REPORT DOCUMENTATION PAGE	1. REPORT NO. IWS-37.16	2. NA	3. Recipient's Accession No. PB87 216201
4. Title and Subtitle: Walk-Through Survey of Speedring Systems, Warren, Michigan			5. Report Date: April 6, 1973 6. NA
7. Author(s): H. M. Donaldson, and P. J. Bierbaum			8. Performing Organization Rept. No. NA
9. Performing Organization Name and Address: Hazard Evaluation and Technical Assitance Branch, Division of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, Cincinnati, Ohio			10. Project/Task/Work Unit No. NA 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address: Same as Above			13. Type of Report & Period Covered: Industry-Wide Survey March 27, 1973 14. NA

15. Supplementary Notes

NA

16. Abstract (Limit 200 words)

Beryllium (7440417) machining practices and associated control techniques were surveyed at Speedring Systems, Division of Schiller Industries Incorporated (SIC-3369) in Warren, Michigan on March 27, 1973. The company employed approximately 160 workers. The company had no formal safety and industrial hygiene program. Medical services were provided by a local clinic. The facility ventilation system consisted of six baghouse units with a pick up at each individual machining device. The authors suggest that the beryllium machining operations and control measures were probably acceptable from an industrial hygiene standpoint, although ventilation could be improved by the addition of individual multicyclone type collectors.

17. Document Analysis a. Descriptors

Field-study, Health-surveys, Occupational-medicine, Air-sampling, Ventilation-systems

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Available to Public	NA	9
	20. Security Class (This Page)	22. Price

WALK-THROUGH SURVEY

OF

SPEEDRING SYSTEMS

Warren, Michigan

DATE OF SURVEY:

March 27, 1973

NIOSH PERSONNEL

Harry M. Donaldson
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STATE OF MICHIGAN PERSONNEL

Fredrick T. McDermott

REPORT PREPARED AND REVIEWED BY NIOSH PERSONNEL LISTED ABOVE

DATE OF REPORT:

April 6, 1973

Environmental Investigations Branch
Division of Field Studies and Clinical Investigations
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
Cincinnati, Ohio

PLACE VISITED	:	Speedring Systems Division of Schiller Industries Inc. 7111 East Eleven Mile Road Warren, Michigan 48090 Telephone: 313-539-2100
DATE OF VISIT	:	March 27, 1973
PERSONS CONTACTED	:	Joseph L. Madill, Purchasing Manager Jules Cohen, General Manager
NIOSH PERSONNEL	:	Harry M. Donaldson Philip J. Bierbaum
STATE OF MICHIGAN PERSONNEL	:	Fredrick T. McDermott
PURPOSE	:	To conduct a brief walk-through survey for familiarization with beryllium machining practices and associated control techniques.
REPORT PREPARED BY	:	Harry M. Donaldson Philip J. Bierbaum

General

This facility is located on 25 acres in an industrial area in Warren, Michigan, a town of approximately 20,000 population located north of Detroit, and is made up of one main office and production building and an old house which is now used for storage and will eventually be torn down as the facility expands. It was built in 1960, operates on two twelve-hour shifts and has approximately 160 employees, split about evenly between white collar and blue collar workers. Employees are represented by the United Auto Workers-Aerospace Division.

The facility is essentially a machine shop dealing in the fabrication of common and exotic metals (beryllium, uranium, aluminum, magnesium, steel, hastalloys, inconel and titanium). Also, laser scanners are being developed and utilized for quality control inspections and product sorting. Other exotic items are being produced at the facility, such as optical mirrors plated with either nickel or gold.

Medical and Industrial Hygiene Programs

The facility does not have any full time medical personnel but sends employees, on an as needed basis, to a clinic about a mile from the plant. For example, those employees working with beryllium get an annual chest x-ray. Currently, a union-management safety committee is being established.

Employees are supplied with clothing from the skin out, including shoes (not necessarily safety shoes), and showers are available but not mandatory.

Control Techniques

The facility ventilation system is not necessarily what is normally found in a beryllium machine shop. Instead of the usual individual multicyclone-type collectors for "chip" removal followed by bag collectors for respirable dust removal, the system includes six baghouse units (62 bags per unit) with a "pick-up" at each individual machining device. The system is designed for a static pressure of four inches of mercury; however, this suction and

consequently effective control are diminished as the bags become dirty or wet from oil and water contact. The baghouse units are followed by "absolute" filters, which may be unnecessary, but do provide additional protection in case of bag failure. The baghouse catch is recovered each day for resale to a beryllium production facility.

The ventilation piping appeared to be well designed with wide radius elbows; however, the diameter of the "pick-up" tubes was small and most of the "chips" were not collected but fell into a bin or on the floor. There were no hooded tools; however, this is not a problem since small cuts were being taken.

Outplant beryllium concentrations also were discussed and it was generally concluded that the levels that would be found probably would meet the present AEC requirements of 0.01$\mu g/m^3$. Outplant concentrations also were discussed in light of the soon-to-be promulgated Environmental Protection Agency regulations and it was agreed that Mr. Donaldson would send the regulations to the management as soon as they were published.

Conclusions and Recommendations

1. Although inplant beryllium measurements were not taken, it probably can be stated that the beryllium machining operations and associated controls are acceptable from an industrial hygiene standpoint. It should be noted; however, that certain ventilation equipment improvements would result in an exceptional operating facility. Management should become familiar with the technical literature of the field, if they already have not done so, including the publication "Toxicity of Beryllium - Final Engineering Report", prepared under contract AF 33(600)37211, Kettering Laboratory, University of Cincinnati, Cincinnati, Ohio, April, 1962. Also, management should consider utilizing the individual multicyclone-type collectors which would pick-up the "chips" and deposit them in a drum where they could be salvaged without the multiple handling that is necessary at the present time.

2. Management should become knowledgeable about the soon-to-be promulgated Environmental Protection Agency regulations on National Emission Standards for Hazardous Air Pollutants, since the regulations will apply to this facility.

SCRAP RECLAMATION
STATISTICAL SUMMARY

	# SAMPLES	LOW	HIGH	MEAN
Personal Gross	9	9.01	118.92	24.78
Personal Respirable	9	.16	2.28	.82
Breathing Zone Gross	5	6.18	282.82	85.00
Breathing Zone Respirable	6	1.72	35.26	10.07
General Air Gross	10	.35	10.98	4.23
General Air Respirable	6	.34	2.92	1.47