

AMERICAN SMELTING AND REFINING COMPANY - History of Environmental Control.

ASARCO's concern for the environment dates back to 1914 when we established, as far as we know, the first private research laboratory exclusively devoted to studying air pollution arising from the operation of our copper, lead and zinc smelters. Particular emphasis was placed on determining the effects of sulfur dioxide - an inevitable by-product of smelting activity - on growing vegetation, and this department was appropriately titled "Department of Agricultural Research."

Many distinguished scientists have served in this department, with the most notable being Dr. Moyer D. Thomas, who was a Rhodes scholar and eminent world authority on sulfur dioxide. In 1928, Dr. Thomas invented the first automatic continuously operating analyzer for traces of sulfur dioxide in air and the Thomas Autometer, as it is called, and its modifications are used all over the world for air pollution studies.

In the years spanning the activities of this department, many representatives from industry, universities, and government agencies have visited the department to consult our scientists and to gain knowledge unavailable elsewhere. A number of publications in appropriate scientific journals have appeared as a result of this research.

ASARCO pioneered in proving, on a scientific basis, the value of tall smokestacks to disperse and dilute sulfur dioxide emissions so that amounts which might harm vegetation, or be annoying to people, would not reach ground level. In geographic areas where sulfuric acid could be used by steel and other industries, the acid was made from smelter gas, thereby reducing the amounts

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released to the atmosphere.

Air filtering units, known as baghouses, and electrostatic precipitators to remove dust particles from smelter gas streams were also developed decades ago in ASARCO's plants. The world's first precipitator, invented by Sir Frederick Cottrell, was installed at our Selby, California plant in 1913. Dust collection units have long been standard equipment in all our operations.

In 1945 ASARCO established a Department of Hygiene, the Director of which was Dr. Philip Drinker, inventor of the iron lung and Director of the Department of Industrial Hygiene at the Harvard School of Public Health. Dr. Drinker was a pioneer in bringing together medical science and engineering to prevent occupational diseases among workmen in industry. Under his supervision ASARCO's new Department began a continuing study of all operations to evaluate on-the-job exposures which might cause occupational illness and to recommend appropriate control measures. The Department has also sponsored a number of industrial hygiene research projects at Harvard.

In 1966 ASARCO combined its department of Agricultural Research and Department of Industrial Hygiene to form the Department of Environmental Sciences. This Department has responsibility for anticipating and dealing with air pollution, water pollution, and industrial hygiene problems and for related research, with the goal of safeguarding employees' environment, both on the job and in the community in which they live. The staff of the Department of Environmental Sciences includes environmental scientists, chemists, laboratory technicians, statisticians, meteorologists, and an agronomist.

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Since 1937 we have carried on a monitoring and surveillance program designed to prevent any harm to vegetation and or annoyances to people from SO_2 emissions, and this includes a program of voluntary curtailment of operations when unfavorable weather conditions exist. These programs have been improved as our expertise has grown and a closed-loop instrumentation system was conceived and built by ASARCO with the employment of full-time professional meteorologists. This system involves sulfur dioxide monitoring stations in residential and business areas to detect and measure SO_2 even before it is noticeable by people. Measurements are continuously transmitted by telephone lines to a central control room and the appearance of any SO_2 from the monitors is instantly shown on master recorders and an immediate curtailment can be instituted if a significant upward trend is indicated. This system plus weather predictions by meteorologists using national, local and plant weather station data, gives us an excellent air pollution control technique. Computers have recently been installed which have further improved the reactive and predictive control techniques.

In addition, facilities for production of sulfuric acid and liquid SO_2 have been built and/or are being expanded, and several joint research projects on a pilot basis with other companies are under way to seek ways and means to perfect metallurgical techniques and sulfur recovery. For example, the first double pass sulfuric acid plant ever used on metallurgical gas streams was put in operation at one of our large smelters in 1973, and a new liquid SO_2

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Plant for the purpose of removing sulfur from smelter discharges was made operational in April of 1974 at another of our large plants.

ASARCO has spent or committed over 65 million dollars in the past two years for environmental control purposes.

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