

A program review item.

Baton Rouge Technical Services
March 6, 1968

CONFIDENTIAL

REDUCED AIR CONTAMINATION
(Have to Do)

Project Concept

The primary goal of this program is to provide equipment, controls, and procedures to reduce the chances of plant personnel becoming over-exposed physiologically to lead. The secondary goal is to reduce the amounts of volatile and particulate matter discharged to the atmosphere to levels compatible with anticipated governmental standards. Some savings will be realized from this work as a result of reducing the amount of product lost to the atmosphere and reducing the amount of labor required for maintenance of the furnace exhaust scrubbers.

The approach being followed is to (1) identify the sources of contamination and the procedures that should be improved, (2) determine what can be done to eliminate or reduce the contamination or the discharge of material to the atmosphere, (3) determine what equipment and/or procedural changes can be made to protect personnel if the contamination is unavoidable, and (4) expedite adoption of the equipment and procedural changes required.

Incentive

The dollar incentive for protecting personnel or for meeting government standards cannot be defined. The estimated savings which should be realized from reduced losses of product via the copper duct are \$30M per year - approximately \$130M per year are being realized from this source. The estimated savings from reduced labor requirements for cleaning scrubber ducts are \$38M per year. The investment required for ventilation improvements is estimated to be \$700M of which \$220M has been approved. The investment required for improved furnace exhaust scrubbers should be in the range of \$200M to \$800M depending upon what type of equipment is found to be necessary. Capital investment requirements for other phases of the program should be negligible.

Background and Current Status

A capital project of \$220M for improving the ventilation in "C" Building (TML manufacturing) was approved in 1967 and the work is presently under way. These improvements are required to maintain a satisfactory atmospheric environment for present and anticipated lead alkyl production levels. Similar modifications for "B" and "D" Buildings are anticipated for 1968-1969 after the "C" Building improvements have been evaluated. The improvements are the result of extensive studies conducted in 1965-1967 by Technical Services and recommendations by Dr. Melvin W. First, an eminent authority and consultant on industrial hygiene.

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Technical support is provided for Manufacturing on a continuous basis to assure the lowest practical physical exposure of operating and maintenance personnel to lead alkyls. This program is closely related to the "C" Building ventilation improvements. Much of the information obtained in past hygiene studies is the basis for the ventilation improvements presently under construction. Currently, support is being provided on a continuing basis to Manufacturing to minimize the contamination levels in the lead alkyls area and, as a result, to reduce the exposure of operating and maintenance personnel to lead alkyls. Presently, Technical Services is surveying the lead alkyls buildings with a highly sensitive, specially designed leak detection instrument to pinpoint contamination sources.

Recent modifications in operating procedures have resulted in reductions in TML losses from the copper duct equivalent to \$130,000 per year in incremental raw materials costs at the current production level. However, TML losses from the copper duct are still substantial, and efforts to further reduce these losses are currently under way.

The amount of particulate matter discharged from the scrubber stacks and the main flue gas stacks at the furnaces must be reduced to comply with air pollution regulations anticipated for this area in the near future. Air pollution standards went into effect last year in Texas, and the Houston plant has replaced the Pease-Anthony scrubber systems with venturi scrubbers. A working fund of \$40,000 was approved in 1967 for modifying the Pease-Anthony scrubber system at "C" Furnace to increase the flue gas handling capacity and efficiency of the existing scrubber. These modifications have been completed and Technical Services is currently evaluating their effect by plant testing.

A modified flue gas duct upstream of the P-A scrubber at "C" Furnace has been tested for the past nine months. During this period the amount of duct cleaning has been reduced substantially. The configuration of the present scrubber ducts is such that dust buildup in the ducts necessitates an excessive amount of manual cleaning. It is anticipated that modifications in the design of the existing ducts could reduce direct labor costs for cleaning these ducts by \$38M per year.

Plans

A survey will be made to evaluate the effectiveness of the ventilation modifications in reducing the contamination level in "C" Building when construction is completed. Similar modifications for "B" and "D" Buildings are anticipated for 1968-1969 after the "C" Building improvements have been evaluated.

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Support to Manufacturing in controlling contamination will be continued on a routine basis. Present plans are to complete the current leak detection survey of the lead alkyls area and to continue to examine and, when necessary, recommend modifications to procedures and equipment which affect the contamination levels in the manufacturing buildings.

Plant studies and monitoring of the TML losses from the copper duct will continue as required in the effort to minimize the losses.

Evaluation of the effects of the scrubber modifications at "C" Furnace must be completed to determine whether similar modifications are justified for the other furnaces or if a different type of scrubber will be necessary.

Staffing and Timing

Technical Services manpower required to follow up and evaluate the effects of the ventilation improvements and to develop and design similar improvements for "B" and "D" Buildings is estimated at 4 man-months. This should be completed by the end of 1968. Direct support to Manufacturing in controlling contamination will be a continuing program and will require 3.5 man-months in 1968.

The effort to minimize TML losses to the copper duct should be completed during the second quarter of 1968 barring any major equipment modifications which may be required. Technical Services manpower required is estimated at 0.5 man-month.

Evaluation of the modified P-A scrubber system should be completed during the first half of 1968. The program for the remainder of 1968 will depend on the results of this evaluation. Projected Technical Services manpower requirement for 1968 is 6 man-months.

Across-the-board installation of modified scrubber ducts upstream of the P-A scrubbers at all furnaces is expected during 1968. Little or no Technical Services manpower will be required.

The total manpower requirement in 1968 on this program will be 14 man-months.

D. E. Park

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