DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B254643558

FACILITY: TOLEDO COMMUTATOR CO		**SRN / ID:** B2546
LOCATION: 1101 S CHESTNUT ST, OWOSSO		**DISTRICT:** Lansing
CITY: OWOSSO		**COUNTY:** SHIAWASSEE
CONTACT: Alan Kurylowich , Environment, Safety & Quality Manager		**ACTIVITY DATE:** 02/21/2018
STAFF: Julie Brunner	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Compliance Inspection		
RESOLVED COMPLAINTS:		

On February 21, 2018, I conducted an unannounced, scheduled inspection of the Toledo Commutator Company located at 1101 S. Chestnut Street, Owosso, MI 48867. This facility was last inspected on May 3, 2011.

Arrived: 9:35 am
Departed: 12:45 pm
Weather: 34°F, wind NW @ 10 MPH, UV 0 Low

No visible emissions (VEs) were observed from any of the facility exhaust stacks upon arrival. No odors were identified surrounding the facility.

Contacts:
Mr. Alan Kurylowich, Environment, Safety & Quality Manager, 989-725-8192, akurylowich@toledocomm.com

Facility Description:
Toledo Commutator Company (TCC) manufactures commutators for electric motors, as well as slip rings and Cortem springs. It has been in operation since 1950. It became part of Kirkwood Holding Inc., in 1987.

TCC is located on the west side of Owosso in a mainly residential area. A large industrial park is located to the west of the facility.

Plant Capacity: ~50% utilization

Staff #: 61

Operations:
1 shift/day (6:00 am to 2:30 pm), 5 days/week, Monday - Friday
3rd shift – 2 people

TCC is a minor source with six (6) active Permits to Install (PTIs) and more than a few exempt processes.

Description of Process - Emission Units (EU)	Permit or Exemption	Control device, if any
Finishing processes "various slotters, lathes and reamer," with a DustKop Dust Separator (cyclone) and a DustKop FH58-1D Shaker Bag Unit (baghouse) located in the finishing area	PTI 157-80	Cyclone and associated baghouse
Wheelabrator flash remover/tumble blast process, with a No. 2 Model 70BC Wheelabrator Dust Collector (baghouse)	PTI 158-80	Wheelabrator No. 2 dust collector (baghouse)
Finishing processes as "various slotters, lathes and reamers" with a Dustkop Model 90N70P Separator and DustKop Model FH58-2 Shaker Bag Unit located in the Nippert and Shell departments (also a commutator finish area)	159-80, relocated within the plant pursuant to Rule 285(2)(a)	Cyclone and associated baghouse
	PTI 69-85	NA

Description of Process - Emission Units (EU)	Permit or Exemption	Control device, if any
Gehnrich electric oven with washer to heat treat Cortem springs		
Mica sanding area and commutator finish area with shearing and machining equipment, with a Dustkop Model #90n70d-2 cyclone dust collector with an associated FH58-3 Filterkop baghouse.	PTI 294-86	Cyclone and associated baghouse
Compound mixing process (plastic mixing) with two (2) Mikropul Environmental Systems for dust collectors.	PTI 932-93	Two Mikropul dust collectors – pre-filter and cartridge filter
HAL Area – metal machining processes, parts washers, and bake ovens	Rule 285(2)(l)(vi)(B), Rule 281(2)(h), Rule 282(2)(a)(i)	NA
Four (4) plastic injection molding machines	Rule 286(2)(b)	Portable dust collector
Tool rooms - (2005) added lathes and mills	Rule 285(2)(l)(vi)(A) and (B)	NA
Pangborn media blaster (uses aluminum media)	Rule 285(2)(l)(vi)(B)	Dust collector, then exhausts to in-plant environment
Five (5) grinders and sand blaster (located in tool rooms)	Rule 285(2)(l)(vi)(A)	Torit dust collector (cartridge filter)
Copper processing – punching, presses, rolling mills	Rule 285(2)(l)(vi)(B)	NA

Michigan Air Emissions Reporting System (MAERS):
The facility does not have to report to MAERS.

Inspection:
A pre-inspection meeting was conducted Mr. Alan Kurylowich, Environment, Safety & Quality Manager. The facility operations were discussed. There are no emergency generators, and the facility is heated by natural gas-fired space heaters (exempt per Rule 282(2)(b)(i)).

Commutator Finishing Area, Finishing Processes with cyclone and baghouse, PTI 157-80:
The permit identifies the finishing processes as "various slotters, lathes and reamer," with a DustKop Dust Separator (cyclone) and a DustKop FH58-1D Shaker Bag Unit (baghouse). This is a small baghouse unit which sits on the northside, outside the plant. The baghouse exhausts externally from a horizontal stack that discharges toward the wall of the plant. This baghouse used to return the filtered exhaust stream into the building, but that return duct was disconnected. There were no visible emissions from it and no evidence of particulate on the ground.

PTI 157-80 only has two (2) special conditions (SC). A particulate emission limit of 0.10 lb/1000 lb of exhaust gas calculated on a dry gas basis (SC 9) and visible emissions not to exceed 20% opacity (SC 10). Since no evidence of particulate emissions was observed, compliance with PTI 157-80 is assumed.

For all dust collectors at the facility, a clean out is done twice a year (spring and fall) and maintenance staff regularly check them and empty the barrels.

Wheelabrator Flash Remover/Tumble Blast with baghouse, PTI 158-80:
The permit application describes this as a 20" x 27" Wheelabrator flash remover-tumble blast process, with a No. 2 Model 70BC Wheelabrator Dust Collector (baghouse). This process uses corn cobb as the abrasive media in order to remove flash material. The baghouse has an external exhaust vent.

