equipped with DIFF) and one medium model tunnel kiln (equipped with a DLA) will begin operation at the beginning of the first year following promulgation of the final rule. We estimate the capital costs associated with implementation of today's final rule to be \$2.8 million for these three

new sources. We estimate the annualized costs associated with implementation of today's final rule to be \$1.14 million per year for new sources in the first year following promulgation of the rule.

We calculated the cost estimates using cost algorithms that are based on procedures from EPA's Office of Air Quality Planning and Standards (OAQPS) Control Cost Manual (EPA 450/3-90-006, January 1990) and cost information provided by the BSCP industry. We estimated costs by developing model process units that correspond to the various sizes of kilns found at BSCP manufacturing facilities and assigning the model process units to each facility based on the kiln sizes at each facility. The facility costs were summed to determine total industry costs.

F. What Are the Economic Impacts?

We conducted a detailed economic impact analysis to determine the market- and industry-level impacts associated with today's final rule. The compliance costs of today's final rule are expected to increase the price of brick and reduce their domestic production and consumption. We project the price of brick to increase by just less than 1 percent and project no change in price for structural clay products. Domestic production of brick is expected to decline by close to 1 percent. In addition, foreign brick imports are estimated to increase while exports decrease, both by just under 1 percent. Since there is no expected change in the price of structural clay products, we predict no change in domestic production or foreign imports of structural clay products.

In terms of industry impacts, the brick producers are projected to experience a decrease in operating profits of about 10 percent, which reflects the compliance costs associated with brick production and the resulting reductions in revenues due to the increase in the price of brick and the reduced quantity purchased. Through the market impacts described above, today's final rule would create both positive and negative financial impacts on facilities within the BSCP manufacturing industry. The majority of facilities, almost 71 percent, are expected to experience profit increases with today's final rule; however, there are some facilities projected to lose profits (about 29 percent). Furthermore, the economic impact analysis indicates that of the 189 BSCP manufacturing facilities, two brick facilities are at risk of closure because of today's final rule, while none of the structural clay products facilities are at risk to close.

Based on the market analysis, the annual social costs of today's final rule are projected to be \$23.3 million. This differs from the annual engineering costs of today's final rule because the social costs account for producer and consumer behavior. These social costs are distributed across the many consumers and producers of brick. Since there are no price changes occurring in the structural clay products market, the social costs of today's final rule are confined to the brick industry. The consumers of brick are expected to incur \$14.7 million in costs associated with today's final rule, with domestic consumers bearing \$14.6 million and foreign consumers bearing \$0.07 million. Brick producers, in aggregate, are expected to bear the remaining \$8.6 million annually in costs. Domestic producers incur \$8.67 million while foreign producers gain \$0.04 million annually.

We estimate that 15 new kilns will be built during the 5 years after promulgation of today's final rule. The total compliance costs associated with these kilns are projected to be less than 0.6 percent of the industry's value of shipments. The economic impact analysis estimated the impact of today's final rule on these new sources through a sensitivity analysis. According to that analysis, it is projected that anywhere from three to six of these new kilns will be delayed in coming on-line in the BSCP manufacturing industry due to today's final rule.

V. Summary of Responses to Major Comments and Changes to the Clay Ceramics Manufacturing Proposed NESHAP

In response to the public comments received on the proposed clay ceramics rule, we made several changes in developing today's final clay ceramics rule. The major comments and our responses and rule changes are summarized in the following sections. A more detailed summary can be found in the Response-to-Comments document, which is available from several sources (see **SUPPLEMENTARY INFORMATION** section).

A. Affected Source

1. Subcategories of Clay Ceramics Kilns

We proposed two subcategories of clay ceramics kilns: Continuous (tunnel or roller) kilns and batch (periodic) kilns. Based on the public comments received regarding APCD applicability, as described in section V.C of this preamble, we revised the subcategorization structure for today's final rule. Today's final rule is based on