

G. McKendry
Director-Plant Engineering
Corporation Mfg. Staff

Project Analysis
Russell Street Office

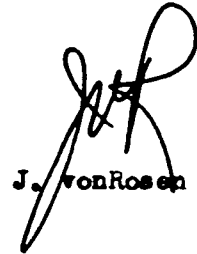
Highland Park
December 18, 1956

SAFETY ASPECTS OF PROJECT REQUEST FOR BRAKE LINING FABRICATION AT CYCLEWELD

We wish to advise that we have checked into the safety aspects of the subject Project Request, and have discussed the industrial hygiene problems with Don Fowler.

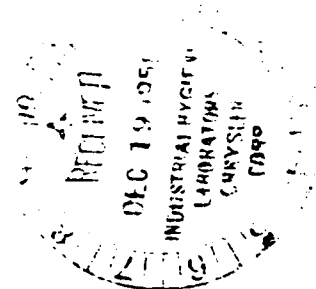
In our opinion, this Request provides for the mechanical features, such as ventilation, sprinkler protection, and carbon dioxide systems that are required to make a safe operation. The Industrial Hygiene Department informs us that they have no objections to the installation.

In general, the operations that will be performed in the proposed brake lining set-up are very similar to existing operations and hazards in the Cycleweld cement production.


J. vonRosen

JvR:mb

cc: L. A. Churgay
D. G. Fowler



**PLAINTIFF'S
EXHIBIT**
CHR-159

File Memo

Plant: Eldon Avenue Axle Plant

Subject: Exhaust Ventilation and Dust Concentrations - Department 78, Brake Shoe Grinding

Date: March 25, 1968

On March 25, 1968, the exhaust ventilation system of the brake shoe grinders in Department 78 was surveyed. Also, samples were collected to determine air-borne asbestos dust in the breathing zones of employees operating the grinders. The results obtained are listed on the attached data sheet.

The duct velocities recorded at the time of the survey ranged from 7500 to 11,000 feet per minute. It was determined that the quantity of air exhausted at a belt sander provided with a duct $3\frac{1}{2}$ inches in diameter was 435 cubic feet per minute (cfm) and the quantities of air exhausted at three Excelllo Brake Shoe Grinders provided with ducts four inches in diameter ranged from 745 to 960 cfm. We were informed that the grinding wheel diameters as purchased are six inches and widths are either $2\frac{3}{4}$ or $3\frac{1}{2}$ inches. The width of the belt for the belt sanders is six inches. It was observed that the wheels were well enclosed and indraft face velocities ranging between 2800 to 5800 feet per minute were measured at the brake shoe grinders.

Air-borne dust concentrations obtained in the breathing zone of employees operating the brake shoe grinders ranged from 0.2 to 1.4 millions of particles per cubic foot of air. This indicates that the present exhaust ventilation system provides adequate control of this air-borne contaminant.

Information taken from the Centri-Spray Wet Dust Collector Serial No. AW 53861359A name plate indicates that the capacity of the collector is 10,000 cfm air and handles a volume of 1850 gallons of water. There are twelve machines in this location, four of which are belt sanders for repair only, and the remainder are production brake shoe grinders.

At the time of this study the belt sanders were not utilized for any length of time. Also, only four operators were performing brake shoe grinding operations.


L. Redmond

LR:hm

cc: N. A. Trombley

Data Sheet
Eldon Avenue Axle Plant
Exhaust Ventilation

<u>Location</u>	<u>Duct Velocity Feet Per Minute</u>	<u>Volume Cubic Feet Per Minute</u>
Department 78:		
Brake Shoe Grinders - Bay R-15 through Bay R-19;		
XLO Machine #550134, 4" diameter	9000	785
XLO Machine #550141, 4" diameter	11,000	960
XLO Machine #550136, 4" diameter	8500	745
Repair Belt Sander, 3.25" diameter	7500	435

The above readings were obtained with an Alnor Velometer, Type 3002.

<u>Location</u>	<u>Dust Concentrations</u>	<u>Millions of Particles Per Cubic Foot of Air</u>
Threshold Limit value		5.0
Department 78:		
XLO Machine #550134, breathing zone sample		0.2
XLO Machine #550135, breathing zone sample		0.6
Repeat sample		0.5
XLO Machine #550136, breathing zone sample		1.4
Repeat sample		1.2
XLO Machine #550141, breathing zone sample		0.2

The above samples were collected with Mine Safety Appliances Company Midget Impinger Flasks and Pump.

<u>Location</u>	<u>Total Weight of Dust</u>	<u>Milligrams Per Cubic Meter of Air</u>
Department 78:		
XLO Machine #550135		1.2
XLO Machine #550141		0.8

The above samples were collected with a Unico Model 30 Pump using glass-fiber filters.

May 27, 1963

Mr. K. M. Hayes

Manufacturing Mgr. Chemical Div.

Trenton Engine

Mr. L. Redmond

Indust. Hygiene

Highland Park

AIR-BORNE ASBESTOS DUST CONCENTRATION - DEPARTMENT 7200

As requested on May 22, 1963, samples were collected to determine the air-borne asbestos dust concentrations created by the sawing and forming of brake linings. The exhaust ventilation system was also checked at this time.

The results obtained, which are listed on the attached sheet, indicated that the dust concentrations were at acceptable levels and that the exhaust ventilation system was functioning properly.

Louis Redmond
Senior Industrial Hygienist

LR:slh

cc: B. J. Sauber, M.D.
R. H. Weidner

DATA SHEET

AIR-BORNE ASBESTOS CONCENTRATIONS

MAY 27 1963

<u>Location</u>	<u>Results in Millions of Particles Per Cubic Foot of Air</u>
Threshold limit value	5.0
At #1 sawing machine - removing brake shoes	0.4
At #2 sawing machine - removing brake shoes	0.3
At both Bolling Machines	1.0

The above samples were collected with a Mine Safety
Appliances Company's Midget Impinger.

Ventilation

<u>Location</u>	<u>Results in Feet Per Minute</u>
At #1 sawing machine	500 - 1100
At #2 sawing machine	700 - 1200

The above measurements were made with an Alnor Veloc-
meter. Serial #2100.

Dodge Truck, Inc.

Local 701, IAM

Do not grind brake
linings or clutch plates
(They are sent out to
Century Clutch for
grinding & facing)

Shop policy is to
clean out drums with
a steam wand; blowing-
out is reprimanded

(Very wet steam, no
dust possible)

CE-230: Steam Cleaning
the Brake Drum (Don Tolley)

Start: C. 5 min @ 2.1

DATE 9-29-75

TAKEN BY L. G.

SAMPLE NO.	COUNT		TIME	PUMP - FLOW RATE	CC AIR SAMPLED	CALCULATIONS
CE 230	0	0				RESULT IN FIBERS/CC > 5 MICRONS: 0
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
TOTAL	0	0				
		0				
CE 229 Blank	0	0				RESULT IN FIBERS/CC > 5 MICRONS: 0
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
TOTAL	0	0				
		0				
TOTAL						RESULT IN FIBERS/CC > 5 MICRONS:
TOTAL						RESULT IN FIBERS/CC > 5 MICRONS:

CHR-159

Mailed
Copy to
S. Satorowski
on

11/14/83

jt