PTI 158-80 only has three (3) special conditions. A particulate emission limit of 0.10 lb/1000 lb of exhaust gas calculated on a dry gas basis (SC 9) and visible emissions not to exceed 20% opacity (SC 10). Stack parameters of a maximum diameter of 0.5 feet and a minimum stack height of 19.0 feet is required by SC 11. The exhaust stack was not observed. Compliance with PTI 158-80 is assumed based on observing the process operations.

Nippert and Shell Departments (a commutator finish area) with cyclone and baghouse, PTI 159-80:
This permit identifies the finishing processes as "various slotters, lathes and reamers" with a Dustkop Model 90N70P Separator and DustKop Model FH58-2 Shaker Bag Unit. The finishing processes are for steel and copper parts. The baghouse is a medium-sized unit, with two collection bins and sits on the southwest corner of the plant. The exhaust vent is horizontal and points toward the ground. There were no visible emissions from the baghouse, as seen from outside the plant. This cyclone and baghouse and the equipment they serve were relocated within the geographic site. This change appears to be exempt under Rule 285(2)(a).

A Supersheen tumbler for cleaning copper parts with corn cobb media and a sand blaster have also been added to the baghouse unit.

PTI 159-80 only has two (2) special conditions. A particulate emission limit of 0.10 lb/1000 lb of exhaust gas calculated on a dry gas basis (SC 9) and visible emissions not to exceed 20% opacity (SC 10). Since no evidence of particulate emissions was observed, compliance with PTI 159-80 is assumed.

Mica Sanding Area (a commutator finish area) with cyclone and baghouse, PTI 294-86:
The permit describes the processes here as existing shearing and machining equipment, with a Dustkop Model #90n70d-2 cyclone dust collector and associated FH58-3 Filterkop baghouse. This is a large baghouse with three collection bins, and sits on the northside. The exhaust vent is horizontal and points toward the wall. There were no visible emissions observed from the dust collector.

The permit has a particulate emission limits of 0.01 lb/1000 lb of dry exhaust gas per SC 14, and no visible emissions per SC 15 from the equipment and dust collectors. The permit requires that the equipment not be operated unless the cyclone and baghouse dust collectors in series are installed and operating properly (SC 17). The cyclone and baghouse dust collectors were installed. And, since there were no visible emissions from the exhaust vent, they appear to be operating properly. There was no evidence of particulate on the ground, so it is also assumed that disposal of air contaminants is done properly per SC 18.

Cortem Spring Area and Gehnrich electric oven, PTI 69-85:
The permit describes the Gehnrich electric oven as a Cortem spring heat treating process. The processes which form the springs from stainless steel wire with copper cladding make up the Cortem Spring area. The spring machines are exempt under Rule 285(2)(l)(vi)(B). The wire that is formed into springs may be dipped in water-soluble oil before being fed into the machines on spools. The water-soluble oil is Intricut 217 mixture with water (55 gallons/year is used total in the facility). Since these springs have a lubricant on them, they are washed in a natural gas-fired detergent/alkaline-based parts washer which is required to operate at a temperature of 120°F or higher per SC 15. The parts washer was operating at 150°F at the time of the inspection. Next, they are dried, and heat treated in the oven which was operating at a temperature of 475°F. There is a hood over the door of the oven, which ties into the exhaust stack, in case any emissions are released when the door is open. It exhausts through the plant roof. SC 17 requires that emissions from the ventilation hood be discharged to the ambient air from a stack with a maximum area of 144 square inches and a minimum height of 18 feet above ground. SC 14 requires that visible emissions not to exceed 20% opacity (6-minute average). While the height of the exhaust stack was not checked, no visible emissions were observed from any of the stacks at the facility. The heat treating process appeared to be operating in compliance with PTI 69-85.

Compound Mixing Process with two (2) Mikropul Dust Collectors, PTI 932-93:
The permit identifies this process as an "air plastic mixing process" with "two Mikropul Environmental Systems for control of dust." The process has two (2) identical sides for production of plastic pellets on one side and briquettes formed on the other. The processes include sorting screens, mixers, hoppers, and extruders.

Mixed together is dry resin, fiberglass (cropped 1/8 in. strands), filler (hydrated lime), and Kevlar (like cotton batting). It is heated and extruded into either small plastic pellets on one side of the process, or large plastic briquettes on the other side. Both sides have particulate control. The first collector is a pre-filter, which takes heavy particles out of the exhaust stream, and the second is a large cartridge filter. The air is exhausted back into the in-plant environment. The collected particulate is contained in an enclosed bin, and then passes through a rotary airlock into a sealed drum. The briquettes are formed in a machine with enough heat to form a skin. The briquetter is natural gas-fired and has an external exhaust vent. The pellets are used in plastic injection molding machines, onsite.

The permit has a particulate emission limits of 0.01 lb/1000 lb of exhaust gas per SC 15, 1.0 lb/hr and 8.2 tons per year (tpy) per SC 16, and no visible emissions per SC 17 from the plastic mixing equipment and dust

collectors. The permit requires that the plastic mixing equipment not be operated unless the baghouse dust collectors are installed and operating properly. The baghouse dust collectors were installed. And, since there was no dust haze inside of the building where the dust collectors vent, they appear to be operating properly.

HAL Area – Steel Machining:
The equipment in this room was installed around 2010 to 2011. There are seven (7) CNC lathes that use a water -soluble machining oil with filters that vent inside the building. Tool and metal processing are to the side along the wall and one (1) CNC mill is in the area. About 55 gallons per year of Cimtech 304MA metal working concentrate is used in the metal machining equipment. None of the metal machining processes vent externally. These processes appear exempt per Rule 285(2)(l)(vi)(B): Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening, or polishing ceramic artwork, leather, metals, graphite, plastics, concrete, rubber, paper board, wood, wood products, stone, glass, fiberglass, or fabric which meets any of the following: ...(B) Equipment that has emissions that are released only into the general in-plant environment.

