WALKTHROUGH INDUSTRIAL HYGIENE SURVEY

The Hitchcock Corporation
Murphy, North Carolina

DATE OF VISIT
August 14, 1975

SURVEY CONDUCTED AND REPORT WRITTEN BY
John M. Dement

DATE OF REPORT
August 29, 1975

Department of Health, Eduation and Welfare
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Field Studies and Clinical Investigations
Cincinnati, Ohio 45202

Place Visited:	The Hitchcock Corporation P.O. Box 459 Murphy, North Carolina 28906
Persons Contacted:	Mr. Lowen Dockery, Plant Shipping and Quality Control
Date of Visit:	August 14, 1975
Persons Making Visit:	John M. Dement, NIOSH Hazel Byrd, N.C. Department of Human Resources
Purpose of Visit:	To conduct a walk through industrial hygiene survey of talc mining and milling facilities and collect a talc bulk sample for laboratory analysis.

INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH) in cooperation with the Mining Enforcement and Safety Administration (MESA) has underway an industrywide study of the talc mining and milling industry. As part of this study, preliminary industrial hygiene surveys are being conducted of talc mining and milling facilities.

On August 14, 1975, John Dement (NIOSH) along with Hazel L. Byrd, North Carolina Department of Human Resources, conducted a walkthrough survey of the Hitchcock Corporation facilities in Murphy, North Carolina. In addition to observing mining and milling operations, a bulk talc product sample was obtained for laboratory analysis.

DESCRIPTION OF THE FACILITIES

The Hitchcock Corporation facilities consist of two operating talc mines (#1 and #5) and one operating mill. The facilities are located in Murphy, North Carolina which is in rural Cherokee County. The mill consists of three basic buildings all of wooden structure, most of which are in bad need of repair. Talc production at this facility began in approximately 1944 with one mine and the present mill. Total employment (mines and mill) at this location presently stands at approximately 60 persons. The #5 mine operates two shifts whereas the mill and the #1 mine operate only one shift. All operations operate five days per week. There is no employee union at this plant.

There are two major products producted at this facility, these being steel marking crayons and ground talc. The steel marking crayons are packaged and sold as a final product. The ground talc (approximately 200 mesh) is sold to the cosmetic industry. Two major users of these products are Avon and Shulton. In addition, some of this talc is also used by the rubber industry as a dusting compound. The only laboratory analysis performed on these products by the Hitchcock Corporation are microbacteria determinations performed by a consultant laboratory (Gar-Baker Labs Inc., New York).

MEDICAL, INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

There are no medical facilities nor medical personnel located on the plant site. Employees at this location receive an annual chest x-ray by the North Carolina mobile van. According to Mr. Hazel Byrd, there have been two lung disease cases (diagnosed as silicosis) detected in these operations over the past 17 years. One of these was a talc bagger and the other a mill grinding area worker.

The Hitchock Corporation does not retain the services of an industrial hygiene consultant. Both the mines and mills are periodically inspected by MESA.

There is no formal safety program at these facilities. Hard hats, safety shoes, safety glasses and self rescuers are provided to underground miners. Safety glasses are required and worn at some sawing operations in the crayon products area.

DESCRIPTION OF MINING AND MILLING OPERATIONS

Talc ore is mined in two underground mines (both approximately 300 feet deep). The original mine is located adjacent to the mill and the other is located several miles away in Cherokee County. Only the original mine (#1 mine) was observed during this visit.

The #1 mine consist of two vertical shafts both equipped with hoist buckets. Only one shaft is used with the other serving as an escape route. Some ventilation is provided by an above ground contrifugal fan (estimated at 20,000 cfm). All drilling is done wet. Dust generation during mining appeared minimal as the talc ore is very moist.

The talc ore is bought above ground using the shaft hoist, loaded into trucks and taken to the mill. At the mill, ore suitable for crayon production is hand picked and the remainder used to produce the ground product.

Steel marking crayons are made by simply cutting the ore to appropriate sizes using both circular and band saws. In addition to a number of safety hazards, there is a considerable amount of dust generated in this area even though saws are provided with some degree of local exhaust ventilation. Following sawing, the crayons are conveyed to an inspection and hand packing area. In this area, there is also considerable dust exposure potential due to residual sawing dust retained on the crayons. Powder talc products are produced by first grinding the talc ore in a cone crusher followed by drying in a rotary kiln. After drying, the talc is pneumatically conveyed to the fine grinding Raymond mill where the roller mills reduce to talc to less than 200 mesh. The finely ground product is next conveyed to a hopper which feeds a pneumatic bagging machine. The bagging area is not provided with local exhaust ventilation.

INSPECTION OF THE PLANT

Potential Health and Safety Hazards - The following are potential health and safety hazards noted during this visit.

1) Respiratory exposures to talc dust in both the crayon and ground product areas.

2) Unguarded circular saws in the crayon production area.

3) Unenclosed hoist bucket used to transport men in the #1 mine.

Housekeeping - Housekeeping both in the #1 mine and the mill were minimal. Talc dust was observed six to eight inches deep in some areas. All cleaning that takes place is done with hand brooms.

CONCLUSIONS AND RECOMMENDATIONS

From the observations made during this survey, the following conclusions and recommendations are made.

1) Dust exposures at the bagging stations would appear excessive. Local exhaust ventilation should be immediately installed at the bagging machine. In addition local exhaust ventilation should be provided at the bag palletizing area.

2) Proper saw guards should be immediately installed on the circular saws in the crayon producing area. Also, ventilation at these sawing should be improved using better enclosure methods. This operation should be shut down until guarding improvements have been made.

3) The lifting bucket used to transport men to the mine working site should be enclosed.

4) Until the above local exhaust improvements have been made, talc baggers and persons operating the circular saws should be provided and required to wear Bureau of Mines or NIOSH approved air purifying respirators.

The talc bulk sample collected during this survey will be analyzed for asbestos, free silica and other major mineral phases using electron microscopy and x-ray diffraction. These results will be appended when completed.