

2. Our organization, in its own laboratories, is carrying out research directed at the development of equipment which will enable the removal of additional quantities of sulfur from bituminous coals before they are burned. In many bituminous coals, the sulfur occurs primarily as a mineral pyrite which, if the coal is crushed fine enough, can theoretically be removed. However, because of the extreme fineness of crushing required (to as fine as talcum powder) in order to free these pyrite particles, the development of the necessary technology and equipment is progressing slowly. But, progressing it is, and we expect some time late this year to have installed at a central Pennsylvania powerplant the first pilot unit for achieving this reduction in sulfur content of coal.

3. We are also carrying out accelerated research on the development of low-cost methods for recovering SO_2 from flue gases following combustion. Our present research is directed at the injection of chemicals into the flue gas stream, which will react with the oxides of sulfur and deposit them with the fly ash. Again, the development of the necessary knowledge of reaction rate of various chemicals, the most effective temperatures at which the reactions should be carried out, and other design data cannot be achieved immediately. It is our intention that the basic laboratory work will be completed some time early next year, and trial installations on a full scale can be started shortly thereafter.

In addition to the research which we are doing, a number of others, including both Government and private industry, are carrying out extensive investigations. Both the Bureau of Mines and the Public Health Service are investigating processes for sulfur oxide recovery. The Bureau of Mines work will move into the early pilot stages this year, and hopefully, a full-scale installation can be made sometime the latter part of next year. The Public Health Service work, we understand, includes an evaluation and possible erection in this country of a pilot unit incorporating a process which has been developed in Germany.

Investigations by the manufacturers of equipment includes the installation of wet gas scrubbing processes. One of these has already been installed for test at a powerplant, and another is projected for installation late this year.

And, in this overall effort directed at finding a means for economical control of sulfur oxide pollutants, one of the large chemical companies, a primary supplier of sulfuric acid to industry, in cooperation with a utility company, is constructing on a substantial scale the equipment necessary for recovering the sulfur oxides from flue gases in the form of sulfuric acid which that company then will market.

In summary, the state of the art of control of pollutants from the combustion of coal is moving forward on all fronts. As I pointed out earlier, the technology for control of smoke in fly ash is already available in an advanced state, and additional progress is being made. However, much still remains to be done, despite an expanded research effort by industry, in connection with the control of sulfur oxides. Those processes which are most advanced in technical feasibility are still at the present state of development far too expensive to install and operate, especially in light of the lack of knowledge regarding the degree of control which is necessary to protect human health.