There are two (2) small parts washers used to remove machining oils in the area where the CNC lathes sit. Parts are put into a basket which is lowered into a small tank of solvent-based cleaning solution (Crystal Clean 100+). The parts are then tumbled in the solution. The small tanks are covered when not in use. The Crystal Clean 100+ is a mixture of petroleum hydrocarbon naphthas. Approximately, 165 gallons per year of Crystal Clean 100+ is used. These processes appear exempt per Rule 281(2)(h): Cold cleaners that have an air/vapor interface of not more than 10 square feet.

There are two (2) electric ovens to bake commutators. The ovens are identified as M5 (Blue M) and A2 (Young Brothers). The mica and resin in the commutators are softened, re-pressed to tighten the part, and baked to remove the binder from the part. This is done 2 – 3 times. The ovens operate at 375°F. These processes appear exempt per Rule 282(2)(a)(i): Furnaces for heat treating or forging glass or metals, the use of that does not involve ammonia, molten materials, oil-coated parts, or oil quenching.

Copper Processing Area – Punching, Presses, Rolling Mills:
Coils of copper wire come to the plant, and the wire goes through a number of steps to be shaped and hardened. Copper parts are punched and water-soluble oils (Intricut 217 mixture, 55 gallons/year) are used in the equipment. A flattening mill flattens the copper wire, then four (4) rolling mills that use a AM 142 Solvent oil also are used to process the copper wire. Emissions, if any, would be exhausted into the in-plant environment. All copper processing appears to be exempt per Rule 285(2)(l)(vi)(B).

Tool Room:
The tooling room is where steel dies are made in order to make the commutators. Tool rooms (added in 2005) contained various metal working processes such as lathes, mills, and an electric heat treat oven. These are exhausted to the interior air and are exempt under Rule 285(2)(l)(vi)(B) and Rule 282(2)(a)(i), respectively. Five (5) grinders and a sand blast machine exhaust to a small Torit dust collector (cartridge filter) that sits outside. It is a cartridge filter that self-cleans the filters with a pulse mechanism. These appear to be exempt under Rule 285(2)(l)(vi)(A).

Injection Molding Room:
Four (4) plastic injection molding machines with portable dust collector are exempt per Rule 286(2)(b). The plastic injection molding processes were brought to Owosso from a small company which TCC purchased in Ohio. The plastic injection lines run every few months. They were not running at this time. Two (2) single cavity mold presses that operate at 350°F to 400°F are used to melt plastic resin pellets into the copper bushing and shell to form parts.

A sand blast unit (Maxi-Blast, Inc.) is in the injection molding room. It uses plastic beads to clean mold tolling and has a small dust collector that vents internally to control particulate emissions.

Molding Department:
This area has multiple electrically heated compression mold shell presses to mold plastic into the metal parts. The molding is done at 350°F to 400°F.

A Pangborn media blaster uses small aluminum shapes with sharp edges to remove excess molding plastic off the parts. Generally, this indicates issues with tooling and is not used much. It has a dust collector which exhausts into the in-plant environment, and appears exempt under Rule 285(2)(l)(vi)(B).

Refill Area:
Spent commutators are taken in and taken apart to reclaim metal. This reclamation process is done in a 3-sided booth with external exhaust. This process is operated about once a week.

Also, in this area are two (2) media blasters. They have dust collectors but do not vent externally. The larger media blaster uses steel shot and the smaller uses sand to clean parts.

A water/oil separator is on-site (not inspected) where machining oils are separated for waste and/or disposal. The water/oil separator could be exempt per Rule 285(u) Solvent distillation and antifreeze reclamation equipment that has a rated batch capacity of not more than 55 gallons.

Records:
SDS for the machining oils are attached to this report.

The following annual volatile organic compound (VOC) emissions are estimated by AQD staff from operations at TCC.

Copper Rolling – 330 gallons/year (AM 142 solvent) x 6.7 lb/gal = 2,210 lb/year (1.1 tpy)
HAL parts washers – 165 gallons/year (Crystal Clean solvent) x 6.7 lb/gal = 1,105.5 lb/year (0.55 tpy)
HAL metal working – 55 gallons/year (Cimtech 304 MA) x 0.54 lb/gal = 29.4 lb/year (0.014 tpy)
Copper Punch & Cortem – 55 gallons/year (Intricut 217) x 0.0757 lb/gal = 4.16 lb/year (0.0021 tpy)
Total VOC emissions – 3,349 lb/year (1.67 tpy)

Particulate potential to emit (PTE) from permitted processes was not estimated at this time due to lack of information in permit files. It is recommended that this be looked at in the future.

Summary:
The facility appeared to be in compliance with the applicable rules and air quality permits.

