

OFFICIAL USE ONLY

04-16-61  
03025

Metallurgical Laboratory

MUC- 176-183

This document consists of 2 pages and 0 figures  
No. 5 of 6 copies, Series A

June 29, 1943

OFFICIAL USE ONLY

Readers File.



Mr. C. E. Daniels,  
P.O. Box 1290  
Wilmington, Delaware

CLASSIFICATION CHANGED  
TO: NOT CLASSIFIED  
H. D. Young 3-9-51  
Authority of: USAEC  
9-22-64 D. Cook

Dear Mr. Daniels:

The Baker Brothers Company of Toledo, Ohio was visited on June 21st, 1943. Machining operations are being carried out on the extruded bars. It is planned at the present time to continue operations here for no longer than 6 - 8 weeks.

At the present time 4 lathes are working in a guarded area. On June 21st three lathes were running, two on making 'hot dogs' and one on the finishing operation. Fume production from the lathes making the bars is excessive. Fumes from the finishing operation are negligible.

A ventilation system has been installed. The capacity of the system is 2700 cubic feet per minute. The intake ducts are placed too high, in our opinion, being about 18" above the working level, or about 6'2" above the floor. The duct opening is an oval approximately 2' x 14". When machining is being done, only a small fraction of the fumes are carried into the exhaust system. At times fume production is heavy, due to excessive accumulation of chips in the fore-part of the pan.

Collection of the dust in the air was made with an electrostatic precipitator. The samples were measured on a Berchem electrometer. Sample taken near lathe #1, numbering from door was 84 per cubic meter. Sample taken next adjacent lathe (#3) was 240 per cubic meter. Sample taken at lathe #2 was 90 per cubic meter. This lathe was producing very few fumes. (Note: I feel that the first figure here is too low; the sample was not satisfactory.)

The plant has increased the capacity of the cooling system on each lathe allowing a greater volume of water to be thrown on the chips. In addition, a perforated pipe has been connected to the cooling system. The pipe runs near the floor of the pan and sprays cooling material upon the burning chips in the bottom of the pan. The system is not as yet completely satisfactory, but the principle is excellent and deserves adoption at other machining centers. Prevention of fume formation is better than attempts at fume removal.

Storage of the metal was satisfactory. The chips are being packed in metal containers. At present eight large sized metal containers are full and await shipment. In addition, 12 - 15 small sized containers are also awaiting shipment. These, at present, are kept in the same room as that in which the machining operations are carried out.

This document contains information affecting the national defense within the meaning of the Espionage Laws, Title 18, U.S.C., and the Security Laws, Title 50, U.S.C., and is hereby authorized for release only in accordance with law.

## Metallurgical Laboratory

-2-

C.E. Daniels  
6/29/43

A few days ago, a fire of scrap in a metal container started, consuming about 100 pounds of metal. The existence of the fire hazard when dealing with scrap must always be kept in mind.

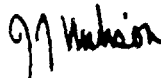
Mr. Fischer, the plant manager, told us that the men were somewhat apprehensive about the possible toxic effects of the metal. Dr. Norwood gave a short talk to the men concerning what might occur, and what is extremely unlikely to occur. Questions were answered. It is hoped that the men will take a more rational attitude toward the material.

Dr. Norwood made arrangements for chest x-rays, urinalyses and blood counts at the Robin Hood Hospital in Toledo and he plans to return at a later date to do the physical examinations.

### Recommendations.

1. Arrangements should be made for shipping the scrap, or for storing it away from the working area. If it is to be stored in the working area, shipments should be on a bi-weekly basis. (Est. of 4 - 5 cans each shipment.)
2. The present investigations on control of fume production should be continued. It should be possible to so arrange the flow of coolant that little or no fumes are produced. Similar systems should be installed on all lathes working the metal elsewhere.
3. The ventilating intake openings should be redesigned to provide a greater percentage efficiency than they now possess.

Yours sincerely,



J. J. Nickson, M.D.  
Health Division.

JJN/w

Copies: R.S. Stone  
J. B. Miles  
W. D. Norwood  
J.J. Nickson  
Readers file.