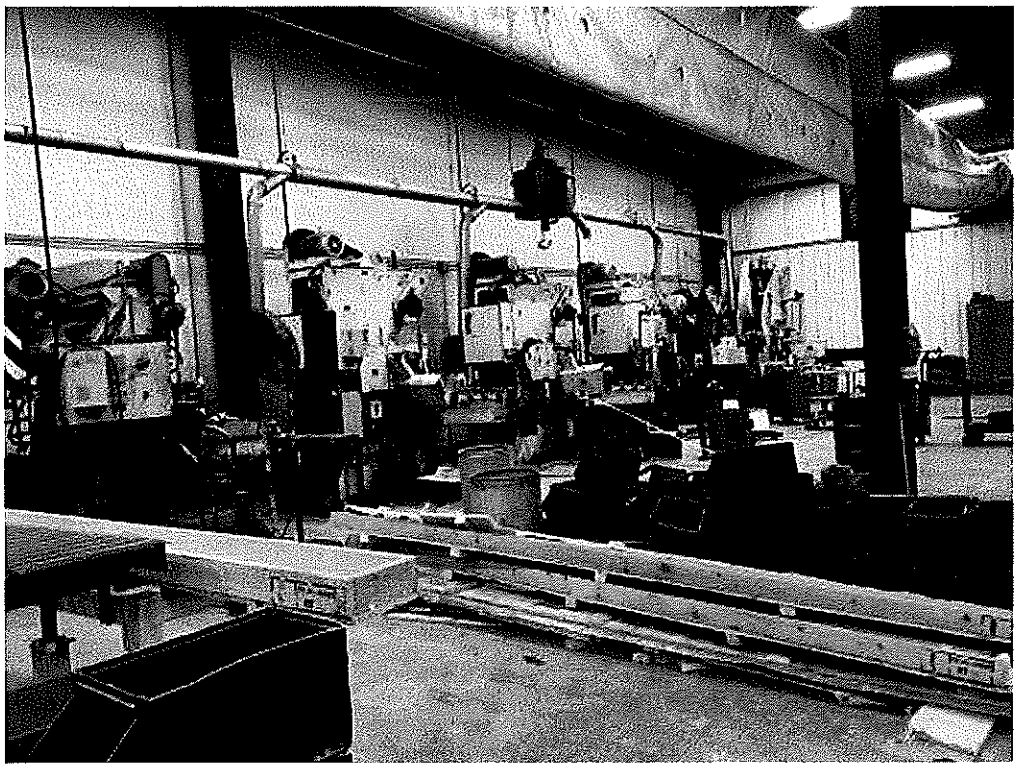

Image 1(5) : Tooling Room - grinders that vent to the exempt Torit DC

Image 2(10) : Dust work - Nippert and Shell

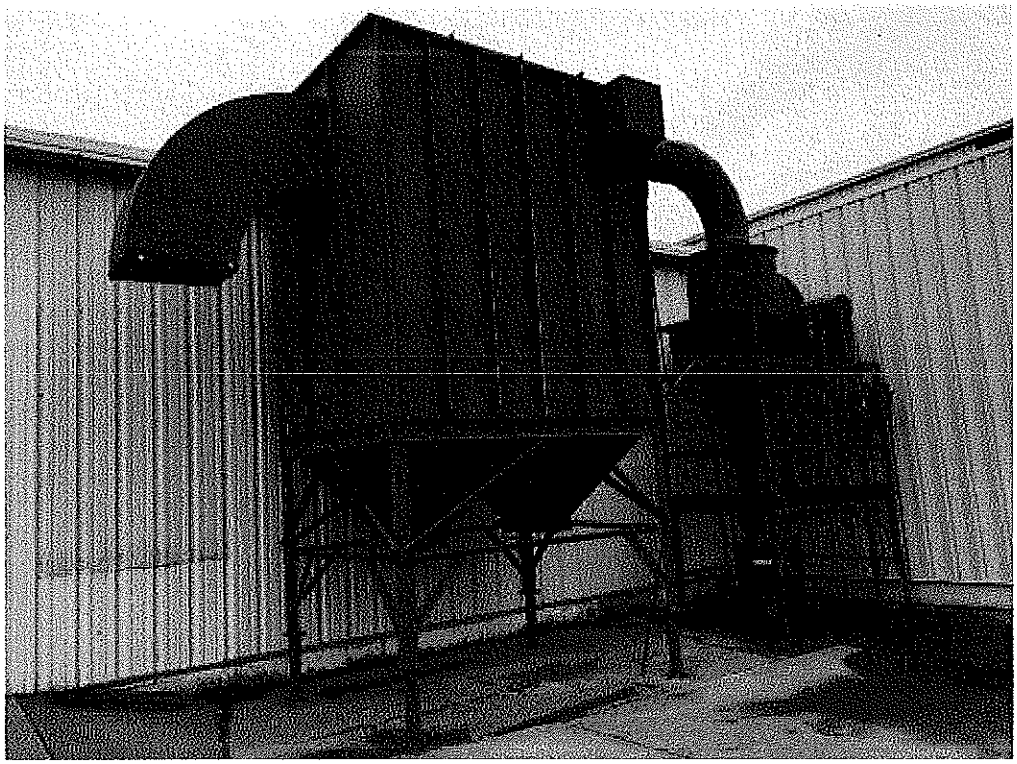

Image 3(11) : Nippert and Shell dept cyclone & baghouse

Image 4(12) : Exempt Torit controls equipment in the Tooling Room

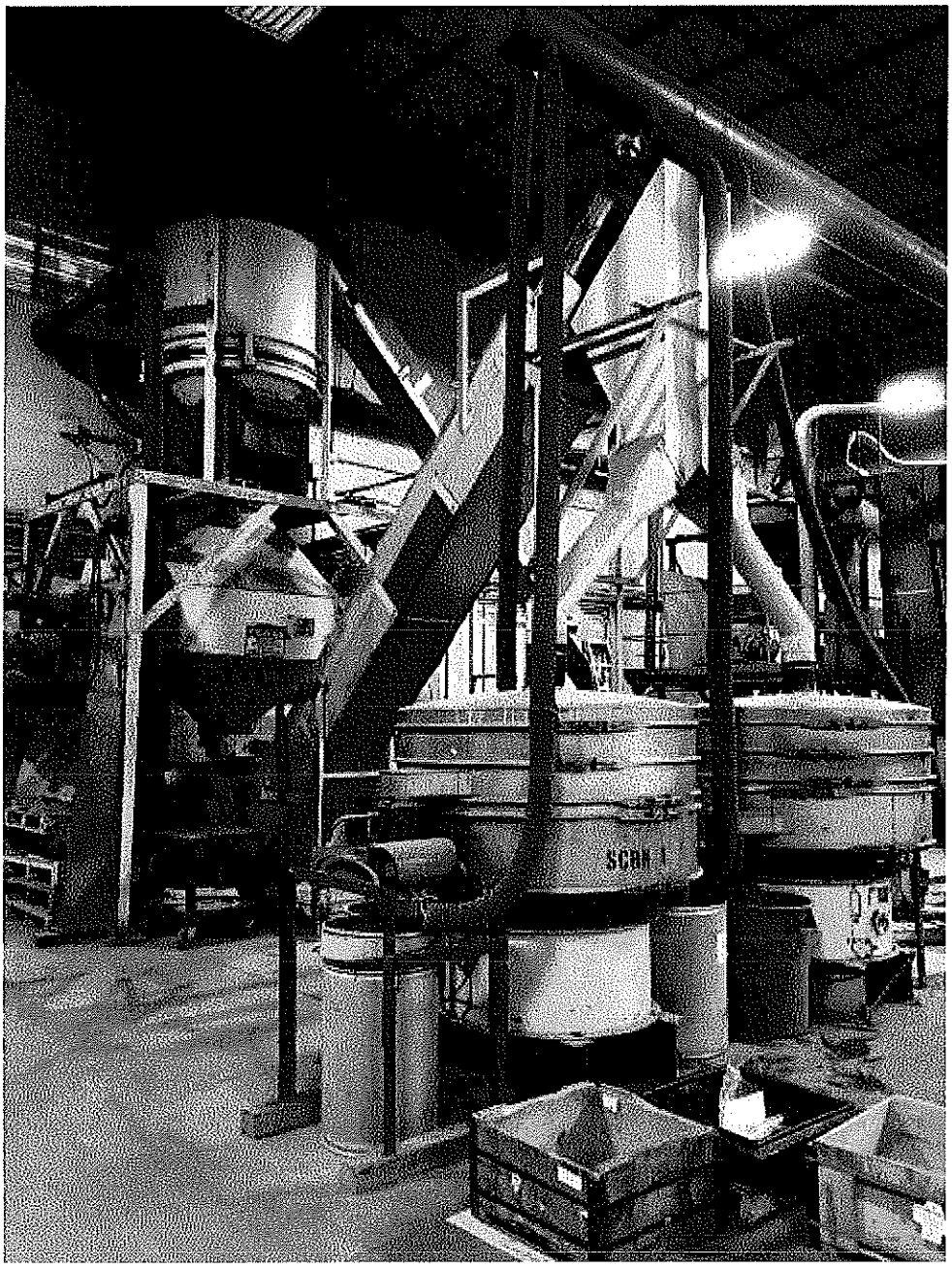

Image 5(13) : Compound mixing process - PTI 932-93

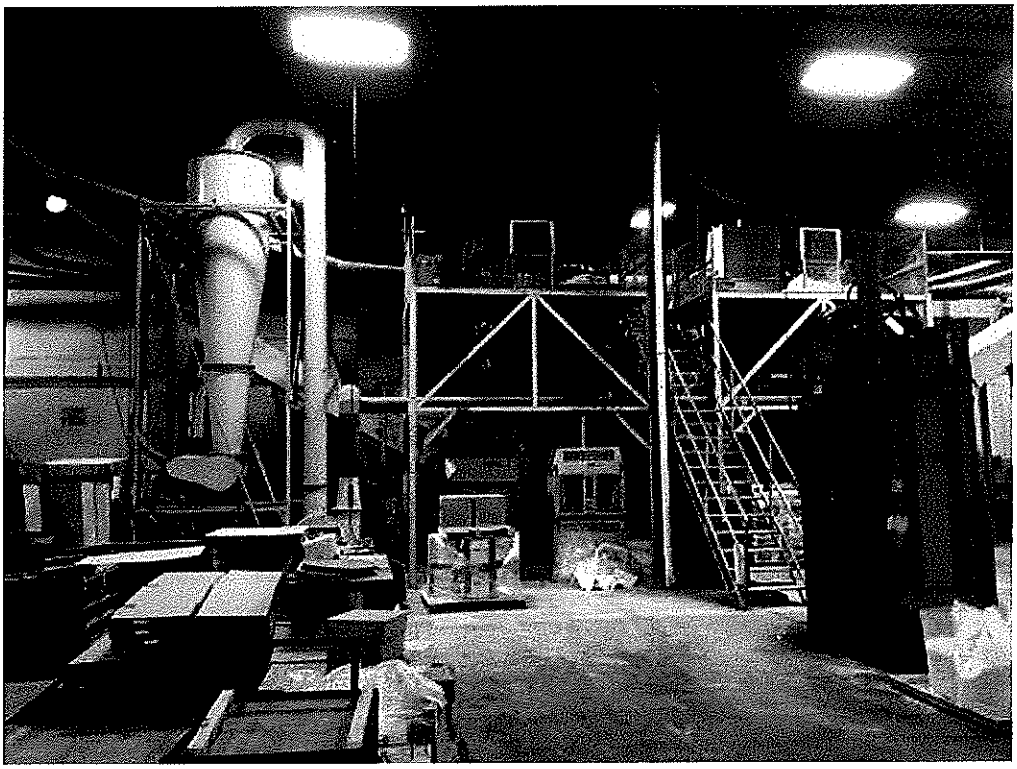

Image 6(14) : Compound mixing process (PTI 932-93)

Image 7(15) : Compound mixing process - briquetter.

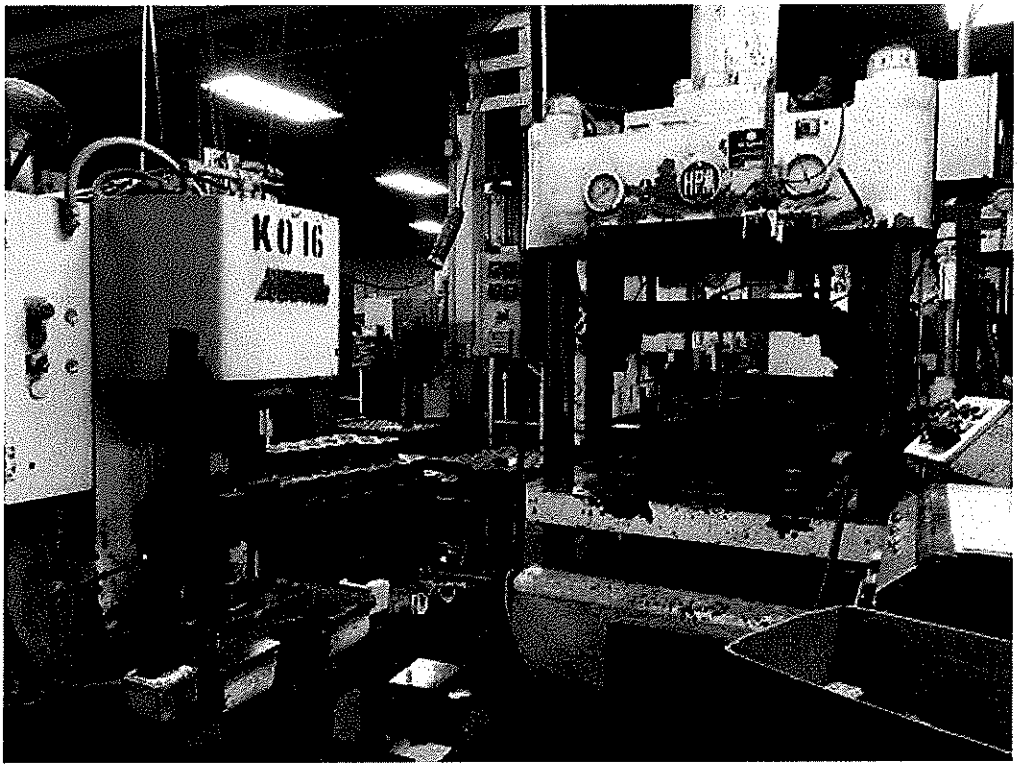

Image 8(17) : Mold press

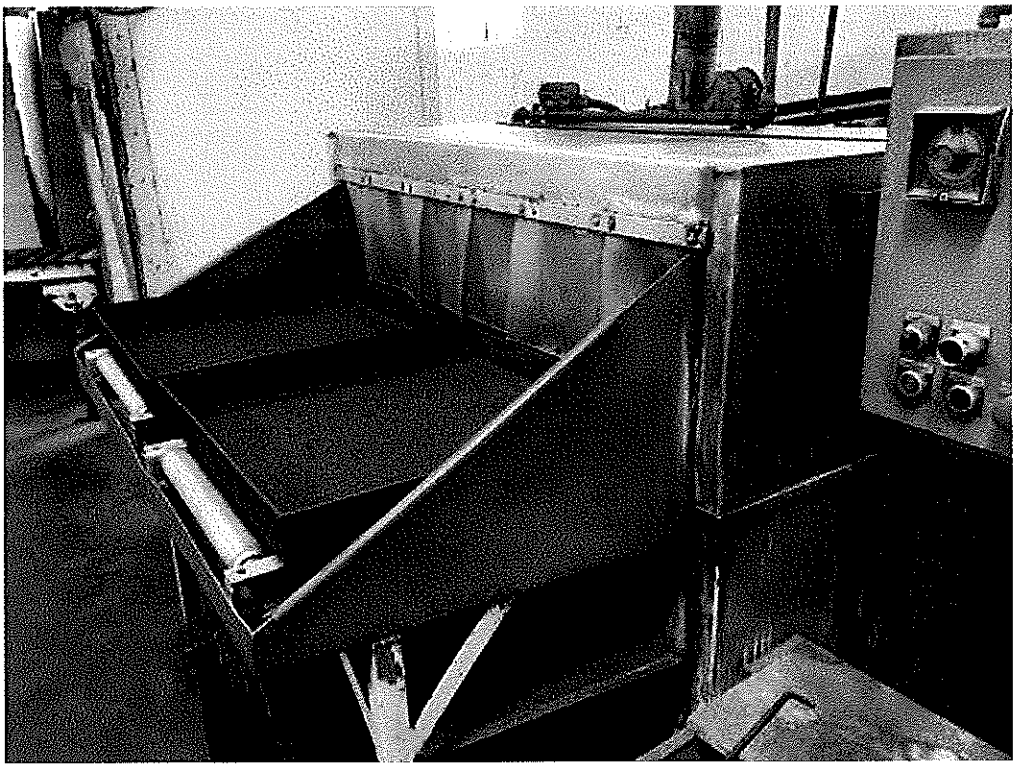

Image 9(19) : Cortem spring washer (PTI 69-85)

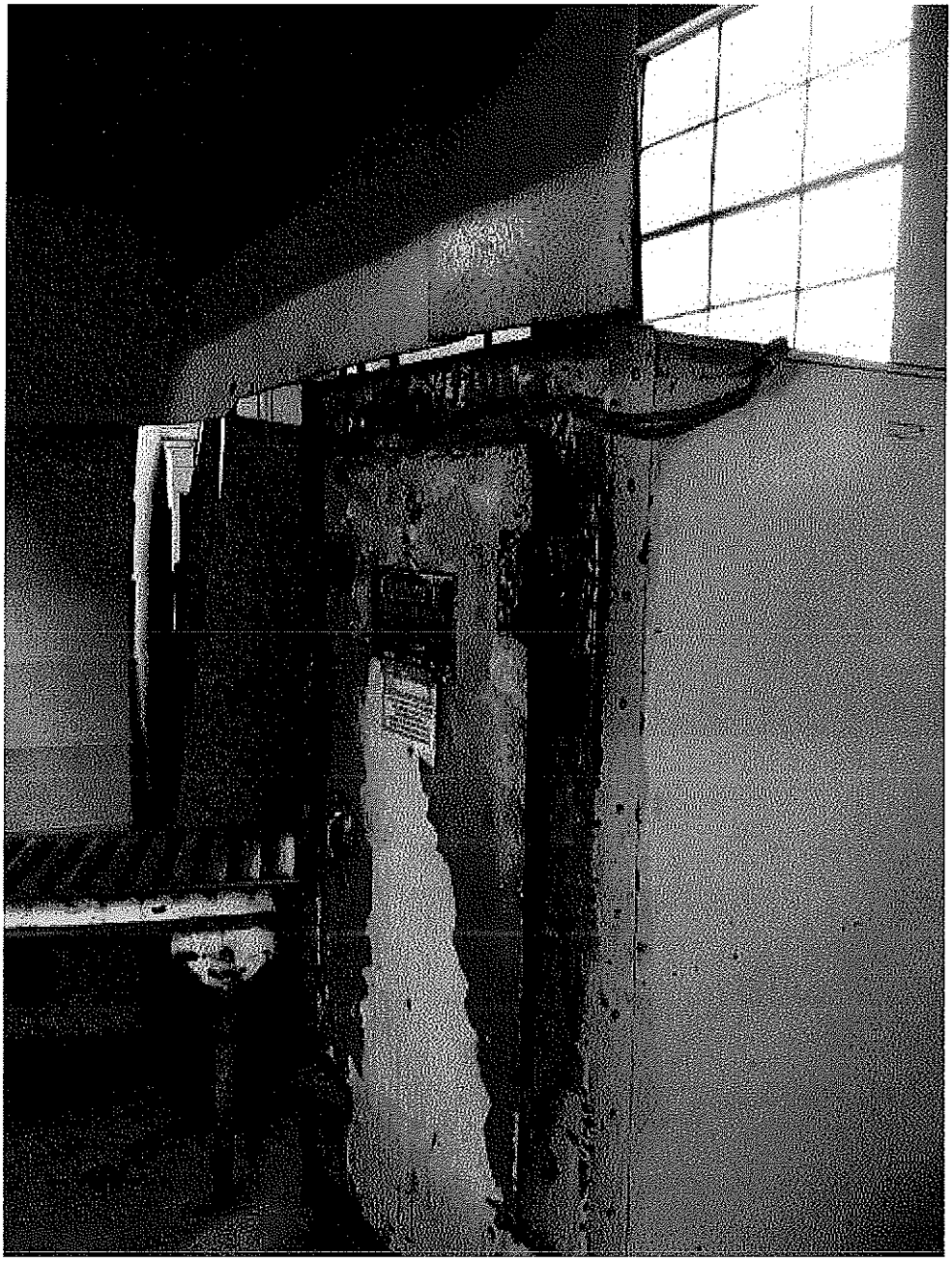

Image 10(20) : Gehnrich electric oven (PTI 69-85)

Image 11(23) : Cyclone and baghouse (PTI 157-80)

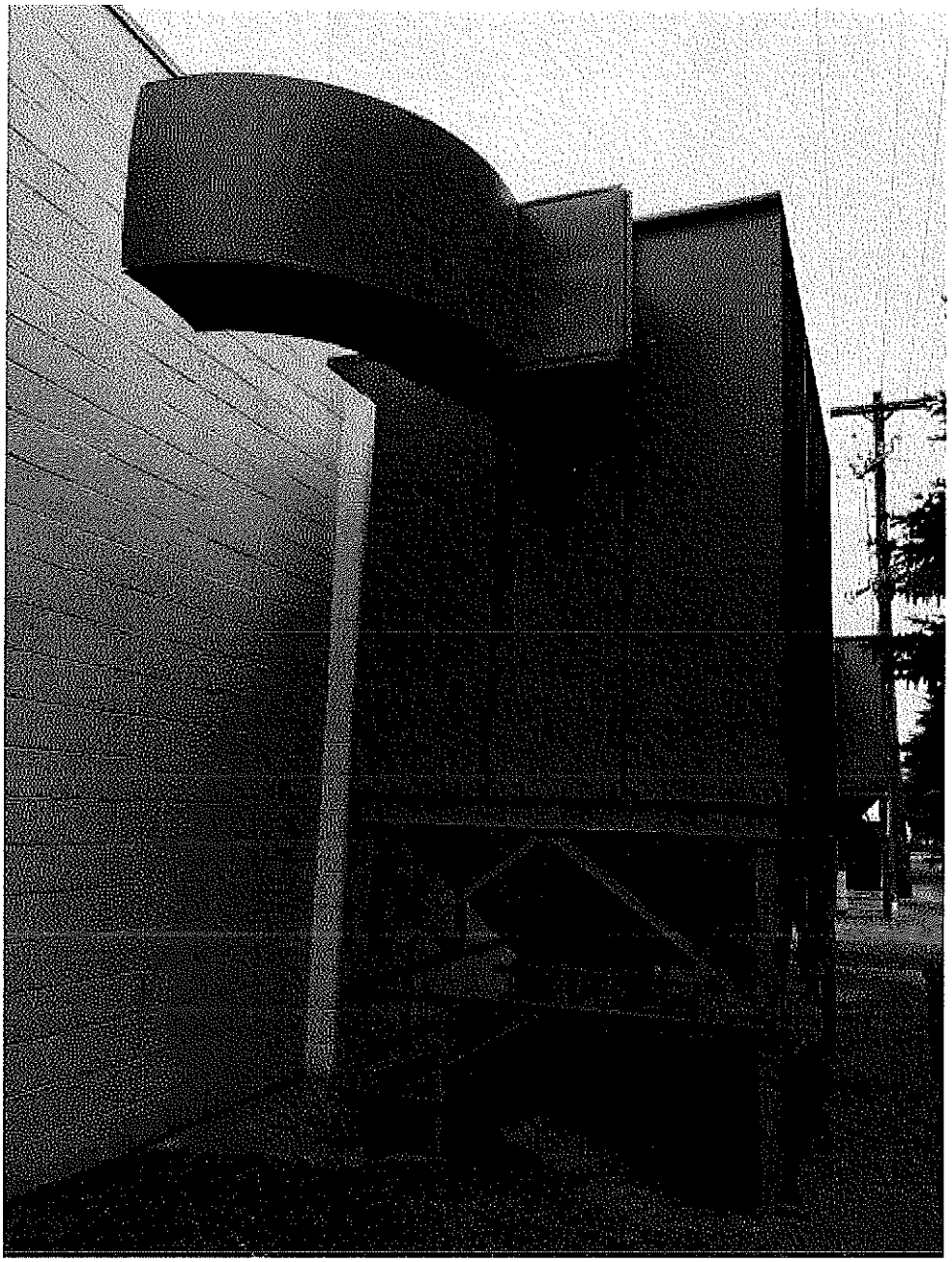

Image 12(22) : Cyclone and baghouse (PTI 294-86)

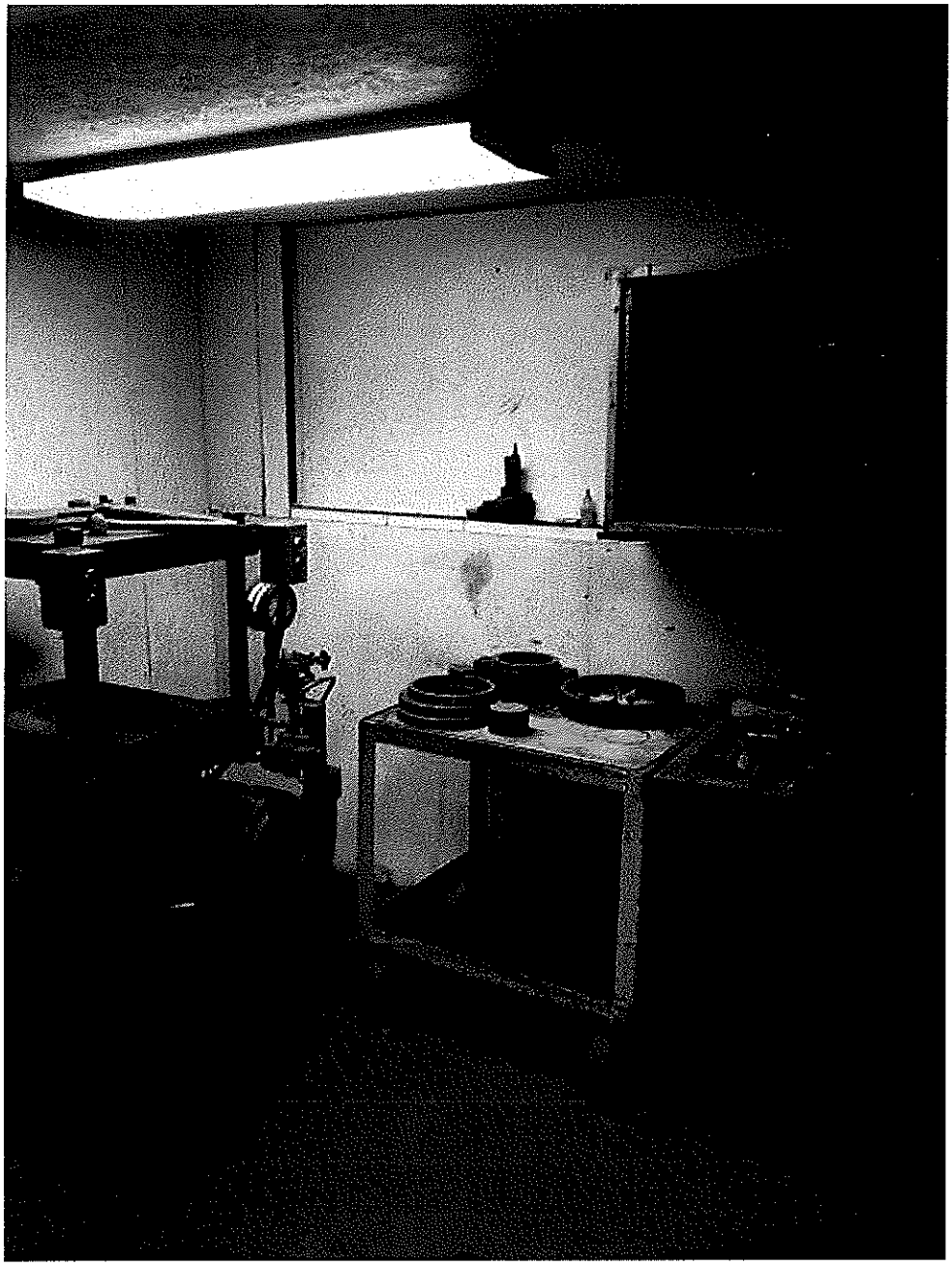

Image 13(24) : Refill area

Image 14(1) : Parts washer in HAL

Image 15(3) : HAL area

NAME Julie L. Brown DATE 3/12/18 SUPERVISOR B. M.